POSTER PRESENTATIONS

Topic: LIVER

P001

TREATMENT OF MALIGNANT LIVER TUMOURS BY CRYOTHERAPY

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The use of cryotherapy for the treatment of liver tumours has been established as a therapeutic option when resection is not possible. The aim of this study was to determine the real place of this treatment in the therapeutic strategy of liver tumours.

Methods: From Oct 1993 to Nov 1995, 63 patients (pts) have been treated by cryotherapy at our institution, either as a single treatment (Group 1-12 pts), as combined with partial resection (Group 2-28 pts) or as complementary to a complete resection with no sufficient margin of normal liver around the tumour (Group 3-23 pts). There were 13 hepatocellular carcinomas all with underlying cirrhosis, 25 metastases of colorectal cancer and 40 metastases of other malignant tumours . Mean number of tumours was 4.7 (Range 1-12) in Group 1, 4.3 (2-12) in group 2 and 3.4 (1-12) in Group 3. Mean maximum tumour size was 63.5 mm (20-130), 40 mm (10-100), and 42 mm(16-100) respectively for the same groups. We used the LCS 2000 device (Cryogenic Technology Ltd, Belper, UK) designed specifically for hepatic cryotherapy to deliver liquid nitrogen to the tip of a triple lumen probe applied under ultrasound guidance to the lesion to be frozen.

Results: There were 2 peroperative complications related to the procedure: one rupture of the tumour during the freezing process and one perforation of the liver capsule. Both complications were easily controlled by suture. Operative mortality within 2 months was 1.5 % (1/63), unrelated to cryotherapy (cardiac infarct at day 3). Serum transaminases increased post operatively in relation to the duration of cryotherapy and the number of treated lesions They normalized within 5 days. In Group 1 (Cryo alone), a reduction of tumour size was observed in 4 pts (33 %), with disappearance of a treated lesion in one case. Tumour markers were decreased in 4/5 pts with preoperative increased levels. Five pts with huge multinodular lesions died of progression of the disease from 2 to 11 months after cryotherapy. Seven pts are alive of whom 2 were subsequently submitted to hepatic resection. In Group 2 (Cryo+Resection), a reduction in cryotreated tumour size was observed in 11 pts (40%). Decreased tumor markers were demonstrated in 6 cases (22%). Three pts died at 6-12 months of local (1) and extrahepatic recurrence (2). The remaining 23 pts are alive of whom 7 with local recurrence and 7 with recurrence outside the cryotreated site .In Group 3 ("Adjuvant" cryotherapy), one patient died 2.5 months after the procedure of sepsis unrelated to cryotherapy. The remaining 9 pts alive without disease and 13 pts are alive with recurrence(1 local, 8 hepatic and 4 extrahepatic). Overall, the main determinants of recurrence following cryotherapy were maximum tumour size > 5 cm and number of lesions >3. Of 12 pts with both risk factors, 8 have currently recurred and 2 died of progressive disease.

Conclusion: Cryotherapy is a simple and safe procedure that may be useful in the treatment of unresectable malignant liver tumours and as an adjuvant to liver resection. Objective criteria of anti tumoral effects are demonstrated but need confirmation with a longer follow-up. Selection of pts should exclude all those with large multinodular tumors.

P002

REPEAT RESECTION OF LIVER METASTASIS FROM COLORECTAL CANCER.

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It is estimated that about 60% of patients submitted to hepatic resection of metastasis from colorectal cancer will present a recurrence. This recurrence is limited to the liver in about 30% of cases. Repeat hepatectomy has been used increasingly in relation to the low mortality and morbidity of hepatic resection. However, the risk of these repeat hepatectomies, their long-term results as well as the rationale for patient selection need to be clarified. For these purpose, we have analysed over a period of 12 years (1983-1984) the result of 57 rehepatectomies performed in 44 patients with hepatic metastasis from colorecal cancer (2 hepatectomies : 44, 3 hepatectomies : 10; 4 heatectomies : 3). These repeat hepatectomies represented 19,5% of the 282 liver resections performed during the same period for the same indication. The time interval between first and second hepatectomies was over 1 year in 23 patients (52%). Extra hepatic disease was associated to hepatic recurrence in 11 patients (25%). Major hepatectomy (>3 segments) was performed in 50% of first resections, 36% of second resections, and only 15% of third and forth resections. There was no post operative mortality within two months. Per operative bleeding was not increased as compared to that of first resections. Post operative morbidity was 11% (6/55) comparable to that of first resections. Overall survival after repeat resection was 44% at 5 years with no difference related to Dukes classification of initial colorectal tumor, to synchronous versus metachronous metastasis or to local versus distant hepatic recurrence. Conclusion: Repeat resection of liver metastasis from colorectal cancer allows a long-term survival at least equal to that of first resection with no mortality and comparable morbidity. This policy is warranted when repeat hepatectomy is potentially curative.

P003

CIRCADIAN VARIATIONS OF THE PREVALENCE OF ACUTE VARICEAL BLEEDING IN CIRRHOSIS.

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The pathogenesis of variceal rupture is not well understood. Risk factors include increasing size of varices, red signs at endoscopy, severity of liver disease and increase portal pressure. Circadian variations of variceal haemorrage have been reported but are still uncompletly documented. In this study, a total of 193 episods of gastrointestinal bleeding in cirrhotic patients with portal hypertention have been reprospectively analysed. Were excluded from the study all the bleeding episodes unrelated to a variceal rupture, those with a timing not clearly documented and those revealed by a maelena since their diagnosis may be differed as compared to the real time of bleeding. Were included in the study 33 variceal ruptures presenting with hematemesis and diagnosed by emergency upper gastrointestinal endoscopy. There were 25 males and 8 females with alcoholic cirrhosis (n=23, 70%), virus related cirrhosis (n=9, 27%), or biliary cirrhosiS (n=1, 3%), Child B in 12 cases (36%) and Child C in 21 cases (64%). The 24 hour-scale was divided in 6 periods of 4 hours each.

Results: The frequency of variceal bleeding was 33% (11/33) between 5.00 and 9.00, 9% (3/33) between 9.00 and 13.00 h, 0% between 13.00 and 17.00 h, 48% (16/33) between 17.00 and 21.00, 3% (1/33) between 21.00 and 1.00 and 6% (2/33) between 1.00 and 5.00. The 2 periods of higher prevalence were compared to all the other periods in terms of severity of bleeding with the following results :

	Gr 1 (5-9h)	Gr 2 (17-21h)	G3 (other)	p
No. Bleeding	11 (33%)	16 (48%)	6(18%)	<0.05
Blood units	9.1±8.9	6.2±6.5	3.5±3.2	NS
Rebledding	5 (45%)	4 (25%)	1 (17%)	NS
Hospital Death	4 (36%)	5 (31%)	1(17%)	NS

Conclusion: There are circadian variations of the frequency of variceal bleeding in the cirrhotic patient with 2 peaks at the beginning and the end of the night, possibly related to known circadian variations of portal pressure. These variations should be considered to optimize drug therapy during the periods of higher prevalence of bleeding.

P004

PREVALENCE OF CHOLELITHIASIS IN CIRRHOSIS.

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The aim of this study is to investigate the prevalence of cholelithiasis in cirrhotic patients (cp) and factors affect this.This is interesting, because there is increace prevalence of Hbs Ag in Greek popular (8-10%). We studied 79(cp), 64 M and 15 F, mean age 63,13 years (38-82). There were 43 patients with alcoholic, 26 HBV(+), 7 HCV(+), 2 autoimmune and 1 alcoholic and HBV(+) cirrhosis. Cholecystomised patients weren't included in study. We investigated factors such as age, sex, aetiology of cirrhosis, ascites, hypersplenism, coexistence of diabetes melitous (DM), heamolysis and Child system and their correlation with prevalence of cholelithiasis in (cp). We researched prevalence of lithiasis in a control group of 100 hospitalized non-cirrhotic patients (mean age 61,8 years,80M and 20F). Cirrhosis was confirmed with biopsy and cholelithiasis was checked by ultrasound. We used X2 - test, Yates and ANOVA test for statistical analysis.

There were 29, 26 and 14 (cp) as Child A,B,C, respectively. Cholelithiasis was found 39% (31 pts, 24 Mand 7 F) in (cp) versus 16% in control group (p=0,0000). Prevalence of lithiasis in cirrhotic females was 47% versus 37,5% in males (pNs)and in (cp) with age <55 years was 63%, versus 8,3% in patients with same age in control group (p=0,000). 44,5%, 16,6%, 64%, was prevalence of lithiasis in alcoholic, HBV(+) and HCV(+) cirrhosis respectively.Lithiasis was found in 68%, 87% and 84% in ascites, hypersplenism annd heamolysis respectively, versus 45% (p=0,03), 58% (p=0,01) and 70% (p=0,03) in (cp) with no ascites,hypersplenism and hemolysis respectively. Lithiasis was found 55% in child A, 16,6% in child B (p=0,000) and 64% in child C.Finanlly lithiasis was 70% in (cp) with (DM), versus 34% in (cp) with no (DM)(p=0,0000).

In conclusion prevalence of cholelithiasis is twice more freqnency in (cp) than non- cp and is correlated with coexistence of ascites,heamolysis, hypersplenism and (DM).It is more frequently in patients <55 years ,while it has low rate in (cp) child B.

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P005

IN VITRO ASSESSMENT OF THE UPTAKE OF LIPIODOL BY LIVER TUMOURS; IS IT A MECHANISM SPECIFIC TO LIPIODOL ?

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Lipiodol, an iodinated ethyl ester derivative of poppy seed oil has been shown to be taken up and retained selectively by primary and some metastatic liver cancers, following intra-arterial injection into the hepatic artery. The mechanism of uptake and retention of Lipiodol is unknown. The uptake and retention of Lipiodol, constituent and non-constituent fatty acids by primary and colorectal hepatic metastases in tissue cultures was assessed using electron microscopy and computer assisted image analysis following silver nitrate impregnation staining.

Cultures of Hep-G2 (human hepatocellular carcinoma cell line), LoVo (colorectal cancer cell line) and SW620 (colorectal metastatic cancer cell line) were studied. A control non-malignant cell line was used in the form of HUVEC (human umbilical vein endothelial cells). The cultures were exposed to Lipiodol (concentrations of 1%, 2% & 4%) for variable duration (3, 6, 12, 24, 48 & 72 hours). Electron microscopy revealed evidence of uptake of Lipiodol by pinocytosis, as early as three hours of exposure. Membrane-bound cytoplasmic vesicles of lipid particles were seen in all the cell lines (malignant and non-malignant). However, at 48 & 72 hours of exposure, Lipiodol vesicles were seen inside the nuclei of Hep-G2 cancer cells alone, suggestive of incorporation during cell mitosis.

The uptake of Lipiodol by the these cell lines was compared to the uptake of 2% solutions of Linoleic acid, Iodinated Linoleic acid, Oleic acid, Palmitic acid, Stearic acid, Docosahexanoic acid and Eicosapentanoic acid. All cell lines demonstrated uptake of all fatty acids, in a similar fashion as that of Lipiodol. The uptake of Linoleic acid and oleic acid in the Hep-G2 cell line was much faster than that of Lipiodol, with intra-nuclear incorporation as early as 12 hours.

This study indicates that the uptake and retention of Lipiodol is not a phenomenon specific to Lipiodol. All cell lines showed cytoplasmic incorporation of Lipiodol and other fatty acids in the form of membrane-bound vesicles. However, only Hep-G2 showed intra-nuclear incorporation of Lipiodol and all the other fatty acids, a specific phenomenon to human hepatocellular carcinoma cells.

P006

QUANTIFICATION OF UPTAKE AND RETENTION OF IODISED OIL (LIPIODOL) IN PRIMARY AND SECONDARY HEPATIC MALIGNANCY

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Intra-arterial iodised oil, Lipiodol, which is differentially taken up and retained by an unknown mechanism in primary and metastatic liver tumours may be used as a therapeutic vehicle for adjuvant therapy. Uptake and retention of Lipiodol by hepatic constituents was assessed in vitro. Human hepatocytes, HUVEC (human umbilical vein endothelial cells), Hep-G2 (hepatoma), SW620 (colo-rectal metastatic cancer), LoVo (colo-rectal hepatic cancer) and U-937 (histiocytic lymphoma) cell lines under standard tissue culture conditions were evaluated over 48 hours. Intracellular uptake of Lipiodol was assessed by computer-assisted image analysis of selective silver nitrate (Ag_2NO_3) impregnation staining and electron microscopy.

Quantification of Lipiodol uptake by Image Analysis (Integrated Optical Density in arbitrary units) n=12

2% Lipiodol	Hepatocyte	HUVEC	Hep-G2	SW620	LoVo	U-937
6 hours	86.5	115.2	81.8	66	46.6	99.7
12 hours	92.3	121.7	89.5	76.2	59.4	145.2
24 hours	81.2	156.3	121.2	97.4	74.6	136.1
48 hours	65.3	119.7	139	128.7	75.2	114.4
Control	9.9	10.5	11.9	12.6	14.8	18.9

Hepatocytes, HUVEC and U-937 cells demonstrated rapid uptake with subsequent decline suggesting metabolism or excretion. Hep-G2 showed rapid and sustained uptake. Comparative uptake by SW620 and LoVo was 15% and 40% lower respectively. Electron microscopy demonstrated cytoplasmic incorporation of Lipiodol in the form of membrane-bound vesicles in all the cell lines, with intra-nuclear incorporation in Hep-G2 alone.

These results may explain the early clearance of iodised oil from the normal liver and the preferential uptake and retention by hepatocellular carcinoma compared to hepatic colo-rectal metastases. This suggests its therapeutic use in metastatic disease may be limited by unsuitable tumour specific pharmacokinetics.

P007

THE EFFECT OF UROGRAFIN ON THE PARTICLE SIZE AND THE UPTAKE OF LIPIODOL IN TARGETED THERAPY FOR HEPATO-CELLULAR CARCINOMA (HCC)

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Lipiodol, an iodinated ethyl ester derivative of poppy seed oil, has been used in targeted therapy for primary and some metastatic hepatic cancers. Lipiodol is insoluble in water, and Urografin (diatrizoate) is used clinically to emulsify Lipiodol prior to its intra-arterial injection. The effect of Urografin in combination with Lipiodol was assessed in tissue cultures of Hep-G2 (hepatoma) cell line. The cell cultures were exposed to 2% Lipiodol alone and 2% of Lipiodol with 2% Urografin for variable duration (3, 6, 12, 24, 48 and 72 hours). The uptake and retention of Lipiodol was assessed using computer-assisted image analysis. The size of the Lipiodol particles were measured after 2 minutes agitation of the oil suspensions with culture media.

Mean Number of Particles per field [n=6] (+/- SD)

	< 10 μ	10-25 μ	25-50 μ	50-100 μ	>100 μ	Total
2% Lipiodol	890 (101)	110 (38)	17 (3)	4 (1)	4 (1)	1,025
2% Lipiodol/ Urografin	575 (73)	220 (56)	21(4)	7 (2)	8 (2)	831

The mean size of the Lipiodol particles when combined with Urografin was considerably larger than that of Lipiodol alone, with a reciprocal reduction in the number of Particles.

Quantification of Lipiodol uptake by image analysis (Optical Density arbitrary units) n=10

	3 hours	6 hours	12 hours	24 hours	48 hours	72 hours
2% Lipiodol	52.2	91.4	92.4	131.2	139	142
2% Lip.+ Urografin	49.4	59.8	68.8	89.8	115.4	128

The addition of Urografin to Lipiodol resulted in a significant delay in the uptake of Lipiodol by the cancer cells in vitro. A similar phenomenon in vivo may interfere with the delivery of Lipiodol-targeted therapy for these tumours. The continued use of Urografin to emulsify Lipiodol in clinical practice requires further evaluation.

P008

RESECTION AND CRYORESECTION OF LIVER TUMOUR

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Surgical treatment of liver tumour of different genesis attracts much attention of surgeons.It depends both on positive results of the treatment and on a number of advantages in comparison with the transplantation of the organ.
We operated 108 patients with different liver tumours.All of them were made liver resection of different volume,including 33 malignant tumours,75 innocent ones.56 liver resection of hemangioma,19 resection of adenoma. 33 liver resections of malignant tumours of different volume were made with 6 lethal outcome.56 resections with hemangioma without deats,19 resections with adenoma with 1 death.Original methods elaborated in the clinic were esed in resections.
52 liver resections were made with cryotechnique(23 liver resections,29 cryodestructions of liver stump after resections).Advantages of cryooperations:decrement of haemorrhage, ablastous operations, prophylaxis of the recidivation of the illness.An original operation of hemangioma was elaborated - ligation of tumour nutrient vessels and tumour cryodestruction.
Liver resection operations of malignant and innocent tumours work well at once and in the distant future.Cryotechnique decreases haemorrhage in operations,increases ablastation and prevents from the recidivation of the illness.

P009

PARTIAL SPLENIC EMBOLIZATION FOR PATIENTS WITH BILIARY ATRESIA DEVELOPS A HYPERSPLENISM

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Partial splenic embolization (PSE) has been used as a palliative treatment for hypersplenism in adults and children. However, there has been no previous report of its use for treatment of jaundice. The purpose of this study was to investigate the utility of PSE for jaundice in patients with biliary atresia who developed hypersplenism.

PSE was performed in eight patients with biliary atresia who developed hypersplenism following Kasai procedure. Seven of them had lost complete jaundice with Kasai procedure, but became icteric thereafter. Jaundice remained unchanged in the initial postoperative period in the last patient but subsequently worsened. White blood cell, platelet, and red blood cell counts, hematocrit, serum hemoglobin, and serum concentration of glutamic oxaloacetic transaminase (GOT), glutamic pyruvic transaminase (GPT), alkaline phosphatase, lactic dehydrogenase, albumin, and total bilirubin were evaluated 1 month prior to PSE and 1, 2, 3, 6, 9, 12, 18, and 24 months following PSE.

Total bilirubin decreased in all patients following PSE from 8.6 ± 3.6 mg/dL to 3.0 ± 1.0 mg/dL. This change took place within 3 months of PSE, and correlated with an increase in the red blood cell count.

PSE is a useful method for reducing serum bilirubin concentrations in patients with hypersplenism following Kasai procedure for biliary atresia.

P010

STOMA IMPAIRS LIVER FUNCTION IN PATIENTS WITH BILIARY ATRESIA

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Thirty-two patients with biliary atresia who had had hepatic portoenterostomy with stoma were studied for liver function (SGOT, SGPT, g-GTP, ALP, and total bilirubin), cholangitis, and stoma bleeding both before and after closure of the stoma.

Liver enzymes improved significantly within 1 month after closure of the stoma. These enzymes at 1 month prior to stoma closure *versus* 1 month following closure were as follows (mean ± SE): SGOT, 144 ± 13 to 99 ± 9 IU/dL ($p<0.01$); SGPT, 147 ± 14 to 88 ± 8 IU/dL ($p<0.01$); g-GTP, 322 ± 46 to 201 ± 25 IU/dL ($p<0.01$); ALP, 1272 ± 124 to 1037 ± 111 IU/dL ($p<0.01$). They remained low thereafter. The total bilirubin concentration was the only liver function test which did not change significantly following closure. Cholangitis was observed in 20 patients (62.5 %), and major hemorrhage from the stoma site was seen in 14 patients (43.8 %) prior to closure.

We conclude that an external conduit in patients with biliary atresia dose not prevent cholangitis, causes bleeding from the stoma site and impair 5 liver function.

P011

HEPATIC ARTERIAL INFUSION CHEMOTHERAPY FOR RESECTED LIVER IN COLORECTAL CANCER METASTASES

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INTRODUCTION; Recently hepatectomy of liver metastases in colorectal cancer improved the survival for the patients of colorectal cancer. However the rate of recurrence in remaining liver is still high , suggesting that potential metastases might exsist in the other parts of the liver even after the apparent metastasis was resected. So the survival time of the patients in colorectal cancer with liver metastases is not sufficiently good. We report the results of hepatic infusion chemotherapy after hepatectomy of liver metastases in colorectal cancer.

MATERIAL AND METHOD; Since January 1985 we have performed 59 cases of hepatic resection for hepatic metastases from colorectal cancer. The cases were divided into two groups: Hepatic Arterial Infusion (HAI) group which included 32 cases (regimen : 5-FU 167mg/m2/day for 14 days I.A → 5-FU 334-500mg/m2/week intermittently,one shot or 3 hours), and non-HAI group consisting of 27 cases (regimen : 5-FU 200mg orally, 5-FU 250mg /week I.V or non therapy) .We analyzed the differences of two group in the back ground,the the survival rate and complications. Survival curve were established using the Kaplan-Meier method,and these results were analyzed by generalizd Wilcoxon and Logrank test. We also investigated DNA histogram pattern and nuclear DNA-protein contents.

RESULTS; The 1-year survival rate was 90.1% in the HAI group and 51.2 % in the non-HAI group, the 3-year survival was 58.7% and 33.4%, while the 5-year survival was 25.6% and 17.5% respectively. The results in the HAI group were significantly better than in the non-HAI group. Hepatic resection combined with arterial infusion chemotherapy can be effective treatment for hepatic metastasis from colorectal cancer.

P012

THE EXPERIENCES OF RECONSTRUCTION OF HEPATIC VEIN IN THE LIVER RESECTION

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In order to maintain liver function after the the liver resection it is very important to preserve the remnant liver function by the decrease of resection volume of liver. When the liver tumor invades into main vessele such as hepatic vein, portal veini and nferior vena cava, the resection and reconstruction of these vessles must be necessary to achive this purpose. We report two cases which were performed the reconstruction of hepatic vein.

Case 1. 67 year-old-male was admitted to the hospital because of hepatic recurrence after gastrectomy for gastric cancer. Liver tumor was located in the S8 and about 7cm diameter in size and it invaded into right hepatic vein. Tumorectomy with the reconstruction of hepatic vein was performed. In the reconstruction the autograft (right external iliac vein) was used. In 5days after surgery liver function developed to normal range.

Case 2. 55 year-old-male was admitted to the hospital because of hepatic tumor. Tumor was located in the S2~4 with invasion into middle hepatic vein. And extended left lobectomy with the reconstruction (right external iliac vein) was performed. During the reconstruction we used heparin coated tube for bypass from middle hepatic vein (distal site) to the inferior vena cava.

P013

A NEW TECHNIQUE OF ONE STAGE TOTAL HEPATECTOMY IN THE RAT

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This technique is described to perform a total (100%) hepatectomy in the rat, in a single stage with the preservation of the venous return from splanchnic and lower caval regions during the unhepatic phase.A Y-shaped cavo-renal venous graft (the infrahepatic inferior vena cava (IVC) till iliac bifurcation and the left renal vein (LRV) till renal pelvis) was harvested from a donor rat.The polyethylene cuffs were applied to the proximal ends of infrahepatic IVC and LRV of the venous graft.In totally hepatectomised rat, porto-renal and lower cavo-caval anastomoses were performed by cuff technique, and the upper cavo-caval anastomose by running sutures.This one-stage procedure, with a mean operating time of 40±5 minutes was not associated with operative mortality and the portal clamping time did not exceed 15 minutes.Spontaneous mean survival of the unhepatic rats was 360±30 minutes, and glucose supplemented animals had a mean survival time of 20±5 hours.The anhepatic state was associated with significant metabolic and biochemical alterations (rapid decrease of glycemia and increases of SGOT, SGPT, LDH, NH3).This practical and time-saving procedure does not require considerable microsurgical expertize and utilizes a natural vein graft with neither porto-caval shunt nor artificial vascular prothesis.The model is particularly useful for metabolic studies in unhepatic rats.

P014

TIPS AS A SALVAGE TREATMENT FOR UNCONTROLLED VARICEAL BLEEDING IN CIRRHOTIC PATIENTS.

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Patients who continue to bleed despite standart treatment including sclerotherapy have a poor prognosis with a mortality rate of up to 90%. TIPS has been used as salvage therapy for ruptured oesophageal varices refractory to all conventional treatment. During a period of 3 years, 65 cases of variceal rupture in cirrhotic patients were treated at our center and a salvage TIPS was performed in 15 patients (23%) for active uncontrolled haemorrhage despite standart medical and endoscopic treatment (Child A, 2; B, 1; C, 12). The procedure was technically successful in all cases and haemorrhage was controlled in 11/15 cases (73%). Three patients died of persistant bleeding and liver failure; one case of moderate and persistant haemorrhage was controlled by transfusions until bleeding ceased. This patient was transplanted 3 months after TIPS and is alive 3.5 years later. Two patients had early recurrence of haemorrhage due to TIPS thrombosis. These 2 cases of thrombosis were desobstructed but both patients died of liver failure despite bleeding control. Overall, 7 patients died within 60 days of TIPS by haemorrhage and/or liver failure. One patient died of liver failure 7 months after TIPS following surgery for aortic aneuvrism. None of the 8 survivors after 60 days had bleeding recurrence or encephalopathy. Actuarial survival was 42.7 ± 14% at 1 and 2 years. TIPS is currently the alternative of choice for pesistant bleeding refractory to standart management. However despite control of haemorrhage, operative mortality remains high due to the underlying severe cirrhosis.

P015

VALUE OF THE TRANSJUGULAR ROUTE FOR EARLY LIVER GRAFT BIOPSY (TJLB)

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Whereas liver graft biopsy remains the gold standart for the diagnosis of acute rejection, conventional percutaneous liver graft biopsy in the early period following liver transplantation (LT) may be impossible due to coagulopathy and/or ascites. The feasibility of performing transjugular liver graft biopsy (TJLB) in this setting has been evaluated. From 1991 to 1995, 124 TJLB were performed when biopsy was necessary within 30 days after LT (mean=10, range 4 to 27 days). Indications for this technique included at least one of the following: thrombocytopenia (<70.000), prothrombin time <60% of normal and clinical ascites. The 124 TJLB included 106 (85%) procedures without the native inferior vena cava (IVC) and 18 (15%) with the native IVC intact after LT. There were 109 (88%) TJLB with sufficient biopsy material for definitive diagnosis, of which 97/106 (92%) did not have preservation of the IVC versus those 11/18 (61%) with the native IVC intact ($p<0.05$). There was no associated morbidity or mortality from the procedure. A definitive diagnosis of acute rejection was obtained with 68 (62%) biopsies, diagnosis of functional cholestasis with another 25 (23%) and 16 (15%) various other diagnoses. TJLB was a contributing factor in ascertaining the diagnosis of acute rejection with 46/68 (68%) patients with rejection, and with 2 of these patients TJLB was used as the main criteria for emergency re-transplantation for hyperacute rejection. The treatment was unaffected by biopsy results in 20/68 cases of mild or moderate rejection. In the remaining 41 patients, the biopsy aided in altering therapy for 4 (10%), of which 2 had CMV hepatitis and 2 had emergency re-transplantation for liver graft steatosis and necrosis. In conclusion, early TJLB is feasible and safe in the early period after LT and it is easier to perform after the native retrohepatic IVC has been removed. TJLB impacts both diagnosis and management by alleviating inadequate and potentially deleterious anti-rejection therapy and aids modification of therapy when rejection has not been confirmed.

P016

LIVER RESECTION IN THE ELDERLY PATIENT

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The outcome of liver resection in patients over 75 years, in a series of 76 consecutive elective resections for benign and malignant hepatic tumours is analysed.

Aims. To analyse the effectiveness of hepatic resection in the elderly compared with the general population.

Methods. During a period of two years 76 consecutive elective hepatic resections for tumours were performed at the Hammersmith Hospital. The study included 11 patients in the elderly group (EG; age > 75 years) and 65 patients in the younger group (YG; age < 75 years). In all cases the liver resection was performed with the scalpel, whereas 72 % of cases were done under total vascular exclusion. Data was collected prospectively. The blood loss, amount of blood products transfusion, morbidity and mortality were recorded. The preoperative clinical features (cirrhosis, Child's classification and liver function) were comparable in the two groups. The chi-square and Student-Fisher t tests were used as appropriate.

Results. In 72 % a major surgical procedure was performed. Time of total vascular exclusion of the liver was 29 ± 2.8 minutes in the EG vs 31.6 ± 13.2 in the YG (n.s). Intraoperative blood loss was 1 438 ± 507 mL in the EG vs 1770 ± 199 mL in the YG (n.s.). Total operative time was 5.2 ± 0.5 h in the EG vs 6.3 ± 2.1 h in the YG (n.s.). There were no statistical differences in morbidity and mortality between the two groups. Major complications developed in 4 elderly patients (36.4 %) and 22 younger patients (33.8 %). Three patients died during the first 30 days after surgery (3.9 %), one in the EG and two in the YG. There were 2 late deaths (2.6 %) during the hospital stay, one in each group.

Conclusions. The outcome of liver resection in the elderly group was satisfactory when compared with that in the younger group.

P017

HEMOBILIA AFTER LIVER TRANSPLANTATION

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Hemobilia is an uncommon but serious complication in patients undergoing liver transplant. Its clasical form of presentation is jaundice, upper right abdominal pain and gastrointestinal bleeding but in transplanted patients can show other clinical presentations as recurrent cholangitis, masive haemorrhage or liver function tests alteration.

Case 1: A 52 years old man transplanted for C virus chirrosis. On 8th posttransplant month presented hepatic abscesses located in left hepatic lobe that were treated with percutaneous drainage. A month later showed fever, jaundice, liver function tests alteration, melena and progressive anemization. Ultrasound doppler evidenced abscesses in left hepatic lobe and a cystic lesion with pulse flow. CT scan and arteriography demonstrated a pseudoaneurism in left hepatic lobe. The patient underwent a left hepatectomy and is now asimptomatic 13 months after transplantation.

Case 2: A 65 years old man that underwent liver transplantation for virus C chirrosis. The day after transplantation presented elevated level of serum bilirrubin, alkaline phosphatase and gamma glutamyl transpeptidase. The prothrombine time was normal. A Doppler flow study did not find any abnormality but cholangiography through the T tube showed intrabiliary clotting. An attempt of desobstruction with intrabiliary injection of urokinase failed. Then a biliary lavage and hepaticoyeyunostomy was performed improving the liver function. The patient had an uneventful postoperative course and continues to do well 1 year after liver transplantation, with slight abnormalities in liver function tests.

Hemobilia is often associated to hepatic trauma or liver biopsy in more than a half of the cases. The most common pathologic alterations found are pseudoaneurisms and arteriovenous or arteriobiliary fistula. Biliary hemorrhage can be observed in transplanted patients with severe coagulopathy due to primary non function or severe ischemic graft damage. The treatment of hemobilia in liver allografts depends on the cause of the hemorrhage, location of the bleeding source and time of diagnosis. Biliary lavage can be useful when hemobilia is discovered in the postoperative period after liver transplantation. For peripheral and well localized lesions liver resection is the prefered treatment. Finally, the arterial embolization can be a valuable form of therapy for lesions with central location, where resection is difficult or impossible. In these cases retransplantion should be contempled.

P018

CAROLI'S DISEASE. THE EVOLUTION OF THE SURGICAL MANAGEMENT

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Caroli's disease in an uncommon malformation characterized by multifocal cystic dilatation of intrahepatic biliary ducts. Since the first clinical description by Caroli in 1958, fewer than 250 cases have been reported and of these 20% were monolobar.

Between 1980 and 1995, ten patients with Caroli's disease were treated. The diagnosis was confirmed by ultrasound and CT scan. Endoscopic retrograde cholangiography and percutaneous transhepatic cholangiography were used to delineate the biliary affectation. Liver biopsy was available in five patients

Five patients of Caroli's disease were confined to the left lobe. Four patients had associated hepatic fibrosis with portal hypertension. Other associated lesions were; hepatolithiasis (5 patients), and choledochal cyst (1 patient).

The five patients with monolobar affectation underwent liver resection; left hepatectomy (4) and left sectorectomy (1). Hepaticojejunostomy was carried out in three patients with diffuse affectation, all performed before 1990. 1 patient required liver transplantation. Five of the six patients who required partial hepatectomy or total liver resection with liver transplantation are alive. 1 patient died of secondary biliary cirrhosis two years after left hepatectomy. Two of the three patients who underwent biliary derivation died of sepsis and renal amylodosis, 5 and 2 years after surgery, respectively. 1 patient died of biliary sepsis after endoscopic retrograde cholangiography before the surgical treatment.

We conclude that partial liver resection shoul be considered as the treatment of choice in patients with monolobar Caroli's disease. Liver transplantation must be a safe surgical procedure that could be particularly indicated in symptomatic patients with bilobar affectation, specially when hepatic fibrosis and portal hypertension is present. Hepaticojejunal anastomosis is the therapeutic solution every time hepatic resection cannot be performed

P019

DE NOVO HBV AND HCV INFECTIONS AFTER LIVER TRANSPLANTATION

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INTRODUCTION. HBV and HCV infections often recur after liver transplantation (OLT). However, the incidence, timing and the clinical behaviour of infections acquired with OLT have not been widely investigated. Aim of the study was to evaluate the incidence of *de novo* HBV and HCV infections in a group of liver transplant recipients with long-term follow-up, their biochemical and clinical evolution, the usefulness of serological assays for diagnosis. The virological and clinical course of patients with HBV-HCV coinfection was also investigated. **PATIENTS AND METHODS.** One hundred twenty-one patients transplanted at our institution between 1986 and 1994, with a follow-up $\geq$ 6 months, entered the study. HBV and HDV serological patterns were determined using commercial tests. For diagnosis of HCV infection, anti-HCV were evaluated with an ELISA and a RIBA assay. HCV-RNA was detected by PCR. **RESULTS.** Three patients became HBsAg positive after OLT. All of them showed signs of viral replication (HBeAg and HBV-DNA reactive), but ALT levels raised only in one case. Twelve patients became anti-HCV positive at different time intervals from OLT. Passively acquired anti-HCV appeared in all cases within few days from OLT. After clearance of passive antibodies, active anti-HCV seroconversion was usually delayed, with the new generation RIBA assay showing better results than the RIBA II assay. Three patients were repeatedly HCV-RNA negative despite persistent anti-HCV reactivity: all of them were HBsAg positive pre- and post-OLT. The viral genome was detected in 9 patients, even though most of them were not persistently HCV-RNA positive during their follow-up. Four pre-OLT HBsAg positive patients were found HBsAg positive after transplant. The remaining 8/12 patients, including 3 cases HBsAg positive pre-OLT who cleared after OLT, experienced repeated ALT increases >2xN, after 138,8 $\pm$ 82,0 p.o. days (range: 26-234): ALT levels spontaneosly returned to normal values within 6 months in one case, while remained >2xN longer than 6 months in the others. **CONCLUSIONS.** *De novo* infections due to primary hepatotropic viruses were frequently observed after OLT. Early diagnosis of viral infection, in particular when the HCV is involved, may be problematic in these cases and should be taken into account when persistent abnormalities of ALT levels are observed. Monitoring of seric viral markers and accurate evaluation of biopsy specimen is mandatory. The interference between HBV and HCV might play a role in the replicative cycle of one or both viruses in coinfected patients. Accurate anti-HCV screening of blood and organ donors should reduce in the future the incidence of *de novo* viral infections after OLT.

P020

INVASIVE METHODS OF EXAMINATION OF PATIENTS WITH OPISTHORCHIASIS

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The Ob-Irtishsky region of Opisthorchiasis is the biggest in the world. The morphological picture of the liver has been studied only in experimental animals and the data of pathologists. 101 patients with chronic opisthorchiasis accompanied by the liver enlargement aged between 18 and 66 years were examined. The duration of opisthorchiasis invasion in half the cases was more than 10 years Invasive methods of examination (laparoscopy with targeted biopsy of the liver in 6 cases, "blind" transcutaneous biopsy of the liver in 30 pts) were performed following a thorough clinical examination and biochemical, immunological, ultrasonic, radioisotopic methods. At laparoscopy liver enlargement, reddish colouring of the organ and hardening of the consistency were revealed in all cases. Two patients had linear thickening of the liver capsule and single cholangioectasis. Liver-gallbladder adhesions were found in 2 other pts. Morphological examination of the liver was carried out in 36 cases. Most frequently we observed chronic persistent hepatitis-25 pts (69,4%), lobular hepatitis - 8 pts (22,2%), chronic active hepatitis-3pts (8,4%). The character of the liver lesion depended on the duration and intensity of invasion, presence of additional hepatotropic factors, patient's immunity. The peculiarity of the liver lesion in the infection is morphological signs of cholangitis and cholestasis

P021

COMPARISON OF A TISSUE OXYGEN ELECTRODE WITH LASER DOPPLER FLOWMETER FOR ASSESSING ORGAN PERFUSION: RESULTS IN AN ANIMAL MODEL

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Accurate information on organ perfusion is essential for assessment of organ function following transplantation. A parenchymal oxygen electrode (Clark electrode) has not previously been compared with laser doppler flowmeter (LDF).

Method: 4 anaesthetized ventilated pigs had a Clark electrode inserted into the liver parenchyma and 2 surface LDF probes placed on the liver soon after opening the abdomen. Ligatures were placed around the hepatic artery and portal vein. Sequential readings of the Clark electrode (pO_2), and LDF signal were taken on occlusion of hepatic artery (OHA), portal vein (OPV), and both vessels (OALL). The data for LDF and the Clark electrode are expressed as a % of the mean before clamping +/- SE, and analyzed using a paired Student's T Test.

Results: The Clark electrode value on OHA, OPV, and OALL were respectively: 75.9% +/- 16.9 ($P < 0.03$), 57.2% +/- 10.4 ($P < 0.001$) and 55.6% +/- 8.82 ($P < 0.001$). The LDF results on OHA, OPV, and OALL were respectively: 73.2% +/- 41 ($P < 0.15$), 65.5% +/- 27.4 ($P < 0.02$), and 50.1% +/-42 ($P < 0.004$).

Conclusion: Following OHA the pO_2 fell significantly, and continued on OPV and OALL. In contrast the LDF showed no significant fall on OHA, but significantly fell on OPV and OALL. The Clark electrode may be a useful method of assessing liver perfusion and reflects flow measurements on laser doppler.

P022

INTROFLEXION AS A METHOD OF CAVITY MANAGEMENT IN SURGERY FOR HYDATID DISEASE

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Introflection is a method used for the residual cavity management in surgery for hepatic hydatidosis. The experience of our unit was reviewed to evaluate the safety and efficacy of this method.

Introflection was used in 162 of 495 hepatic hydatidosis patients operated in our unit between 1978 and 1995. Eighty-two patients were female and 80 were male with an average age of 38 years (7-71 years). Sixty-two percent of the patients had solitary cysts, while 18% had two, and 20% three or more cysts. The cysts were located in the right lobe of the liver in 59% of the patients, in the left lobe in 19% and were bilobar in 22%. Lesion size ranged from 3 to 30 cm. Biliary communications were found in 47 patients and common bile duct exploration was performed in 27 of them. T-drainage was performed in 10 patients, choledochoduodenostomy in 11, primary closure in five and sphincteroplasty in one. In the remaining 20 patients, biliary communications were sutured only.

One patient was reexplored for intraabdominal bleeding and died on the second postoperative day (0.6 %). Biliary fistulas developed in five patients (3.7 %), of whom three closed spontaneously. The other two patients were successfully treated by endoscopic papillotomy. Abcess formation in the cavity occurred in two patients (1.2 %) and was treated surgically. Six patients (3.7 %) had wound infections and six (3.7 %) had pulmonary complications. Average hospital stay was 11 days (4-35). Four recurrences (10.2 %) were observed among the 39 patients whom were followed for a median period of 36 months (7-132 months).

In conclusion, introflection is an efficient cavity management method in hepatic hydatidosis surgery.

P023

INTRA-OPERATIVE ULTRASONOGRAPHY DURING SURGERY FOR MALIGNANT TUMORS OF THE LIVER

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Intra-operative ultrasonography (IOUS) of the liver was carried out in 68 pts undergoing surgery for malignant hepatic tumors (11 hepatocellular carcinomas in cirrhotic pts and 57 metastases from digestive tumors), to implement the information obtained in pre-operative investigations and to guide the surgical procedure. The liver was scanned at the beginning of the procedure, after complete division of hepatic legaments, with a 7,5 MHz probe. In 11 pts the examination disclosed pre-operatively undetected liver tumors. In 27 pts neoplastic lesions were more accurately located in the hepatic segments, modifying the evidences of pre-operative imaging techniques. In 21 pts further intra-parenchimal lesions of benign nature (12 simple cysts, 5 hemangiomas, 3 lipoid skip areas, 1 necrotic nodule) were detected and localized. Dimensions of lesions recognized with IOUS ranged between 2 and 24 mm in diameter. In 9 pts IOUS determined relevant changes in the planned surgical procedure: 6 of these pts were submitted to more extensive resections. IOUS showed high sensitivity in detection of liver neoplasms, allowed accurate definition of the lesions and of their relationships with vascoloductal structures, thus contributing significantly to the success of surgical resection.

P024

COAGULATION DISORDERS AFTER ISOLATED HYPERTHERMIC LIVER PERFUSION WITH MITOMYCIN C

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Systemic toxicity is limiting cancer chemotherapy. The isolated hyperthermic liver perfusion with Mitomycin C is therefore an alternative strategy in the treatment of liver metastasis(1). From February 1995 to September 1995 6 patients were selected who had irresectable hepatic metastases. Informed consent was obtained from all patients. After isolation the liver was perfused for 60 minutes with a 41°C heated Mitomycin C-Solution (20mg Mitomycin C/m^2BS). A veno-venous bypass prevented haemodynamic disturbances during anhepatic period. Use of heparine, anhepatic phase and Mitomycic C therapy can be the cause of coagulation disorders during this proceeding. We evaluated coagulation parameters at the beginning of surgery(a),10 min before(b), 10 min after(c) starting mitomycin perfusion, 10 min before(d) end of perfusion, 10(e) and 60min(f) after perfusion and 1 h after arriving on ICU.

	Quick (%)	PTT (sec)	Fibrinogen (g/l)	Platelets (Tsd/ul)	AT III (%)	F II (%)	F V (%)
a	79±7,9	41±5,4	3±1,4	175±56,8	82,8±7,3	94±9,9	93±14
b	72±15,3	39±5,7	2,7±1,1	169±54,3	65,4±10,2	76±14	79±18
c	11±11,1	197±7,8	2±0,7	152±49,8	57,7±10,1	57±16	32±17
d	12±15,2	196±8,5	2,1±0,7	187±46,6	59,2±12,8	62±18	44±13
e	24±13,8	181±40	2,1±1,1	160±56,3	65±5,2	55±18	36±13
f	39±22,6	137±83	2,2±0,1	144±80,8	62±2,6	69±23	39±13
g	38±24,4	117±66	2,2±0,5	108±80,2	64,5±5,1	71±10	40±14

All patients got 4-6 units fresh frozen plasma. Protamine was given in one case to neutralize heparine.In all other cases PTT and Quick -test did not return to normal during observation period. Signs of intravascular coagulation (Platelets:27Tsd/ul; Fibrinogen: 0,1g/l; Quick:4%) without severe bleeding was seen in one patient after reperfusion. Substitution with fresh frozen plasma returned coagulation to normal in this patient. The course of the other patients was not complicated by coagulation disorders. Thus hyperthermia in combination with Mitomycin C seems not to induce severe coagulation disorders.

Lit.: 1.:Marinelli A.,et all. A comparative study of isolated liver perfusion versus hepatic artery infusion with mitomycin C in rats. Br.J.Cancer (1990),62,891-896

P025

EXPERIENCE OF 100 EMBOLIZATIONS OF SPLENIC ARTERY IN LIVER CIRRHOSIS AND PORTAL HYPERTENSION

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The hyperdynamic state of splenic flow is considered to be responsible for the development of portal hypertension in liver cirrhosis. The aim of the study was to evaluate results of 100 embolizations of splenic artery (ESA) in 92 cirrhotic patients (Child-Pugh A-20, B-37, C-35). All of them had symptomatic hypersplenism, 86 had esophageal varices, 32 had previous hemorrhage, 67 had refractory ascites, 28 had episodes of encephalopathy. ESA consisted in simultaneous insertion of steel coil and 10-15 synthetic emboli. Hemodynamics was measured using duplex system and direct portomanometry. Patient follow-up ranged from 6 to 60 months. Remote results were considered to be satisfactory in the absence of esophageal rebleedings and encephalopathy, complete absorption or improvement of ascites and correction of hypersplenism. Early correction of hypersplenism was universal. Splenic infarction developed in 45 patients but resolved within 2 weeks. Splenectomy for subtotal abscess was performed twice. There was no mortality. Within 3 months ESA was repeated in 8 cases for recurrence of hypersplenism due to arterial recanalization. Early twofold reduction of splenic flow resulted in the decrease of portal flow and portal pressure to about 75% of pre-existing values, and increase of hepatic arterial flow to 50%. Results of remote investigations were similar to postoperative data. During the follow-up 12 patients died of liver failure. On the whole, satisfactory results were obtained in 65% of patients. Thus, ESA is effective mini-invasive procedure, that shows favourable influence on the course of liver cirrhosis and portal hypertension.

P026

SURGICAL TREATMENT OF NON-COLORECTAL HEPATIC METASTASES: LONG-TERM RESULTS

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We have rewieved our experience with hepatic resections for non-colorectal and non-neuroendocrine hepatic metastases in order to evaluate short- and long-term survival. From January 1984 to December 1994 we performed 27 hepatic resections in 24 patients. Sixteen were females and 8 males with a mean age of 57 years (range: 28-73). The sites of primary tumor were: the breast (4), the stomach (3), the exocrine pancreas (4), the leiomyosarcoma of intestine (3), unknow primary (2), the kidney (2), the papilla of Vater (2), the uterus (1), the adrenal (1), the ovary (1) and the small bowel (1). There were 11 synchronous and 13 metachronous lesions. Resection was curative in 71% of cases. The operative procedure consisted of 12 major hepatectomies, 8 mono- or bisegmentectomies and 7 non-anatomical resections. Twelve patients (50%) were not transfused. No operative mortality (60 days) occurred. Morbidity was seen in 5 cases (18.5%): pneumonia (3), subphrenic collection (1) and pancreatic fistula (1). The mean postoperative hospital stay was 14 days (range:8-33). Actuarial survival rate (Kaplan-Meier method) at 1,3 and 5 years was 65%, 28% and 18.7% respectively. Five patients are alive and tumor free at 10,11,16,19 and 70 months from operation.
The mean of survival of patients with non-resected hepatic metastastes from non-colorectal, non-neuroendocrine tumors is less than 8 months. However, because most patients die from the disease with or without surgical treatment, the goal of resection should be clearly defined, whether palliating specific symptoms or attempting to lenghten the survival time. In conclusion: an aggressive surgical approach in the treatment of metastatis disease to the liver offers a chance for long-term survival and significant palliation in selected patients on condition that hepatic resection can be performed with a reasonable risk.

P027

FACTORS AFFECTING LONG-TERM OUTCOME AFTER HEPATIC RESECTION FOR HEPATOCELLULAR CARCINOMA IN CIRRHOTIC PATIENTS.

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The aim of this study was to identify the preoperative variables correlated to postoperative long-term survival in 125 cirrhotics who underwent hepatic resection for hepatocellular carcinoma (HCC) between January 1984 and December 1994. There were 20 women and 105 men. Mean age was 63 years (range: 26-78). 90 patients belonged to Pugh's A class and 39 to classes B-C. 129 hepatic resections were carried out on 125 patients (4 were resected twice). 22 were major hepatic resections, 86 mono- or bisegmentectomies and 21 were non-anatomical resections. Survival was calculated using the method of Kaplan-Meier. Survival estimates were compared using the log-rank test. Survival estimates for the following variables were calculated: sex, age, ethiology of the cirrhosis, symptoms, esophageal varices, ascites, Pugh's class, macroscopic growth pattern (solitary versus multiple), site of HCC, red blood cells, white blood cells, platelets, bilirubin serum level, AST, ALT, GGT, ALP, prothrombin time, II and V coagulation factors, albumin, calcium, CEA and α-fetoprotein serum level, Hepatitis B surface antigen and antibody, Hepatitis C surface antibody. Cox's regression model was used to determine the significance of the variables in a multivariate analysis. Operative mortality (60 days) was 6.9% (9 patients). Morbidity was 24% (32 patients). Actuarial survival rate at 1, 3 and 5 years was 72.5%, 47% and 34.2% respectively. In this series, Pugh's class, age, α-fetoprotein serum level, Hepatitis B serum antigen and prothrombin time was found to be the single most important predictor of survival. In a multivariate analysis model the significant factor affecting survival were: Pugh's class, age, site of HCC, AST, ALT, GGT, α-fetoprotein serum level and HCV.
One third of patients resected for HCC can be expected to survive long-term. Pugh's class and α-fetoprotein serum level predicted long-term outcome.

P028

EXCISIONAL TREATMENT OF LIVER CAVERNOUS HEMANGIOMAS: WHEN AND WHICH?.

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While the role of surgical treatment of cavernous hemangiomas remains the subject of debate,current indications for surgical resection include rapid enlargement, abdominal pain,potential for traumatic rupture and uncertainty of diagnosis.In a 6 year period we have treated 21 patients carrying these tumors;the female/male ratio was 3:1 and the mean age 54 years old.The diagnosis of cavernous hemangioma was retained if the tumor demonstrated at least in one of the radiological examinations:ultrasonography(US),computed tomography(CT),angiography and magnetic resonance imaging(MRI)and were not modified in terms of size,structure or number at the 6 and 12 months US follow-up evaluation or at microscopic examination of the resected specimen.Fourteen patients were not operated on and had a mean diameter of 4.7cm(2.5 to 6 cm).Seven patients with 8 hemangiomas were resected,the mean diameter was 12.9cm(7 a 22 cm) and fullfilled criteria for surgical intervention. The 30-day mortality was 0%.All patients remain symptoms free and without pathological findings at US yearly examination.
Conclusions 1)Most patients with liver cavernous hemangiomas are asymptomatic and do not require surgical treatment.2)Excisional treatment is indicated when there is:persistent abdominal pain,exposure for potential traumatic rupture or uncetainty of diagnosis.3)Enucleation when possible, is a safe alternative to resection for treatment of these tumors.

P029

SPECIAL TROCAR AND NEGATIVE PRESSURE SUCTION APPARATUS IN THE SURGICAL TREATMENT OF LIVER HYDATIC CYST.

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One of the problems in the surgical treatment of huge hydatic cysts is the possibility of spillage of hydatic membranes and liquid to the abdominal cavity. We propose the use of a great trocar attached to a negative pressure suction apparatus to avoid this problem.
MATERIAL AND METHODS. Supported by the results of a prospective study of 40 patients operated on by a thoracophrenolaparotomy by superior edge of ten rib (TPL10) and an open total or partial pericystectomy, we show in the pictures a modified trocar of Dermileau attached to a negative pressure suction apparatus that allowed a sudden aspiration of the cyst.
RESULTS. A total of 65 cysts from 10 to 30 centimeters of size were present in the 40 patients. All cysts were aspirated with the negative pressure suction apparatus in.few seconds. There were not spillage of the hydatic membranes and liquid in any case. There were not morbidity due to the use of the negative pressure suction apparatus. The six years follow-up was normal in all cases.
CONCLUSIONS. The use of the trocar attached to the negative pressure suction apparatus seem to be a effective procedure to avoid spillage of hydatic cyst

P030

TOWARD SIMPLIFICATION OF SURGICAL MANAGEMENT OF HYDATID DISEASE OF THE LIVER. RESULTS OF A MONOCENTRIC COMPARATIVE STUDY.

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The authors compared two series of patients operated for hydatid cyst of the liver in the same surgical department: 48 patients treated between 1980 and 1985 (group 1) and 38 treated between 1990 and 1995 (group 2). Main differences were pointed out as follows:Fifty per cent of the patients of group 1 were from northern africa, versus 31% in group 2 ($p < 0,1$). Arteriography was performed preoperatively in 73% of the patients of group 1, versus 13% in group 2 ($p < 0,001$). Thoraco abdominal incision was used in 31% of the patients of group 1, whereas in none of group 2 ($p < 0,001$). Intra operative cholangiography was a routine investigation in group 1, and was only performed in 32% of the patients of group 2 ($p < 0,001$). Total cystopericystectomy was attempted in 33% of the patients of group 1, versus 53% in group 2 ($p < 0,1$), including six formal liver resections. External T-tube biliary drainage was placed in 85% of the patients of group 1, versus 32% in group 2 ($p < 0,001$). Duration of post operative hospital stay was 29 +/- 12 days in group 1, versus 17 +/- 11 days in group 2 ($p < 0,001$).These results suggest that total cystopericystectomy through abdominal approach, without routine drainage of the main biliary duct, improves the outcome of surgery for hydatid disease of the liver.

P031

THE SENSITIVITY TO ANOXIC INJURY IS INCREASED IN HEPATOCYTES ISOLATED FROM RAT FATTY LIVER.

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Livers with steatosis moderate to severe are usually refused as donor organs for orthotopic liver transplantation (OLT) because their use is a major cause of primary non-function (PNF). Clinical observations suggest that the tolerance of steatotic livers to ischemia-reperfusion injury is reduced. Thus, the aim of this study was to determine whether rat hepatocytes isolated from fatty or non-fatty livers have a different sensitivity to anoxia-reoxygenation injury.

Rats were divided into two groups and fed modified ethanol/liquid and control/liquid Lieber-De Carli diets for 8 weeks. Light microscopy showed that >85% of the hepatocytes from alcohol-fed rats contained fatty vacuoles. Isolated hepatocytes were cast in agarose gel threads and exposed to: a) continuous aerobic perfusion, or b) continuous anoxia, or c) 2 h anoxia followed by 1 h reoxygenation. Cell injury was assessed by LDH release and cell viability by trypan blue (TB) exclusion. O_2^- formation was detected by lucigenin-enhanced chemiluminescence (LCL).

No differences were observed during the control period: LDH release was 25±2 and 27±4 mU/min, viability was 85±1 and 86±1%, LCL was 4±1 and 5±1 nA in the fatty and non-fatty hepatocyte groups, respectively. These parameters remained stable for 3 h of aerobic perfusion in either group. In contrast, fatty hepatocytes died much faster than control hepatocytes when exposed to anoxia: after 3 h of anaerobic perfusion viability was 17±11 vs 60±4% ($p<0.001$) in the fatty and non-fatty hepatocyte groups, respectively. After reoxygenation following 2 h of anoxia, the increase in LCL was similar in the two groups (65±7 vs 78±11 nA). Concomitantly, LDH release and TB exclusion did not differ during reoxygenation between the two groups.

These results suggest that in isolated rat hepatocytes fatty infiltration:1) does not affect cell injury under aerobic conditions; 2) increases significantly anoxic injury; and 3) does not appear to influence O_2- generation and cell injury immediately after reoxygenation. The reduced tolerance to anoxic injury observed in rat hepatocytes with fatty infiltration can contribute to the high incidence of PNF occurring when steatotic livers are used as donor organs for OLTx.

P032

Biliary Complications in Liver Transplantation

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Although refinements in the surgical and anesthetic techniques of liver transplantation have helped to improve results, surgical complications remain common. Complications of the biliary system have been reported to be as high as 29%. These complications can be severe and lead to sepsis and death. **Aim:** To evaluate the biliary complications in 130 consecutive liver transplants. **Patients and Methods:** 130 OLT were performed in 118 patients (12 retransplantations) between Nov 90 and Nov 95. During OLT, the biliary reconstruction most commonly used are choledococholedochostomy over a T-tube in 125 cases, and cholodocoycyunostomy in the other 5 cases. The cholangiographic control was performed two weeks after the transplant and the T-tube is removed ten weeks later. **Results:** Eighteen patients (13.8%) developed biliary complications: leak (13), stricture (3), and dehiscence and necrosis of the duct in the other two cases. Surgical treatment was performed for leak anastomosis in 7 of 13 cases, in 2 of 3 cases of stricture, and in both cases of ischemic dehiscence while a retransplant and a hepaticoyeyunostomy. No deaths were due to the development of biliary complications. **Conclusions:** We come to the conclusion that biliary complications are the most frequent surgical complications after OLT and cause of serious morbidity and morality. The high number of bile leak associated with T-tube removal is related to the low inflammatory response around the T-tube as result of inmunosuppresive agents and the T-tube of silastic. We propose to cover the silastic T-tube with a conventional T-tube of rubber, in order to increase the fibrous tract around it. For the stricture complications the endoscopic techniques provide a safe and effective alternative to reoperative surgery for liver transplant patients who develop biliary tract problems.

P033

POLYCYSTIC DISEASE OF THE LIVER

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A clinical study was carried to evaluate the treatment of patients with symptomatic polycystic liver disease by percutaneous drainage and sclerotherapy with alcohol. Ten patients presented with polycystic liver disease, of which six had polycystic kidneys too. Two patients drop out the study: one died for renal failure and one did not present to the control. Eight patients are the subject of the study, six female and three male (F:M = 3:1), mean age 50,7 years (range 28-60 years). Five patients of 8 had polycystic kidneys and two of them had the liver micropolycytic variant. All patients underwent echographic study.
Patients had bulging upper abdomen and pain in the right hypocondrium originating perhaps from the stretching of the liver capsule. Only small portions of healthy liver tissue could be detected by imaging methods. Two female patients complained of symptoms of gastric compression (vomit) and dyspnea. In order to ameliorate this symptoms and maintain the hepatic function by reducing the compression of the functioning tissue, in these two patients US-guided multiple cyst punctures were performed for percutaneous drainage and sclerotherapy with alcohol. Following the multi-stage procedures the size of liver decreased and hepatic function gradually improved. The other six patients are on echographic follow-up.
In accordance with the literature the authors recommend the multi-stage cyst puncture and sclerotisation as beneficial therapy of symptomatic polycystic liver disease without burden general anaesthesia, with minor risk and minimal discomfort for the patients.

P034

LONG-TERM FOLLOW-UP AFTER SURGERY FOR HEPATIC HYDATID DISEASE

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On a long term, surgery is the only effective therapy for the treatment of hepatic hydatid disease. Between 1980 and 1995, 74 patients were operated for this affection among 410 liver operations (18%) in our Digestive Surgery Clinic. For these 74 patients (49 women, 29 men, mean age 43 years), 58 total pericystectomies, 28 subtotal pericystectomies, 28 hepatectomies and 8 unroofing operations of the cysts were performed. The mean hospital stay was 15 days (7-69), with a post-operative morbidity of 22% and no mortality.
A 63 months (5,3 years) mean follow-up was available for 66 patients (complete 49 (66%) partial 17 (23%)). Eight patients were lost for any follow-up. Late complications consisted in two biliary-tract stenoses, one post-transfusional hepatitis C, one incisional hernia and a single hydatid recurrence, nessitating a second operation 3 years after a subtotal pericystectomy. Our follow-up policy includes a single echography after one year, if the operation was considered as radical (total pericystectomy or hepatectomy), every 6 months if a subtotal pericystectomy or an unroofing operation was performed.
In conclusion, we propose a radical surgery (total pericystectomy or hepatectomy) when technical facilities allow it. With this kind of surgery recurrencies of hydatid disease are exceptionnal and mortality close to zero.

P035

Synergistic effect of complement activation and leukocyte infiltration in ischaemia-reperfusion injury of the liver. Protective effect of the complement regulator sCR1.

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With the purpose of studying the participation of complement and neutrophils in tissue injury after ischaemia and reperfusion the complement cascade was inactivated and leukocytes were depleted in a model of rat liver ischaemia. Soluble Human Complement Receptor Type 1 (sCR1)(50 mg/Kg IV) was given after vascular occlusion (n=8), complement activity (CH50) was reduced to 10% in these rats. Vinblastine (1.6 mg/Kg im) was administered five and two days before the experiment to render the rats leukopaenic (<800 WBC/mm3). Non-ischaemic rats (n=8), ischaemic non-treated rats (n=15) and vinblastine treated, non-ischaemic rats (n=3) were used as controls.
This experiment consisted of the temporary interruption of arterial and portal blood flow to the left lateral and medial lobes of the liver during 45 minutes, followed by reperfusion. Liver blood flow and haemoglobin saturation measured by laser Doppler flowmetry and photometry were recorded for one hour after declamping, with statistically significant differences between the two experimental groups and the untreated ischaemic control group ($p<0.001$).
Histology showed severe neutrophil infiltration and tissue injury in the ischaemic control group, but not in the experimental rats. Marked oedema was present in the leukopaenic rats. Intravascular neutrophils were present in the sCR1 treated rats, without evidence of transendothelial migration or tissue injury.
Immunohistochemistry showed deposits of C3 and C9 in the endothelium of the ischaemic controls and of the leukopaenic rats but not in the sCR1 treated group.
These results suggest that activation of complement alone is responsible for changes in endothelial permeability in early reperfusion injury but recruitment, activation and infiltration of neutrophils (due to complement itself or to endothelial activation) resulted in major tissue injury. The regulation of complement with sCR1 offered strong protection against ischaemia-reperfusion injury.

P036

DIAPHRAGMATIC SEEDING AFTER PERCUTANEOUS BIOPSIES OF LIVER TUMORS

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Percutaneous biopsies (PCB) of liver tumors are commonly used to obtain pretreatment histologic diagnosis. Tumor seeding, in the peritoneum or along the needle tract, is theoretically possible but considered exceptional and unsignificant. However, the rate of tumor seeding after PCB is probably underestimated for several reasons: (a) only apparent lesions are diagnosed (mainly cutaneous), (b) patients are not specifically screened for this complication, (c) rapid cancer spread may lead to overlook local seeding, and (d) a cause to effect relationship may be difficult to establish.
We report 6 cases of diaphragmatic seeding after PBC of a liver tumor. The tumor was hepatocellular carcinoma in 4 cases and metastasis of colorectal cancer in 2 cases. Tumors were all located in the right lobe, superficial, and measured 2-8 cm. Direct fine needle PCB had been perfomed 1 to 9 months earlier. All patient underwent surgery (3 partial hepatectomies and 3 liver transplantations). In 5 cases there was a narrow adhesion of the liver to the diaphragm at the site of biopsy while in the other case there was a 1 mm granulation on the diaphragm facing the tumor. A patch of diaphragm was resected in all cases and confirmed tumor involvment of the diaphragm. 3 patients died of recurrence and 3 are alive (2 with with recurrence). During the same period (1989-1994), 117 patients underwent resection (88) or transplantation (29) for primary or secondary liver cancer. Diaphragm seeding was found in 6 of 29 patients (20%) who had undergone preoperative PCB in contrast with 2 of 88 patients (2.2%) without preoperative PCB ($p<0.01$).
These data suggest that diaphragm seeding is a potentially underestimated complication of PCB of liver tumors. Superficial tumor location could be a risk factor. Prospective intraoperative screening and resection of suspect diaphragm lesions during surgery is required to evaluate the prevalence of post PBC tumor seeding. Since this complication can compromise the results of surgical treatment, we recommend that PBC should be avoided in patients with liver tumors who are candidates for liver resection or transplantation.

P037

LIVER RETRIEVAL FOR TRANSPLANTATION: OPERATIVE PROCEDURE AND THE HEPATIC MICROCIRCULATION

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We studied the surface and parenchymal microcirculation of porcine liver during the various stages of organ retrieval using Laser Doppler flowmeter (LDF). **Method**: In 6 pigs, LDF surface and parenchymal probes were applied to the left median lobe of the liver soon after opening the abdomen. The hepatic microcirculation was pecorded continuously for 90 secs as flux units before (Premob) and after dissection (Postmob) of its blood vessels as well as on sequential occlusion of hepatic artery (HA), portal vein (PV) and both vessels. The data - discussed as mean $\pm$ SD was analysed using simple linear regression and paired students t test. **Results**: The Premob surface and parenchymal perfusion of the liver 226 $\pm$ 73 and 254 $\pm$ 82 flux units respectively showed a significant correlation ($r=0.8$). Following hilar dissection the surface perfusion dropped significantly ($p = 0.050$) to 151 $\pm$ 80 flux units, while the parenchymal flow - 229 $\pm$ 128 flux units showed no significant change ($p > 0.05$). Occlusion of HA, PV and both vessels resulted in significant fall ($p < 0.005$) in surface flow to 120 $\pm$ 46, 110 $\pm$ 86, 77 $\pm$ 53 flux units respectively. On the contrary the parenchymal flux varied widely on occluding HA, PV & both vessels - 402 $\pm$ 451, 265 $\pm$ 263 and 249 $\pm$ 169 units respectively and the changes in flow values were not statistically significant ($p > 0.05$). **Conclusion**: LDF readings from the surface of the liver reflect the parenchymal flow. Mobilisation lowers the surface flux. Surface LDF measurements are sensitive indicators of changes in vascular blood flow. LDF may be used for evaluating hepatic microcirculation during organ retrieval and studying of the effects of preservation on hepatic tissue perfusion.

P038

PATTERN OF GRAFT REPERFUSION IN HUMAN LIVER TRANSPLANTATION

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We monitored the hepatic surface perfusion of human liver grafts using Laser Doppler flowmeter (LDF) during transplantation **Method**: Four histologically fatty and 4 normal grafts were studied at the time of graft implantation. The mean preservation period of the two groups were similiar. We measured the hepatic surface perfusion from 2 sites on each lobe using a Multimoor LDF as follows: 1) venous reperfusion on completion of vena caval and portal venous anastomosis; 2) arterial reperfusion on establishing hepatic arterial inflow to the graft and 3) final perfusion before closure of the abdomen. The results given as perfusion units (PU) - % of final perfusion values were analysed using one sample t test and unpaired students t test. **Results:** The surface perfusion following venous reperfusion was 60 $\pm$ 23 PU. Additional arterial inflow resulted in an increase of surface flow values to 79 $\pm$ 24 PU. The final perfusion values were significantly higher than post venous, arterial reperfusion values ($p < 0.0001$). There was no difference ($p > 0.05$) in the graft perfusion of histologically fatty or normal grafts. **Conclusion:** Surface perfusion of the graft improves with time. LDF can monitor vascular inflow to the graft. There is no difference in the pattern of reperfusion of fatty and normal grafts.

P039

SURGICAL TREATMENT OF LIVER METASTASES

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Nowadays surgical indication for liver metastases is based on precise criteria that include their number, dimension, site, continuity/contiguity with important vascular structures and limphnodal involvement. Preoperative staging is obtained by US/CT scan evaluation, CEA and Ca 19.9 dosage.
Between Jan. 1980 and Dec 1995 we treated 183 patients (median age: 60, range: 35-82) for hepatic metastases: 139 from colorectal cancer, 44 from non-colorectal cancer (stomach, gallbladder, biliary tract, pancreas, carcinoid, adrenal gland, pelvic sarcoma, breast, aesophagus).
We operated on 153 patients.
Mortality and morbidity rates were respectively 4,1% and 18,4%.
5 ys' actuarial survival of colorectal and non-colorectal metastases were respectively 24% and 6%.
In the cases without surgical indication we performed a schedule-oriented biochemical modulation of FUra bolus by MTX and Fura continuous infusion by Leucovorin, to reduce neoplastic lesions and infiltration.
At today we treated 17 patients obtaining 3 complete surgical responses after 6 months of this chemotherapy.
11 patients were reoperated for colorectal repeated liver metastases with 22% of 5 ys' global survival and a mortality rate of 9%.

P040

REPEATED LIVER RESECTIONS FROM COLORECTAL METASTASIS.

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Patients affected by repeat hepatic metastasis from colorectal cancer can be submitted to a re-resection after a careful screening excluding, first of all, extrahepatic recurrences. Surgery is the only therapy that offers these patients a 5 ys survival rate of 20-30%. Personal experience includes 11 cases; average age 59 (range 45-71) (Tab I; Jan. 1980 - Oct. 1995).

Tab.I: : RE-RESECTIONS FOR REPEAT LIVER METS FROM COLO-RECTAL CANCER: PERSONAL EXPERIENCE

		age		prim.tum.	d.f.l.	1st res.	d.f.l.	2nd res.	surv.	state
1	BE	57	M	CECUM-B2	0	1 L WR	17	4 R WR	138	ANED
2	PE	59	M	RECTUM-B2	36	segm 7	17	R lob	28*	DWD
3	BG	60	M	SIGM-B2	36	L lob	6	2 R WR	5*	DWD
4	RM	55	M	RECTUM-C1	0	1 L WR	11	R lob	14*	DWD
5	NE	54	M	LEFT COL-C1	19	segm 7+8	30	2 R WR	39*	AWD
6	ZE	64	M	SIGM-C2	1	R lob	17	1 R WR	18*	DWD
7	TG	69	F	SIGM-C1	0	1 L WR	19	1 R WR	28*	DWD
8	PL	59	F	SIGM-C1	55	R lob	7	1 L WR	18	AWD
9	MG	52	M	SIGM-C1	7	3 R WR	17	segm 4	1*	DWD
10	FE	65	M	DESC-B1	46	1L+1R WR	6	segm6+7	17	ANED
11	SL	45	M	SIGM-C1	1	R lob	14	segm 3	5	ANED

ANED=alive not evidence disease; DWD/AWD= died/alive with disease; *=died

All patients were free of symptoms at the diagnosis, which was always made during follow up, testing CEA and CA 19.9, chest CT, abdominal US/CT/NMR. The preliminary results from a multiinstitutional study (Registry of repeat resections of hepatic metastases) directed by P.H. Sugarbaker, started in 1991, that involved 170 patients from 20 institutions, included our department, have emphasized, although not all the data were statistically significant, the importance of some factors as the numbers of mets (<4), the limited distribution in the liver and the non infiltration of important vascular structures, the absence of extrahepatic diseases, intended as distant, local or lymphnodal. Among these last it's very important to know the status of hepatoduodenal lymphnodes, considered the road of metastatic cells' escape ("mets from mets - cascade phenomenon"). When it's impossible to perform a radical operation, from the oncological point of view (adequate extension of resection and respect of clear margin), surgery loses every curative capacity. New studies on chemotherapy, after obtaining the first encouraging results, are now trying to extend the possibility of surgery.

P041

HEPATIC HYDATIDOSIS: 690 PATIENTS SURGERY-TREATED.

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Hydatid disease or Echinococcosis is a parasitic condition of worldwide distribution. The organism involved, Echinococcus granulosus, belong to the order of cestode or flatworms of the family Taenia. Humans happen to be an accidental or incidental intermediate host. The liver is the first filter in the way of ingested eggs, being the most common site of location. Aragón is regarded as an intensive endemic area with an incidence rate of 7,54 / 100.000 habitants/year.

We present a retrospective study carried out on 690 patients with hepatic hydatidosis, who underwent surgery at our department during the last 24 years. The incidences in regard to sex, age, symptomatology, cyst-related data and postoperative mortality/morbility are also reviewed. Emphasis is placed on the surgical treatment.

The average age of the patients was 39 years with a similar incidence for both sexes. The most frequent signs and symptoms were the following: dyspeptic symptons (60%); hepatomegaly and/or palpable mass in right hypocondrium (59%) and pain (46%). Radical surgery, which includes liver resection of any magnitude or total cystectomy, represents 20% of all surgical treatments; the remaining 79% were covered by conservative surgery (external tube drainage, internal drainage, parcial cystectomy). The most frequent postoperative complication was biliary fistula (72 cases). The reoperation rate was 17,87% and the operative mortality rate was 1,62%.

In our opinion, liver resection of any magnitude either to avoid spillage of cystic contents or to circumvent altogether the problems of managing the residual pericystic cavity, causes more problems than it solves. It is for this that we think it must be the surgeon´s good jugment in deciding how to tecnically manage each patient depending on the size, location, contents of the cavity and rigidity of the cystic wall never forgeting that hepatic hydatidosis is a benign disease.

P042

TRANSPLANTATION OF AUTOLOGOUS HEPATOCYTES IN PIGS: A COMPARISON OF SPLEEN, PANCREAS, MESENTERY AND SMALL BOWEL-WALL AS IMPLANTATION SITES.

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The aim of this study was to examine various implantation sites for hepatocyte transplantation in a large animal model, i.e. in the pig. Hepatocyte transplantation was undertaken in the spleen, pancreas, mesentery and small bowel-wall. *Methods:* The left lateral liver segments of pigs (n=5) were resected and immediately perfused in vitro with collagenase. After isolation of hepatocytes, 1.5ml volumes of the hepatocyte suspension (40x 10^6cells/ml, viability 78-87 %) were injected into the parenchyma of the spleen and 0.25ml volumes into the pancreas, mesentery and into the subserosa of the proximal jejunum (n=4). The implantation sites were marked with an inabsorbable suture. In one control animal, the respective implantation sites were injected with NaCl 0.9 %. At 1-3 months postimplantation, 20 ml of HIDA-Tc^{99} (200 Bq activity) was administered i.v., and total body scanning (TBSc) was performed during 45 mins. The spleen, pancreas and injected regions of mesentery and small bowel were subsequently excised for organ scanning (OSc). At the same time, a piece of the remnant liver was scanned. Finally, the implantation sites were excised, immersed in formaldehyde and placed in a gammacounter for direct tissue counting, after which histopathological examination took place (HE stained sections). *Results:* During TBSc of all animals, no radioactivity could be detected other than in the remnant liver. OSc showed activity in 2/4 pigs at the implantation sites in mesentery and small bowel-wall, after 1 and 3 mths, respectively. Microscopical examination after 1-3 months, showed clusters of viable hepatocytes at the implantation sites in mesentery and bowel-wall of 4/4 animals. At the border of these hepatocytes, ductular differentiation was observed. Direct tissue counting of these regions showed high activity in the mesentery (5362-84537 CPM/g) and bowel-wall (10702-403343 CPM/g). Control values of mesentery and bowel-wall were 2212 CPM/g and 3503 CPM/g, respectively. Activity in the remnant liver was 10-55 x10^4 CPM/g. Only occasionally, hepatocytes were found in the pancreas in 2/4 animals. No hepatocytes could be detected in any of the implantation sites in the spleen. *Conclusion:* The mesentery and small bowel-wall provide more favorable sites for hepatocyte transplantation in pigs than pancreas or spleen. Organ and tissue scintigraphy with HIDA-Tc^{99}, but not total body scintigraphy, is useful for the detection of hepatocytes after transplantation.

P043

COMBINED DIAGNOSTIC IMAGING OF HEPATIC FOCAL NODULAR HYPERPLASIA

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Twelve cases of hepatic focal nodular hyperplasia were evaluated with color Doppler ultrasound (CD), dynamic computed tomography (CT) and magnetic resonance imaging (MR): the aim was to verify the diagnostic accuracy of these imaging techniques. CD usually showed homogeneous and isoechoic lesions; a central scar was rarely apparent; high vascularity was evidenced, and in 25 % of cases a stellate distribution of the vessels was present. Doppler spectra showed medium to high flow velocities and high diastolic flow. On unhenanced CT scans all the lesions appeared homogeneous and isodense, and in 30 % of cases a central scar was evident. At dynamic CT the lesions showed intense, transient hyperdensity. On MR scans the lesions were almost isointense in T1w and T2w images, while the central scar was hypointense in T1w and hyperintense in T2w. Ultrasonography was poorly specific although some patterns were suggestive for the diagnosis. CD showed 100% specificity, but sensitivity was lower than 25%. For dynamic CT specificity was 100% and sensitivity 80 %. MR added no useful information in cases doubtful at CT; sensitivity was 40 %. These results indicate that ultrasonography usually discloses and localizes lesions; CD adds valuable data; CT shows the highest specificity while MR gives no increase in diagnostic accuracy.

P044

REPEATED HEPATIC RESECTION FOR COLO-RECTAL METASTASES

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Surgical resection of colorectal liver metastases is currently accepted as the standard therapeutic approach. However hepatic recurrence after liver resection is still an uncommon indication for surgery.

Between January 1980 and November 1995, 81 patients underwent hepatic resection for colorectal metastases; among these, 11 patients (13.5%), ranging in age between 28 to 74 years, subsequently underwent resection for recurrence of colorectal hepatic metastases. Seven patients had solitary and 4 multiple metastases, ranging between 2 to 5. Three major hepatectomies and 8 wedge resections were performed.

No mortality was observed and morbidity was 27% (3/11) with 1 major complication.

Mean follow-up was 40 months. After the second resection 1, 3 and 5-year actuarial survival rates were 100%, 71% and 29% respectively. Seven patients are alive 5-103 months (mean 41) after the second hepatic resection. Four patients are currently free of disease after a mean of 59 months (range 5-113). In the other patients sites of relapses included the liver in 4 cases, the lung in 3 and a local relapse in one case. No characteristics of primary or metastatic disease predicted outcome.

Our results suggest that repeated resection for colorectal liver metastases can be performed safely and can result in long term survival in selected patients.

P045

ENDOTOXEMIA AND LIVER RESECTION WITH TOTAL VASCULAR EXCLUSION (TVE).

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The circulatory changes induced by TVE may alter the intestinal barrier to endotoxins and/or reduce the capacity of the liver to clear endotoxins of intestinal origin. The frequent observation of unexplained fever, diarrhea, encephalopaty and liver failure after TVE induce us to study the LPS plasma levels and its relationship with the surgery outcome. In 13 consecutive liver resections using TVE we determined plasma LPS levels using the chromogenic limulus lysate test (QCL-1000, Withacker, MA) immediately before, during and 5 min., 1 h and 24 Hs after releasing the clamps. The patients were dived in Group A: with normal LPS plasma levels during or after the TVE, and Group B: with abnormally high level of LPS (>0.1 EU/ml plasma). None of the patients had abnormal LPS levels before the TVE.

Results are summarized in the table as median and range or proportions:

Group	A (n=6)	B (n=7)	p
Plasma LPS (EU/ml)	0.045 (0-0.07)	0.27 (0.14-14)	
ICU stay (days)	1.5 (1-3)	3.0 (3-22)	0.07†
Total hospital stay (days)	8 (7-10)	13 (3-27)	0.04†
MVS* (hours)	7 (4-24)	29 (20-144)	0.02†
Red cells transfused (units)	1.5 (0-4)	6 (4-6)	< 0.001†
Fresh plasma transf.(units)	2 (0-5)	8 (4-6)	0.05†
Diarrhea	0/6	6/7	< 0.001#
Fever	1/6	6/7	< 0.001#
Encephalopathy	0/6	3/7	0.03#
Positive blood culture	0/6	2/7	0.07#
Deaths	0/6	1/7	0.17#

*Mechanical ventilatory support, † U-test, # Z-test.

Conclusion: Elevated levels of plasma endotoxins during or after liver resections with TVE were associated with more demand of therapeutic procedures, more incidence of complications and a more prolonged ICU and hospital stay.

P046

USE OF INTERNAL JUGULAR VEIN FOR VEIN GRAFT IN THE LIVING RELATED DONOR IN LIVER TRANSPLANTATION

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The living related donor in pediatric liver transplantation has been developed in the world as a consequence of the poor offer of cadaveric organs, specially for the receptors under 10 kilograms of weight. One of the main challenge is about the revascularization of the donor hepatic segment. In a lot of receptors the portal vein thrombosis or the short length are present with high frecuence. For avoid this problem we have used the internal jugular vein of the living related donor. The vein was studied previously with the color ecodoppler image. During the operation of the donor, further the hepatic segmentectomy we add a transverse cervical incision in the neck, for good exposure and whole resect of the internal jugular vein. At the back-table this vein is sutured in on end-to-end anastomosis with the left portal branch of the donor.Then in the receptor operation, the free segment of the internal jugular vein is anastomosed with the splenomesenteric confluence. Of eleven cases with living related donor in liver transplantation in 8 of then, this technique was performed. Only one of these patients developed a portal vein thrombosis sixteen days after the operation and required another transplant with a cadaveric donor. The eight patients still alive and with an excellent quality of life. Some transplant centers use the iliac cadaveric vein or the crio-preserved vein, however in an experience with animals that we have performed, we noted a high incidence of vein thrombosis. Therefore we conclude that the internal jugular vain is an excellent graft for anastomosis to the portal vein.

P047

RETRO -HEPATIC CAVA VEIN RESECTION DURING THE TREATMENT OF REGIONAL TUMORS

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We analyze the technique that we performed in 14 patients with tumors that involved the retrohepatic cava vein, and were resected including a partial of total resection of this vein.The 14 tumors treated with this procedure were: 3 hepatocellular carcinoma, 2 colorectal metastasis, 2 clear cells renal tumor, 2 right renal vein leiomyosarcoma, 2 suprarenal, 2 carcinoma, 1 cava vein leiomyosarcoma, 1 hepatic hamartoma, 1 hepatic sarcoma. We used the total hepatic vascular exclusion in 7 patients and partial hepatic vascular exclusion in 7 patients. 6 of the last groups with total control of cava vein and 1 with partial, control. The partial or total resection of the retrohepatic cave vein was combined with 9 hepatic resection of differents sizes, 6 nefrectomies, 5 suprarenalectomies an 1 orthotopic liver transplantation (in the patient with the hepatic hamartoma that further involved the intra and suprahepatic cave vein). The average time of surgery was 5.2 Hs, with a range between 3.6-8. The red cells average consumption was 2.2 units, with a range between 0-5 and the plasma average consumption was 2.5 units, with a range between 0-5.5. Operative complications occurred in 7 patients: 3 pleural effusion, 2 intrabdominal abscess, and 2 lower extremity edema. No operative mortality was observed in either of the approaches.

P048

LIVER RESECTION WITH VASCULAR CLAMPING: RESULTS ON NORMAL AND PATHOLOGICAL LIVER

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The tolerance of normal human liver to normothermic ischemia for up to 60 minutes is now well documented and routinely carried out for major hepatectomy. But pathological livers may not tolerate a long continuous ischemia and intermittent clamping is preferred by most authors.

Among 107 consecutive partial hepatectomies performed with use of uninterrupted vascular clamping, 73 were achieved on normal , 20 on steatosic and 14 on cirrhotic livers (Child A).

A prospective study analysed the clinical and biological outcome and compared the results in the 3 groups.

3,5 segments with an average ischemia time of 45 minutes were resected in each group . Peroperative blood transfusion requirement was significantly higher in the steatosic :1375 ml versus 650 ml in normals($p < 0,025$), and 250 ml in cirrhotics ($p < 0,01$).

Biochemical post operative course was similar in all groups. Operative mortality was nil. Postoperative complication rate was 32.9% in normals, 35% in steatosics and 28.6% in cirrhotics (no statistic difference) but mortality was significantly higher in cirrhotics: 14.3% versus 1.4% in normals ($p<0.025$), and 10% in steatosic (n.s).

The results of this study suggest that liver ischemia is fairly tolerated by patients with pathological livers and preserved hepatic function. It may be recommended to decrease peroperative blood loss during the course of liver resection.

P049

ADENOMA, HEPATIC HEMANGIOMA, FOCAL NODULAR HYPERPLASIA AND HYDATID CYST OF THE LIVER. CASE REPORT.

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The association between hepatic hemangioma (HH) and focal nodular hyperplasia (FNH) or between FNH and adenoma has been reported. The authors reported a case in wich simultaneously there were FHN, HH, adenoma and hydatid cyst.. A 25-years-old woman was admitted at the First Surgical Clinic of University of Catania, after presenting pain in the right hypocondrium. No theraphy with oral contraceptives and no prgnancy were found in the disease hystory of the patient. No abnormalities of laboratory tests were found. US and CT scans showed 4 masses with the caratheristics of HH, adenoma, FNH, and hydatid cyst located respectively in segment II, III, IV and V. The patient was submitted at the enucleation of hepatic hemangioma, resection fo hydatid cyst and enucleation of the adenoma and FNH. Post operative course was without complications and patients was discharged from the hospital after one week. Pathological examination confirmed preoperative diagnosis. At our knowledge, association of hepatic hemangioma, FNH, and adenoma, has never been reported. The simultaneously presence of these three different kind of tumor suggest that it should be the different expression of the same malformative anomaly.

P050

CYSTIC ARTERY UTILISATION FOR PORT-A-CATH IMPLANT IN PRESENCE OF RIGHT HEPATIC ARTERY ORIGINATING FROM SUPERIOR MESENTERIC ARTERY.

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Hepatic arterial infusion chemotherapy is used to treat either primary or metastatic liver cancer when patients are not candidates for surgery. When the right hepatic artery (RHA) origin from superior mesenteric artery (SMA) two options are possible: ligation of the right hepatic artery and insertion of the port-a-cath in gastro-duodenal artery (GDA), or insertion of two catheter, one in GDA and a special catheter in RHA. With the first technique shoul be not perfused and with last technique arterial trombosis frequentely occurs. The authors reported their experience concerning utilisation of cystic artery to insert a port-a-cath when RHA is present. From 1991 to 1995, 25 patients were operated on at the First Surgical Clinic of University of Catania, for port-a-cath placement to perform loco-regional chemotherapy. In three patients (12%) affected by non resectable colorectal metastasis preoperative arteriograms showed RHA origin from SMA. In all these cases the cystic artery was utilised to insert a catheter for chemoinfusion of right liver, associated with insertion of catheter in GDA for chemoinfusion of the left liver. Intraoperative and postoperative control showed perfusion of both of the lobes of the liver. Complications occurred in none, and utilisation was performed from 6 to 24 months. Utilisation of cystic artery preservs the native flow and is a valid option to implant a port for chemoinfusion of the right liver when RHA origin from SMA.

P051

MAJOR LIVER RESECTION FOR NON-COLORECTAL HEPATIC METASTASES.

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Six patients with unilobular non-colorectal metastases were studied for hepatic resection. The metastases are from suprarenal carcinoma, carcinoid tumor of small bowel, squamous cell carcinoma of the lung, ampuloma in one patient each respectively and leiomyosarcoma of the small bowell in two patients. There were one synchronous and five metachronous lesions. Three patients had solitary metastatic lesions and three had multiple lesions.

We realized six liver resections which comprised 7,7% of the liver resection realized in our center and 15% of liver resection done for metastases. The surgical procedure was right hepatectomy in five cases and right hepatectomy with atypical resection of left lobe in one. There was no surgical mortality. Two patients presented with abscess and in one hematoma intrahepatic The patients were followed up for 23,5 months (5-47), the six all are alive, four are free of disease and two had recurrence of the disease.

Major liver resection for metastases although done mainly for colorectal metastases is advocated in patients with primary tumour other than colorectal origin with equally long term survival.

P052

PROGNOSTIC EVALUATION OF SYNCHRONOUS AND METACHRONOUS LIVER METASTASES IN COLORECTAL CANCER

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The controversy as to prognostic factor of the appearence of liver metastases in colorectal cancer is not yet settled.

We studied retrospectively the survival in patients undergoing liver resection for colorectal metastases. The series comprised 31 patients who were divided in three groups. Group I metastases synchronous (11 patients); group II metastases metachronous in the first year of follow-up (7 pat); and group III metastases metachronous diagnosed more than one year of follow-up (13 pat). The groups are comparable for age, type of liver resection, number of metastases, tumour size and resection margin.

In the group I , with a follow-up of 19 months (8-38). 10 patients (91%) had recurrence and 6 died(54%). In the group II, with 17 month follow-up (6-24 months) 6 patients (85%) had recurrence and 2 deaths (28%). In the group III after 24 months of follow-up 1 patient died(7%), 2 (14%) presented with recurrence in the liver treated with re-resection and 11 patients (78%) were free of tumour.

There was a significant difference in the survival among synchronous and metachronous metastases; and in the disease free interval among metachronous metastases which appeared in the first year when compared with those with more than one year of follow-up

P053

REPEATED RESECTIONS FOR HEPATIC METASTASES FROM COLORECTAL CANCER.

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Up to December 1994 hepatic resections for metastatic colorectal cancer were performed with curative intent in 263 patients. Five of them died postoperatively from complications. During follow-up 110 patients developed a recurrence confined to the liver; 21 of these patients (19%) underwent hepatic re-resection.
Interval between the two procedures ranged from 3 to 95 months (median 12 months). Surgery was non-anatomic resection (NAR) in 18 cases, and formal hepatectomy in 3; most of the patients had a single metastasis, but eight had 2 and one 5 metastases; in 2 patients a lung resection, in 1 an intestinal and in anóther a diaphragmatic resection were associated to hepatic resection. Median blood loss was 500 ml (range 0-3000). One patient (5%) died intraoperatively and 6 (30%) had postoperative complications. Median survival from first and second hepatic resection was 62 and 30 months respectively. Actuarial 3- and 5-year survival from re-resection was 49% and 39% respectively. Three patients who developed a new recurrence confined to the liver were submitted to the 3rd hepatic resection; postoperative outcome was uneventful. The results observed in this series support the indication to hepatic re-resection in selected patients.

P054

A NEW NEEDLE TO PREVENT TUMOR SEEDING FOLLOWING PERCUTANEOUS NEEDLE BIOPSY

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Percutaneous Needle Biopsy (PNB) is a useful tool in the diagnosis of tumors. Although the procedure is considered safe by using fine needles, it is, however, not free of complications including severe and even fatal ones. Complications associated with PNB are post-biopsy hemorrhage and dissemination of malignant cells in the needle tract resulting in implantation metastases. To investigate the incidence of complications due to PNB, we performed a literature analysis covering the period of 1966 through 1995. 102 reports of needle tract seeding were identified after PNB of a variety of organs, describing a total of 145 cases. With respect to liver and pancreas, tumor seeding was reported in 26 and 14 cases, respectively. Fine needles were used in 55 cases, core needles in 40 cases. The risk of fatal hemorrhage after liver biopsy in patients with malignancy is estimated to be 0,4%; for nonfatal hemorrhage 0,6%. This analysis revealed that needle tract seeding and post-biopsy bleeding are potential complications of PNB. To prevent the occurence of tumor seeding following PNB and to decrease the risk of post-biopsy hemorrhage, a concept was developed for a new biopsy needle. The concept consists of a combination of a biopsy needle and a biodegradable sheath. After the biopsy specimen is taken, the protective sheath remains inside the body at the biopsy site. Detached malignant cells during withdrawal of the biopsy needle are trapped inside the canal created by the sheath and disintegrate isolated from the body. The resorbable material, gelatin, has an active hemostatic effect on possible hemorrhage. A prototype of the new needle has been developed. *Conclusion:* Analysis of the literature showed that PNB causes a potential risk of implantation metastases and hemorrhage, particularly in liver and pancreas. By using a needle with a protective biodegradable sheath, percutaneous needle biopsy could become a safer procedure, with a decreased risk of post-biopsy hemorrhage and without the risk of causing needle tract seeding.

P055

Treatment of the liver war injuries.

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In the retrospective study we analyzed patients with liver injuries during the War in the south part of Croatia from 1992. to 1994.treted in two war hospitals and the general hospital in Split. There were 1268 war casulties and 105 (8,3%) of them had abdominal wounds and 16 (1,26%) had liver injuries. Isolated liver injuries were in five (4,76%). Only four (3,8%) patients were wounded by high velocity projectiles and the others were injured by different types of mines, grenades and their fragments.
The most of liver injuries were the second and third grade according to Scale of Organ injury Scaling Committee-American Association of Surgery of Trauma, 1988. Twelve (11,42%) patients were operated by suture or omentoplasty and four (3,8%) patients were treated conservatively and monitored clinicaly, by lab., ultrasound and CT exams.
One of the conservatively treated patients had liver abscess some months after the injury and he was treated by percutaneos drainage There was no mortality in the group of patients with liver injuries treated by surgical or conservative methods.
Conclusion : Patients with isolated war injuries of liver grade I or II and with small metal fragments can be treated conservatively with careful monitoring of laboratory findings, ultrasound and CT.

P056

HIGGINS AND ANDERSON HEPATECTOMY IN THE RAT USING A MICROSURGICAL TECHNIQUE

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Hepatic regeneration could be studied when different types of hepatectomies are performed in the rat. The two superior lobes hepatectomy in the rat, that consists in the resection of the 64,9% of the hepatic parenchyma, was described by HIGGINS and ANDERSON in 1931, using a macrosurgical technique.

A new experimental model of this hepatectomy in the Wistar rat (n=16), but using a microsurgical technique (Olympus; 10x4x0,5) is described. At first, the hepatic hilum of the middle (ML) and left lateral (LLL) lobes, that is, the hepatic artery, the portal vein and the bile duct, were ligated together. Next the falciform and posterior, right and left, ligaments of the liver were sectioned. The, the right hepatic vein, that drains the middle and the right portions of the ML, was sectioned between ligatures. The drainage of the middle hepatic vein, that drains into the SH-IVC the left portion of the right ML, is close to that of the left hepatic vein, that drains the left ML. This anatomic feature makes it possible the ligation of both veins together without stenosis of the SH-IVC.

A body weight loss was experienced by the animals until the 5th day of the postoperative period and at 21 days after the operation the body weight was similar to that of the control rats. On the 21th day after the operation the size and the weight of the liver were similar to those of the control animals, so regeneration of the non-resected hepatic lobes, right lateral (RLL) and caudate (CL) lobes, have restored the overall hepatic mass.

The 70% hepatectomy using a microsurgical technique is the most suitable method to avoid the iatrogenic functional impairment of the remaining hepatic parenchyma.

P057

INTERMITTENT VASCULAR EXCLUSION OF THE LIVER (IVEL) (WITHOUT VENA CAVA CLAMPING), DURING MAJOR HEPATECTOMY

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Intermittent vascular exclusion of the liver is possible by association clamping of the hepatic pedicle with clamping of the main hepatic veins without interruption of caval flow. Like in the intermittent clamping of the hepatic pedicle alone, it can be performed for more than 120 minutes without postoperative liver failure, and avoids the detrimental hemodynamic effects of vena caval clamping. It concerns the problem of looping the terminal part of the three hepatic veins, and particularly the common trunk of the middle and left hepatic veins or these two veins separately, a manoeuvre which is usually considered as dangerous. In this retrospective study, we analyse eight cases of total IVEL and eight cases of partial IVEL (involving only the middle and left hepatic veins) during major hepatectomy for malignant tumors. Liver parenchyma was pathological in nine cases. IVEL was feasable in 89% of the 18 attempts, and seemed unfeasable in one case with a huge tumor and in one case with a very rigid cirrhotic liver. IVEL was efficient in reducing bleeding during hepatectomy in 94% of the cases and failed in only one case with post-chemotherapeutic fibrotic liver in a patient with a high venous pressure (due to fluid overload). Mean duration of IVEL was 60.2 minutes (range: 37 to 140), mean blood loss was 1230 mL (range : 300 to 2800), and there were no postoperative complications related to this procedure. For us, the indications for IVEL are: a) hepatectomy for tumors close to the large hepatic veins, b) conservative hepatectomy of pathological liver parenchyma with high intraparenchymous venous pressure, c) poor hemodynamic tolerance to vena cava clamping (which occurs in 18% of the patients), and d) some cases necessiting reconstruction of a vital hepatic vein. The major advantages of this technique of liver vascular exclusion (good tolerance and possibility of long duration) me+rit its inclusion in the list of different clamping techniques available for use during hepatectomy, each of them having specific indications. We conclude that IVEL is feasable, efficient and indicated in numerous hepatectomies.

P058

LIVER TRAUMA: RESULTS OF TREATMENT

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Aim of the study: to analyze a group of patients after abdominal trauma and liver injury, taking into consideration the character of trauma and treatment results.
In 1990-1994 415 patients with different abdominal trauma were treated. Closed abdominal trauma was diagnosed in 58% cases, stabbed-cut injury -in 36%, shotgun injury- in 6%. Liver trauma was diagnosed in 65 cases (16% of all patients), males prevailed (75.4%). The age of patients in the group with liver trauma ranged between 16 and 67 years, mean age 33.5+-10.2 years. Liver injury was found in 28 cases (12%) of the blunt abdominal trauma group, in 33 cases (22%) of stabbed-cut injury group, in 4 cases (15%) of shotgun injury group. Diagnosis of liver injury was made on the basis of clinical findings, laboratory analyses, ultrasound or laparoscopic investigations. In some cases we used diagnostic laparocenthesis. All patients with liver trauma underwent laparotomy. In the group of patients, operated because of blunt abdominal trauma with liver injury (1st group), isolated liver trauma was found in 32% of cases, in the group with stabbed-cut abdominal damage with liver injury (2nd group) - in 64% of cases, and in the group with shotgun abdominal damage with liver injury (3rd group)- in 25% of cases. Multiple injuries were found in 68% of patients in the 1st group, the lien or bones being concomitantly injured in most cases. Mortality rate in the 1st group was 32% . All fatal outcomes were in cases of multiple abdominal or combined abdominal and brain / thoracic trauma, accompanied by severe shock and impairment of vital functions. Multiple injuries in the 2nd group were found in 36% of cases, 2 of them had fatal outcome. Multiple abdominal organ injuries in the 3rd group were diagnosed in 75% of cases, however, without any serious impairment of vitally important organs. We had no fatal outcomes in the 3rd group. Liver suture was performed in all cases of the 2nd and the 3rd group; in the 1st group it was performed in 26 of 28 cases, while marginal resection was needed only in the rest 2.
Conclusions: The mortality rate in liver trauma often depends on concomitantly affected organs and reaction of the organism to developing shock, ARDS, or acute brain disorders. We suppose that liver injuries be successfully treated by using primary sutures and avoiding performing of resections whenever possible.

P059

THE LIDOCAINE (MEGX) TEST PREDICTION OF THE POSTOPERATIVE COURSE AFTER HEPATIC RESECTION

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The postoperative course of pts. undergoing liver resection (LR) was analyzed with respect of the performance of the lidocaine (MEGX) test, a new approach to the evaluation of hepatic function. **MATERIAL AND METHODS** From 2/93 to 2/95, 85 LRs were performed for HCC (11 pts.), HCC on cirrhosis (37 pts.), metastases (21 pts.) and others diseases (16 pts.). There were 58 males and 27 females. According to the Child-Pugh classification there were 83 A's and 2 B's or C's. There were 15 wedge LRs, 42 segmentectomies and 28 major hepatectomies. The MEGX test was evaluated before LR and results compared with the postoperative course. **RESULTS** The MEGX value was normal (i.e. > 50 µg/ml) in 46 (54.1%) pts; it was between 25 and 50 in 26 (30.6%) and it was < then 25 in 13 (15.3%). One cirrhotic patient died within 30 days from surgery (he had a pre-operative MEGX value of 40 µg/ml). A total of 21 (24.7%) pts. developed postop. liver-related complications (hepatic failure, ascites, jaundice). The crosstabulation of the MEGX value with the presence of postop. complication is as follows:

Compl.	< 25 µg/ml	(%)	25-50 µg/ml	(%)	> 50 µg/ml	(%)	Total	(%)
Yes	10	76.9	6	23.1	5	10.9	21	24.7
No	3	23.1	20	76.9	41	89.1	64	75.3

The tendency to observe a lower complication rate with better MEGX values reached a significant difference (P<.0001). The same significant trend was also observed when considering only the 37 cirrhotics (P<.002). Furthermore, in these 37 pts., the postop. stay was 11 ± 3.8 days when MEGX was < 25 (13 pts.); 10 ± 2.7 when MEGX was between 25 and 50 (21 pts.); 9.6 ± 0.5 (3 pts.) when MEGX was > 50. **CONCLUSIONS** The MEGX value appears to be a valuable predictive index for the insurgence of postop. complications, mainly in cirrhotics.

P060

HYDATOID DISEASE NO LONGER SEEN IN NORWAY

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Hydatide disease with liver and pulmonary affection was regulary seen in Northern Norway until the 1970's. Population at risk was mainly reindeer keeping laps. The disease was transmitted to humans from reindeers via domestic dogs specially used for keeping the animal herds together.

In the year of 1977 the veterinary authorities of Northern Norway started giving out a specific anthelminticum (Dronocit ©, Bayer) free of charge to all actual families for treatment of their dogs. This measurement combined with a broad scale information campaigne was continued until the mid 1980's. Thereafter, families in question continued volontarily to treat their dogs for another four to six years.

Since 1982 no human hydatoid disease has been observed. Furthermore, the occurrences of hydatoid infection in reindeer observed by the public meat control decreased dramatically within a couple of years until disappearing completely.

In conclusion, in Norway, is has been possible to eliminate hydatoid disease completely through an intense combat/eradiction program.

P061

A SIMPLIFIED APPROACH TO REGIONAL HEPATIC ARTERIAL INFUSION FOR PRIMARY AND METASTATIC CANCERS OF THE LIVER. S. Ettinghausen, R. Gray, M. Steves, R. Dalton, S. Givens-Crow, P. Sugarbaker
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Prior studies have established the efficacy of hepatic arterial infusion (HAI) of chemotherapeutic agents for the treatment of hepatic metastatic disease. Techniques for HAI have included repeated transfemoral arterial catheterization or direct catheter placement during laparotomy with an implantable pump or port. Both methods are associated with well documented risks, shortcoming and costs. In a joint effort between surgical oncology and interventional radiology, we utilized a simplified technique originally reported in the Japanese literature (Arai). In the procedure, which utilizes local anesthesia, a 5fr. catheter is radiographically positioned into the hepatic artery via the operatively-exposed left thoracoacromial artery (LTA), a branch of the left subclavian artery. The catheter is then mated with a subcutaneous port allowing subsequent easy-access for outpatient HAI therapy. In our initial feasibility trial, 12 patients were considered for placement of a LTA catheter and port (CP). Two were excluded after angiography showed unfavorable anatomy. Two had unsuccessful placement attempts due to inadequate size of the LTA. Eight patients (6 male, 2 female; median age 64, range 34 - 73 years) had CPs inserted for treatment of cholangiocarcinoma (1) and liver metastases from ampullary (1) and colorectal (6) cancers. Seven had prior systemic chemotherapy. Insertion of the CPs took 4 hours (median) with a range of 2 - 6 hours and was not associated with any immediate complications. A total of 38 cycles of chemotherapy was administered to the eight patients using three different regimens. No patient developed symptomatic gastroduodenal side effects or arterial thromboses. The CPs remained in situ for 11 days, and 2+, 6, 8, 10, 13.5, 16 and 16+ months. In 3 patients the CPs were removed: 1 for infection (11 days) and 2 for completion of therapy (8 and 10 months). One of the 3 had a minor transient ischemic attack without residual deficit following CP removal (8 months). While it is too early in this trial to determine the efficacy of this approach, the LTA CP method appears to be a simple, low-morbidity technique for delivering HAI chemotherapy and avoids the cost and shortcomings of a laparotomy, repeated arteriotomies or multiple inpatient admissions.

P062

GALACTOSE SINGLE-POINT AS LIVER FUNCTION TEST
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Quantitative liver function tests are usually based on serial determination of hepatic substrates or products following oral or i.v. administration, but the need of rapid testing in donors and/or recipients of liver transplant led to oversimplify procedures. Single-point tests have been developed, such as single-point MEGX test, and also a galactose single-point (GSP) test has been proposed. We aimed to determine the error in liver function measurement introduced by simplified procedures. Galactose elimination capacity (GEC) was studied after i.v. bolus injection in 905 subjects (Normal, 73 cases; Chronic hepatitis, 116; Cirrhosis, 716). Blood galactose were determined at 5-10 min intervals, between 20 and 60 min after injection. Galactose levels at time t=45 min (GSP45) or t=60 min (GSP60) were considered, and their predictive value on final GEC, considered as gold standard in liver function assessment, was calculated by linear regression. There was a good correlation between GSP and GEC, with differences in relation to liver function (GSP45 vs GEC: Normal, R^2=0.54; Chronic hepatitis, R^2=0.43; Cirrhosis, R^2=0.31). In cirrhosis GSP60 was better (R^2=0.53, n=197), but still related to liver function (Child A, R^2=0.64; B, R^2=0.44; C, R^2=0.32). The 95% confidence interval of GEC predicted by GSP45 was as large as -41% to +47% of calculated GEC, and also in cirrhosis it varied within -30 to +18% in Child A, -22 to +42% in Child B, and -33 to +101% in Child C. GSP60 was slightly better (Child A, -12 to +26%; Child B, -23 to +21%; Child C, -39 to +75%). The uncertainty of liver function measurement based on GSP increased with poor fitting of the experimental data on the regression of galactose concentration on time and low galactose elimination. It was maintained within limits acceptable in the decision-making process (± 10%) only in nearly 50% of tests.

The measurement of liver function based on GSP, although supported by correlation with GEC, introduces a considerable error in quantitative assessment, mainly in critical patients with more advanced disease. The error is likely to be similar for any single-point test, and must be considered whenever simplified procedures are used for clinical purposes in the decision-making processes.

P063

Effect of cold storage in University of Wisconsin solution on the responses of porcine hepatic arteries to 5-hydroxytryptamine and bradykinin in vitro
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Responses to 5-hydroxytryptamine (5-HT), bradykinin and sodium nitroprusside (SNP) were examined in porcine hepatic arteries 1 hour after dissection (fresh) and following 24 hours storage in either Ca2+ free Krebs' solution or the cryopreservative University of Wisconsin (UW) solution.

In fresh arteries contracted to approximately 40% of the maximum response to potassium with U46619, a thromboxane A2 mimetic, concentration-response curves to 5-HT were biphasic, with relaxation at low concentrations (< 10-8M) and contraction at high concentrations. Bradykinin produced concentration-dependent relaxation of precontracted fresh arteries with no apparent constrictor response.

Treatment of fresh arteries with NG-nitro-L-arginine (L-NOARG, 10-4M) significantly attenuated the relaxation response to 5-HT and displaced the bradykinin concentration-response curve four-fold to the right with no affect on its maximum relaxation.

From these results it is concluded that cold storage-induced damage to the endothelium is reduced by UW solution compared to Ca2+ free Krebs' solution.

P064

LIMITED RESECTION FOR HEPATOCELLULAR CARCINOMAS LESS THAN 5CM IN DIAMETER
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Hepatocellular carcinomas(HCCs) have higher equivalence of multicentric synchronous and/or metachronous occurrence. Extended or curative resection for HCCs is not always associated with prognosis. We determined the optimal surgical procedures for primary HCCs by the evaluation of resected cases. **[Materials and Methods]** The therapeutic outcome after hepatic resection for HCCs was examined in 89 patients followed up for more than 12 months postoperatively, absolute non-curative cases were excluded. Categorization of predictive factors for recurrence was performed by the general rules of primary liver cancer of the Japanese Liver Cancer Study Group. **[Results]** The overall 3-year and 5-year disease free survival rates were 39% and 38%, respectively. The overall recurrence rate was 39.7%(31cases). The significant factors affecting recurrence were age, aspartic transaminase, cholinesterase, ICGR15, protein induced by vitamin K absence or antagonist(PIVKAII), severity of liver disease and involvement of portal vein. Tumors more than 5cm in diameter had significantly high prevalence of portal involvement and intrahepatic metastasis, and showed a poor outcome in 5-year disease-free survival rate. Resection less than a subsegmentectomy(Hr0) was associated with a lower recurrence rate than resection of one or more segments. Five-year disease-free survival rates of absolute-curative, relative-curative, relative-non-curative resection were 50%, 22%, 48%, respectively. In the group of relative-non-curative resection, 36 of 37cases were less than 5cm in diameter. HBV related and HCV related cases were 21cases and 63cases, 5-year disease-free survival rates were 48%, 38%, respectively. In HCV related cases, multiple synchronous occurrence was observed in 19cases(30.1%) at the operation, and 14 of the 19cases(74%) were considered of multicentric occurrence. Furthermore, in HCV related cases, the duration from operation to recurrence was longer than that of HBV related cases, and the cases of metachronous multicentric recurrences were 14cases(58.3%). **[Conclusion]** In conclusion, limited resection should be indicated for HCCs less than 5cm in diameter without portal involvement nor intrahepatic metastasis, especially in cases of hepatitis C related.

P065

EVALUATION OF THE PRESSURE OF THE PERIHEPATIC PACKING IN LIVER TRAUMA

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Liver trauma with injury of major hepatic veins is still a serious surgical problem. Revival of perihepatic packing as a therapeutic method brought also some problems. Shortcoming on one side and overdoing on the other side may both compromise the method.
We made a study on six anestetised dogs in order to quantitatively measure the pressure of appropriate perihepatic packing. Catheters were introduced in the inferior vena cava and right atrium. Tourniquet was placed over the liver to simulate the perihepatic packing. While increasing the pressure over the liver we measured the pressures in the inferior caval vein and in the right atrium.
The increase of the pressure on the liver from 10 to 25 mm Hg increased the pressure in the inferior vena cava from mean 1 cm H_2O up to mean 8 cm H_2O. At the same time the pressure in the right atrium decreased from mean 0,5 cm H_2O to mean -1,5 cm H_2O and also mean arterial pressure decreased from 60 mmHg to 35 mmHg. After the measurements we replaced the tourniquet with packs. We provisionally closed the abdominal wall and at the same time we tried to achieve the same pressures in the vena cava inferior and in the right atrium as with the tourniquet.
The pressure on the liver between 20 and 25 mm Hg caused the haemodinamical important fall of the pressure in the right atrium and the arterial pressure. At the same pressure on the liver the pressure in the inferior vena cava arose to 7-9 cm of water.
We concluded that with measuring the pressure in the inferior vena cava by introducing a catheter, we can achieve the convenient pressure for adequate perihepatic packing in serious liver injury.

P066

INTERMITTENT VS CONTINUOUS ANOXIA/REOXYGENATION IN HEPATOCYTES: EFFECT ON OXYGEN FREE RADICALS FORMATION AND CYTOTOXICITY.

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Temporary clamping of the hepatic pedicle according to Pringle (Pringle manouvre) is the most used technique to control intraoper atory bleeding during hepatoresection. However, liver damage due to ischemia/reperfusion is a main problem in prolonged clamping. Intermittent clamping has been proposed as a method to reduce organ injury. Aim of this study was to assess oxygen free radicals formation (OFR) and cell injury during continuous or intermitent anoxia/reoxygenation in rat hepatocytes.
METHODS: after isolation, the cells were cast in agarose gel threads and continuously perfused with oxigenated (95%O2-5%CO2) Krebs-Henseleit bicarbonate buffer. Hepatocytes were exposed to 2 h continuous or intermittent (4 periods of 30 m of anoxia followed by 10 m of reoxygenation) anoxia obtained by 95%N2-5%CO2 perfusion and to a 1 h reoxygenation period. Cell injury was evaluated by LDH release; OFR by enhanced-chemiluminescence: lucigenin and luminol were utilized to enhance anion superoxide (O2-) and hydrogen peroxide (H2O2) formation, respectively.
RESULTS: after 2 h of anoxia, OFR formation was reduced to barely measurable level in both groups. LDH release was significantely greater in hepatocytes exposed to continuous compared to intermittent anoxia: 580±60 vs 310±40 % ($p<0.01$). During reoxygenation O2- and H2O2 formation increased in both group, but it was significantly higher in cells exposed to continuous anoxia: O2: 100±11 vs 43±12 nA ($p<0.01$); H2O2: 83±12 vs 38±10 nA ($p<0.01$). Parallely, during the early phase of reoxygenation, LDH release increased significantly in both groups but it was higher in cells exposed to continuous anoxia: 900±40 vs 550±65 ($p<0.01$). In both groups the lucigenin chemiluminescence peak, expression of O2 formation, occurred 10-15 m before maximum LDH release.
CONCLUSIONS: These data suggest that: 1) since LDH release is temporally delayed respect to O2- formation, OFR production seems to be the cause and not the consequence of reoxygenation injury; 2) intermittent oxygen deprivation is able to reduce liver cell injury and oxygen free radicals formation determined by anoxia/reoxygenation; 3) when the Pringle manouvre is used to perform an hepatoresection, it should be applied intermittently rather than continuously.

P067

EFFECT OF ISCHEMIA/REPERFUSION ON HEAT-SHOCK PROTEIN 70 AND 90 GENE EXPRESSION IN RAT LIVER: RELATION TO NUTRITIONAL STATUS.

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Heat shock proteins (HSP) are intracellular proteins associated with a generalized response of the cell to stress conditions. Anion superoxide generation is one of the factor that determine HSP gene expression in post-ischemic condition. Our group recently showed that the production of anion superoxide induced by reoxygenation in hepatocytes isolated from fasted rats is greater than in cells obtained from fed animals.
Aim of the study: to assess the levels of messanger RNA (mRNA) for HSP genes 70 and 90 in liver from fed or 24 h-fasted rats in baseline condition and during a period of 60 min ischemia/120 min reperfusion. Reduced glutathione (GSH) was evaluated to assess antioxidant status of the tissue.
Methods: liver ischemia was induced by placing microvascular clamps around the appropriate branches of the portal vein and hepatic artery of the left lateral and median lobe. Northern blot analysis of total RNA extracted from liver tissue was performed. Specific P32 labelled cDNA probes for HSP 70, HSP 90, albumin and reference Riboprobe were utilized. Densitometry analysis of autoradiograms was performed to obtain semiquantitative data. GSH was assessed by spettrophotometric methods.
Results: in baseline condition, liver from fasted animals presented significant differences compared to organ from fed rats: mRNA for HSP 70 and 90 were increased 2-3 fold and GSH was decreased by 40 % (0.72±0.1 vs 1.26±0.1 nM/mg; $p<0.01$). After 60 min ischemia, liver from starved rats presented a 2-3 fold decrease in HSP 70 and 90 mRNA, while HSP gene expression did not change significantely in liver from fed animals; GSH decreased 55 % (to 0.32±0.1 nM/mg) in fasted liver and 25 % (to 0.94±0.1 nM/mg) in fed organ. Upon 120 min reperfusion, HSP 70 and 90 mRNA rose 4-5 folds only in fasted animals, while a slight decrement in gene expression was observed in the fed group; GSH concentration returned to 65 and 85 % of baseline value in liver from fasted and fed rats, respectively (to 0.47±0.1 and to 1.07±0.1 nM/mg).
Conclusion: a prolonged period of fasting determines by itself a significant reduction in liver antioxidant status and an induction of HSP gene expression. Moreover, only in the fasted group the reperfusion phase that follows a period of ischemia was characterized by a marked rise in HSP mRNA. The reduced antioxidant status and the greater generation of anion superoxide determined by fasting may be the mechanisms underlying this phenomena.

P068

CHEMILUMINESCENT REAL TIME IMAGING OF OXYGEN FREE RADICALS FORMATION IN ISOLATED LIVER EXPOSED TO ISCHEMIA/REPERFUSION.

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Tissue sensitivity to ischemia/reperfusion injury remains a main problem afflicting liver preservation and transplantation. Oxygen free radicals (OFR) are a major cause of reperfusion liver injury. Studies on the mechanisms of OFR production, however, are limited by the difficulty to measure in real time their formation. Luminescence analysis has been recently proposed to measure OFR generation in isolated cells or organs, but it allows only global tissue luminescence. Using a special Saticon ultrasensitive videocamera with image intensifier able to record the organ live image and to measure the tissue photons emission at a single photon level, we aimed to visualize and localize oxygen free radical generation by isolated perfused liver exposed to an oxydative stress.
METHODS: livers obtained by Whistar male fed rats (200-250 g) were exposed to 2 h warm ischemia. Successively, organs were placed in the luminograph apparatus and perfused with an oxygenated Krebs Henseleit bicarbonate buffer containing 10 mM of the anion superoxide (O2-) enhancer lucigenin for 60 min at 37o C and at rate of 25 ml/min. Live image of the organ was recorded at the beginning and at the end of each experiment; chemiluminescence emission was recorded every 3 minutes throught the entire experimental phase. The overlay of the tissue surface luminescent emission with the live image of the organ was utilized to measure rate and spatial distribution of photon emission (photons/sec/organ surface).
RESULTS: chemiluminescence was not detectable during ischemia, while it was observed after reperfusion. Photons emission started after few minutes of reperfusion, was maximal after 15-20 min and disappeared within 50-60 min. The superimposition of chemiluminescent and live image permitted to determine the regional production rate and distribution of photons. Chemiluminescence started from the region surrounding the hepatic vasculare pedicle and diffused progressively to the perifery. The addition of superoxide dismutase, specific inhibitor of O2- formation, to the perfusate reduced significantly the light emission observed during reperfusion.
CONCLUSIONS: the luminescent imaging system here described, showing the possibility to evaluate in real time the rate and the spatial distribution of oxygen free radicals formation on the surface of an intact organ, represents a novel and potent tool for the study of the pathophysiology of oxidative stress and the pharmacodynamics of drugs with antioxidant capacity.

P069

IS FENESTRATION THE MOST ADEQUATE OPERATION FOR LONG-TERM MANAGEMENT OF ADULT POLYCYSTIC LIVER DISEASE (APLD) ?

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The surgical management of APLD remains controversial with partisans of fenestration technique or liver resection. We reviewed our experience with ten patients operated by extensive fenestration technique. APLD were classified in 3 types according to number and size of liver cysts and remaining liver parenchyma. The mean preoperative liver volume was 7761 cm^3. There was no mortality. Postoperative morbidity included intraoperative hemorrhage (one patient) and biliary complications (3 patients). The mean postoperative liver volume at follow-up was 4450 cm^3 with a mean reduction in liver volume of 43 %. Type I and II APLD are excellent candidates for laparoscopic and open fenestration procedure respectively. In type III APLD disease progression was observed in 40 % of the patients, which mean that fenestration procedure is not the best surgical approach for this group of patients.

P070

COLOR DOPPLER SONOGRAPHY IN DIAGNOSIS OF PORTAL HYPERTENSION IN PATIENTS WITH LIVER CIRRHOSIS

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Complications of portal hypertension, i.g. variceal bleeding, are the most frequent causes of hospital morbidity and mortality in patients with liver cirrhosis. Color Doppler Sonography (CDS) is the only fully noninvasive tool for diagnosis and follow up of portal hypertension.

Group of 94 patients with liver cirrhosis and endoscopically confirmed esophageal varices (Paquet II-IV , aged 25-74, median 60 years) and 5O healthy controls (aged 25-67, median 51 years) were examined. The following data were evaluated: portal vein diameter, gall- bladder thickness, common hepatic artery diameter, maximal spleen size, direction of portal blood flow, presence of portosystemic collateral circulation, peak flow velocity (PFV) and mean flow velocity (MFV) in the portal vein. The portal vein was enlarged (> 13 mm) in 40 patients (47 %), gall- bladder wall was more than 3 mm in 25 pts (29 %), spleen enlargement (> 13 cm) was present in 58 (69 %) patients. Portosystemic collateral circulation was confirmed 67 times - in 54 (64 %) patients. Hepatofugal flow was diagnosed in 3 patients only. There was a statistically significant difference ($p < 0.001$) in PFV (10.22 +/- 3. 73 vs. 16.47 +/- 3.37 cm/s) and MFV (5.99 +/- 2.71 vs. 10.4 +/- 2.5 cm/s) between patients and controls. Similarly, a significant difference in common hepatic artery diameter (5.65 +/- 0.95 vs. 4.4 +/- 0.46 mm) was confirmed.

We consider the values of PFV 7 cm/s and MFV 5 cm/s as specific for the diagnosis of portal hypertension. Dilatation of the hepatic artery is the result of increased arterial liver blood flow in cirrhosis. From diagnostic point of view, the unfavorable feature of this sign is that the common hepatic artery was measurable only in 65 % of cases .Spleen enlargement exhibited the highest sensitivity. Collateral portosystemic circulation and excessive deceleration or reversion of portal vein flow seems to be the most specific of an ultrasonographic diagnosis of portal hypertension.

P071

LIVER TRAUMA. MORBIDITY AND MORTALITY OF SURGERY

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Recent advances in prehospital care have increased our salvage rate but paradoxically have increased our institutional mortality. We reviewed our surgical experience with special emphasis on perioperative risk factors. One hundred and eleven patients presenting hepatic injury were detected during exploratory celiotomy in the sixteen year period from January 1979 through December 1993. Their median age was 31 years (5-84). Blunt trauma predominated, with 80 patients (72.1%). Injury was due to penetrating wounds in 31 patients (27.9%). From a clinical point of view it is noteworthy that, upon admission, 60 patients (54.1%) had shock and 8 (7.2%) coma. A total of 124 associated injuries ocurred among 77 of the 111 patients . "Liver sutures" were placed in 78 patients (70.3%), major resectional debridement was performed in 15 patients (13.5%), and perihepatic drainage in 18 (16.2%). Secondary hepatic procedures (perihepatic packing, selective hepatic artery ligation) were required in 16 patients. Uni- and multivariate analysis was performed to discriminate variables in relation to mortality and morbidity. 22 patients (19.8%) died and 56 of the 89 survivors (62.9%) had complications. Ten of the 22 patients who died did not leave the operating room, nine experienced exsanguinating haemorrhage. The other 12 died in the postoperative period, the main causes of death being DIC:5, MOF:3, and sepsis: 2. The morbidity was associated mainly with intraabdominal abscess (19), wound infection (15) and pulmonary complications (53). Six variables showed influence on mortality: age, sex (women), shock on arrival, orthopedic involvement, degree of hepatic lesion and liver resection. Factors correlating with morbidity were shock, gastrointestinal tract lesions and hepatic grade. When the variables were introduced in the regression model, the mortality was related only with sex ($p = 0.01$) and shock ($p = 0.007$). The morbidity had correlation with shock ($p = 0.001$) and hepatic grade ($p = 0.01$). The single most important factor influencing final outcome is the presence of shock.
DIC: Disseminated intravascular coagulation
MOF: Multiple organ failure

P072

ENDOVASCULAR EMBOLIZATION IN HEPATIC TUMOURS.

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The results of retrospective analysis of the treatment of 215 patients with hepatic tumours are presented. 117 of patients had haemangiomes, 81- malignant lesions, 11- hydatid cysts, 6- simple cysts. Endovascular occlusion of the tumours were performed in all cases by superselective catheterization of segmental arterial branches with subsequent occlusion with hydrogel. The main indication for selective embolization was hyper vascularity of lesion. Differents kinds of hepatic resections were perfomed in 119 pts.
1- 30 days after embolization.The volume of intraoperative bleeding was significantly reduced in comparision with pts.operated without embolization. In 96 pts.operation after embolization were not done. All this pts. had small benign lesions or nonresec table tumours.
Preoperative superselective endovascular occlusion of the tumours significanly reduced intraoperative complications, postoperative mortality and morbidity.It may be treatment of choice in patients with large nonresectable hepatic lesions.

P073

COMBINED TREATMENT OF LIVER CIRRHOSIS

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The aim of this prospective study was to evaluate the feasibility and success of combined treatment (lymphosorbtion plus medical therapy) *vs* medical therapy alone for treatment of advanced cirrhosis.
Group I (combined treatment) consisted of 37 patients with Child-Pugh Class B (9) or C (28) posthepatitis B liver cirrhosis. Group II (conventional medical therapy) included 20 patients (Class A - 5, B - 12, C - 3). In Group I, lymph purification and reinfusion (500 ml to 1500 ml daily) was performed using chronic external surgical catheterization of the thoracic duct. The carbon adsorbent with fibers of 8x10(-3) mm to 12x10(-3) mm and 2m2/g external geometric surface was used.
Control of activation was achieved in 33 (89%) vs 11 (55%) patients, respectively. Hospital mortality rates were 3% and 15% in Groups I and II. In two weeks after beginning of the treatment, decrease of ascites was seen in 97% and 70% of patients, respectively. Gastroesophageal varices decreased in 81% *vs* 10%, and encephalopathy regressed in 89% *vs* 30% of patients.
These data showed that combined treatment including lymphosorbtion is effective in most patients with advanced liver cirrhosis.

P074

A DIFFERETIATED APPROACH TO SURGICAL TREATMENT OF LIVER HEMANGIOMA

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We retrospectively evaluated treatment results in 140 patients with hepatic hemangioma. Of them, 90 patients had solitary, 40 multiple and 10 diffuse tumor.
Only observation was done in 48 patients with small asymptomatic hemangiomas. Surgical or interventional treatment was performed in 92 patients. Hepatic resection was made in 30 (32%) patients with 1 postoperative death. Hepatic artery ligation with catheterization and following peripheral embolization was carried out in 11 cases. Transcatheter embolization was performed in 35 patients including 6 repeated procedures. Percutaneous injection therapy with sclerosing solutions was done in 12 patients. Percutaneous or intraoperative intratumoral injection of ferromagnetic was performed in 10 cases including 8 after previous arterial ligation or embolization.
The 3 to 10 year follow-up showed excellent results of hepatic resection in 28/29 of survivors (97%). Tumor decrease with fibrosis of hemangioma and symptomatic improvement were seen in 54% of patients after arterial ligation and in 62% after transcatheter embolization. Similar effects were seen in 85% of cases treated by percutaneous injection therapy. The long-term results of local ferromagnetic treatment are in the future.
These data showed that individual approach is preferrable for patients with liver hemangioma depending on tumor size and location, clinical symptoms and benefit-to-risk ratio.

P075

ARTERIAL EMBOLIZATION (AE) IN LIVER TUMORS COMPLICATED BY JAUNDICE

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We retrospectively evaluated the results of AE in 14 pts with hepatocellular carcinoma (8) or liver metastases (6) complicated by jaundice.
Jaundice of a mixed (obstructive plus hepatocellular) origin with serum bilirubin (SB) 40 mol/L to 60 mol/L was in 8 patients. AE performed after 2-5 day infusion therapy resulted in tumor size decrease in 5 and stabilization in 3 cases. The level of SB returned to normal in these pts. The one patient with SB 95 mol/L and HCC occupying 70% of the liver, died of hepatic failure 5 days post AE.
Obstructive jaundice with SB 140-400 mol/L was diagnosed in 6 pts. The first step of treatment was percutaneous transhepatic biliary drainage (PTBD). After SB decrease < 60 mol/L, AE was done without complications. Tumor decrease or stabilization was seen in all 6 cases.
It is concluded that jaundice should not be considered absolute contraindication to treatment of liver malignancy. Level of SB < 60 mol/L is safe for AE. Pre-AE decrease of SB can be achieved with PTBD.

P076

DEVELOPMENT OF ECHINOCOCCOSIS DIAGNOSIS AND TREATMENT OVER A 20 YEAR-PERIOD

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The liver is the most frequent seat of echinococcosis and its involvement during the hydatid disease occurs in about 70% of cases. We looked over our experience in this pathology over the last twenty years regarding the development of its diagnosis and treatment. From November 1973 to October 1993 we performed 89 operations of liver echinococcus cysts in our Unit. Patients were divided into two groups: A and B. Group A and Group B amounted to 65 patients who underwent surgery between 1973 and 1988, and 24 patients who underwent surgery between 1989 and 1993 respectively. We observed remarkable differences in diagnostic procedures between the two groups of patients. In Group A we always performed a direct RX of the abdomen, in 49% of cases we carried out a hepatic scintigraphy, in 28% an i.v. cholangiography in cases of suspected relation between the cyst and the biliary tract. In the most severe cases we performed an ultrasonography, CT scan or cavography with phlebography of suprahepatic veins. In Group B ultrasonography and CT scan were always carried out, while in 5 cases we performed arteriography only for anatomic-surgical information and in cases of suspicious communication with the biliary tract ERCP was performed 4 times.
As far as the serologic diagnosis is concerned, we always carried out, for Group A patients, a test for hematic eosinophilia and the Casoni intradermal reaction test. On the contrary, in Group B we followed regularly the Elisa method for the antibody assay and in the follow-up we introduced use of the RAST test. In Group B we introduced the use of albendazole in pre-operative period. In Group A, as conservative procedures, we performed 41 marsupializations, 20 partial pericystectomies and as radical procedures 4 total pericystectomies. In Group B, we performed 14 total pericystectomies and 10 liver resections. In all Group B patients, we performed the intraoperative ultrasonography during surgery. The post-operative hospital stay was 30 days for Group A patients, with only one death, and 18 for Group B ones, without any deaths. Recurrences occurred only in Group A (11 cases equal to 17%), 8 of them were treated with further surgery of total pericystectomy while in 3 cases liver resections were performed. The analysis of our data shows that even if there are no differences in terms of deaths between these two groups, as regards the average post-operative stay, the onset of post-operative complications and recurrences, there is evidence of improvements related to a more radical surgical approach. The trend to perform more radical surgery is not a general rule; in fact each patient should be treated with a different therapy and it is very important that patients should not be exposed to excessive risks due to the benign nature of this pathology.

P077

CAPTOPRIL SIGNIFICANTLY ENHANCES ENDOTHELIN AND EICOSANOID RESPONSE IN HEPATIC ISCHEMIA-REPERFUSION INJURY

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The reactive oxygen metabolites (ROMs) and the vascular endothelial factors such as endothelins (ETs) and thromboxane A_2 (TxA_2) were found to be the mediators of the reperfusion component of ischemia-reperfusion (I/R) injury. Captopril (CPT) which is a sulphydryl (-SH) group containing angiotensin converting enzyme inhibitor has been shown to reverse the I/R injury by its ROM scavenging effect. In this experimental study, the effect of CPT and BM 13.177 (a TxA_2 receptor antagonist) were assesed on liver I/R injury in rats.

The study consisted of four groups of sham-operated, control, CPT and BM 13.177 treated Wistar-Albino rats. The middle and left lateral hepatic arteries and portal veins were occluded in each group but the sham and the corresponding agents were given to the animals prior to I/R injury. After I/R injury, blood was drawn from the suprahepatic vena cava inferior for ET-1 like activity assay and the liver tissue samples were obtained for the determination of prostaglandin E_2 (PGE_2), leukotriene C_4 (LTC_4) and histopathologic examination.

PGE_2 and ET-1 levels were increased significantly in the control group when compared with the sham operated group. In CPT group, LTC_4, PGE_2 and ET-1 levels were significantly increased when compared with the control group while only ET-1 levels were not different than those of the control group in BM 13.177 treated group.

It is concluded that ET-1 release increases in response to I/R injury in rat liver and CPT further increases this release. It also appears that CPT has a direct stimulatory effect on arachidonic acid metabolism in addition to its free radical scavenging effect.

P078

CLINICAL STUDY ON THE TREATMENT FOR SPONTANEOUS RUPTURED HEPATOCELLULAR CARCINOMA

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INTRODUCTION
We analyzed our experience with spontaneous ruptured hepatocellular carcinoma(HCC) to evaluate the long-term benefits of the treatment with second-stage hepatectomy and transcatheter arterial chemoembolization(TACE).
PATIENTS AND METHODS
From 1980 to 1995, 10 patients treated for spontaneous ruptured HCC were divided into two groups. After the clinical diagnosis of spontaneous ruptured HCC, hepatic angiography was performed , followed by TACE. After TACE, five patients were underwent second-stage hepatectomy(group A) and the other five were treated with TACE alone(group B). In group B, hepatic resection was not performed due to hepatic dysfunction and/or multiple liver metastasis.
RESULTS
Three in group A and three in group B were in hemorrhagic shock state on admission. Emergency computed tomography and ultrasonography examination were carried out in all patients and demonstrated positive findings in 100%. Hemorrhage was stopped after emergency TACE in all patients. In group A and group B, the 1-year survival rate were 53.3%, 40.0%, the longest-survival months were 29 months , 15 months and the median duration of survival were 8 months , 4 months , respectively.

	mean age(year)	hemorrhagic shock	tumor size(cm)	1-year survival rate
Group A (n=5) M 4:F 1	65±10.6 S.D.	+ : 3 - : 2	7.6±1.5 S.D.	53.3% *
Group B (n=5) M 4:F 1	62.8±8.14 S.D.	+ : 3 - : 2	6.6±2.3 S.D.	40.4% *

*$p<0.01$
CONCLUSION
In the treatment of patients with spontaneous ruptured HCC , we usually have no enough time to evaluate the liver function , because the disease itself demand an emergency treatment.Therefore , it is recommended first to perform emergency TACE. Second-stage hepatectomy may contribute to an improvement of the prognosis.

P079

FAILURE OF THE PORTAL VEIN TO BIFURCATE

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Failure of the portal vein to bifurcate is a most uncommon event compared to absence of the right portal vein which occurs in 20% of individuals. A patient undergoing right hemihepatectomy had the abnormality of failure of the portal vein to divide into right and left branches.

Materials and Results: The single trunk passed from the porta deep into the liver, arched convexly to the right and passed with no superficial left branch. After the arch the deep section passed transversely to the left and then ran forward in the umbilical fissure. The anomaly can be diagnosed on contrast CT or Doppler ultrasound and be confirmed by intra-operative ultrasound or by lowering the liver plate. Should the anomaly not be recognized, ligation of a supposed right or left portal vein would in fact be ligation of the entire portal flow. With an intact hepatic artery the mistake may not be recognized with a catastrophic post-operative outcome. An uneventful right hemihepatectomy was performed for our patient.

Conclusion: Failure of the portal vein to bifurcate is a rare anomaly that must be recognized for safe liver surgery and can be diagnosed by imaging or by operative dissection.

P080

RADIOLOGICAL DIAGNOSIS OF HEPATIC ADENOMA AND FOCAL NODULAR HYPERPLASIA.

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Pre-operative diagnosis of benign liver tumors as hepatic adenoma (HA) and focal nodular hyperplasia (FNH) is often very difficult. This lesions are rare, generally affect young women but their pathogeny and outcome are completely different. Surgical resection of HA is advocated based on the incidence of bleeding complications, in some instances lifethreating. Moreover, ...oplastic degeneration of HA have been reported. In contrast, FNH is often an incidental finding and complications as hemorrhage or malignant degeneration are extremely rare or absent, for this reasons it must be conservatively treated.
The aim of this study was to evaluate 19 female patients with benign liver tumors (10 FNH, 9 HA), trying to establish pre-operative criteria for differential diagnosis. In the present study, all patients were submitted to surgical biopsy or to a hepatic resection.
Based on clinical and laboratorial data, distinction between FNH and HA was not possible. With the development of imaging methods used in combination (ultrasound, computed tomographic scan, liver scintigraphy with HIDA and sulfur-coloid, magnetic ressonance imaging and angiography), according to a diagnostic algorithm, the differentiation was possible in 79% of the cases.

P081

Is hepatic resection the best treatment on hepatolithiasis ?

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Intrahepatic stone (IHS) which are mostly pigment stones is prevalent in East Asia, but rare in U.S. and Europe.
It makes many complications and necessitates multiple operations or interventional procedures, and also sometimes couldn't be cured even though a lot of procedures are used.
The reasons to make annoying problems are recurrence because of bile stasis, stricture of bile duct and recurrent infections.
We have studied retrospectively which is the best way to treat the intrahepatic stones.
In Korea, 10-20% of gallstone disease are IHS. We have a IHS of 18.6%(465 cases of 2504 cases) that have preformed operation from sept. 1978 to Dec. 1994 at Kyung-Hee University Hospital, Seoul, Korea. We did hepatic resection in cases of definite intrahepatic bile duct stricture, multiple stones confined to resectable segment or lobe with or without parenchymal atrophy, recurred IHS, or suspected malignancy with IHS. Between Jan. 1985 and Dec. 1994, 157 cases(56.9%) of hepatectomy (lateral segmentectomy 112 cases, lobectomy 28 cases, segmentectomy 15 cases, wedge resection I case, trisegmentectomy I case) have been performed on 276 cases , of hepatolithiasis. 28 cases(17.9%) had residual stones during and/or after hepatectomy, 24 cases out of them had stones in the both lobe of the liver. Balloon dilation and stone removal was performed on 2 cases.
Only 10 cases(6.4%) have recurrence of cholangitis and/or liver abscess within 3 years after operation but 38 cases(31.9%) in non-resection cases. Postoperative complications have had no significant differences between resection and non-resection cases. We think aggressive hepatic resection may be the treatment of choice on hepatolithiasis.

P082

COMPARISON IN SURVIVAL BETWEEN HEPATIC METASTASES OF GASTRIC AND COLORECTAL CANCERS

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Between April, 1988 and March, 1994, 176 patients with metastatic liver cancer were treated at the First Department of Surgery, Kyoto Prefectural University of Medicine Hospital. All patients received multi-disciplinary treatment, while 51 also underwent hepatectomy. The hepatic resection rate was 11.5% for gastric cancer and 39.4% for colorectal cancer. The survival after hepatectomy for metastatic liver cancer from a colorectal primary (39 patients) was better than that for gastric cancer (6 patients). Median survivals of these disease were 1317 and 566 days, respectively. The survival after hepatic arterial infusion (HAI) therapy for metastases from gastric cancer (13 patients) was better than that for colorectal cancer (25 patients). Median survivals of these disease were 881 and 648 days, respectively. Surgical resection was the most effective mode among the treatments for liver metastases from colorectal cancer. HAI was a better option for liver metastases from gastric cancer.

P083

ROLE OF THE E-CADHERIN CELL-CELL ADHESION COMPLEX IN METASTASIS OF PRIMARY COLORECTAL TUMOURS TO THE LIVER

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The E-cadherin cell-adhesion complex is made up of E-cadherin, a transmembrane glycoprotein responsible for calcium dependent cell-cell adhesion, and several cytoplasmic proteins alpha-catenin, beta-catenin, and the product of the tumour suppressor gene APC. In colorectal cancer there is a strong trend for advanced tumours to have reduced E-cadherin expression but this relationship is not simply one of loss of expression of E-cadherin facilitating invasion and metastasis. It is probable that genetic mutations in the cytoplasmic proteins associated with E-cadherin also play a role in its dysfunction. The purpose of this study was to document patterns of expression of the components of the E-cadherin complex in a large series of liver metastases from colorectal primaries. Frozen sections of liver metastases from 46 patients with colorectal primaries were examined for expression of E-cadherin, alpha-catenin, and beta-catenin. These antigens were detected by monoclonal antibodies using a standard immunoperoxidase method. There were 30 males and 16 females in this series with a median age of 65 yrs (37-83yrs). Complete down regulation of E-cadherin was found in 43 patients (95%) whilst there was complete or partial down regulation of beta-catenin and alpha-catenin in 39(85%) and 36(78%) patients respectively. Expression of all three components of the E-cadherin complex was seen in only one liver metastasis and the primary tumour from this patient was reported as moderately differentiated. In patients expressing alpha-catenin a membranous pattern of staining was always seen and in this group 80% percent of patients (8/10) also expressed beta-catenin. No obvious correlation was found between the differentiation status of the primary tumours and expression of any component of the E-cadherin complex.
These preliminary studies suggest there is no simple relationship between the expression of components of the E-cadherin complex and the presence of liver metastases. Down regulation of cell adhesion molecules may be a variable phenomenon which would account for the variations in expression seen in our study. Correlation with expression of the E-cadherin complex in the corresponding primary tumours as well as differentiation status, Dukes' stage, and grade of the primary tumours is necessary in order to determine the exact role the E-cadherin complex plays in the development of liver metastases.
These studies are on-going in our laboratory in conjunction with molecular analysis of the complex in order to identify possible mutations in the E-cadherin, alpha-catenin or beta-catenin genes.

P084

HEPATIC XENO-HEMODIAFILTRATION IN FULMINANT HEPATIC FAILURE: AN ANIMAL MODEL.

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In Argentina we have the most active liver transplantation program, performing almost 40 transplants every year. However one remaining problem is the scarcity of donors mainly in the case of fulminant hepatic failure (FHF) because of the timing of this procedure. Now in the laboratory our work is focussed in the support of liver functions until transplantation. We present here a model of liver xenoperfusion in an animal model of F.H.F.
In 6 pigs we performed a porto-caval shunt and ligature of the hepatic artery. In these pigs continuous hemofiltration through a polyacrylonitrile membrane was performed. Six isolated dog's livers were catheterized through the portal vein and perfused with autologous red blood cells, albumina and electrolites in a closed circuit. The supra-hepatic drainage of the auxiliary liver was connected to one of the lateral outlets of the hemofilter, while the other lateral outlet was connected to the portal vein A polyacrylonitrile exchange membrane was thus created between the blood of the pig in FHF and the auxiliary liver's circulation. The auxiliary liver worked during 8 hours, without evidence of macroscopic or histologic damage. Lactic acid (LA mmol/lt) and ammonia (NH3 mcg/dlt), improved: LA 8.2+-.6 to 1.6+-.1, NH3 487+-110 to 117+-13, p<.01 and the MEGX test (ng/mlt), remained at functional levels, (> 90) at the end of the perfusion.Controls (direct xenoperfusion) were discontinued at 60± 15 minutes due to hyperacute rejection. We conclude that this system is adequate to support an animal in FHF Now we are involved in a clinical trial to probe this xeno-hemodiafiltration.

P085

EXAMINATION OF THE SINUSOIDAL CELL FUNCTION AFTER THE LIVER RESECTION

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We examined a difference of the sinusoidal cell function of the survival cases and the death cases of hepatic failure.
We examined 20 cases of the liver resection for recentry 2 years. These patients were divided into two groups according to the condition after operation, first was the survival group (S group,17 cases), second was death of hepatic failure group (DHF group,3 cases). We inserted the catheter in the hepatic vein before operation. We mesured endotoxin (Et) and hyaluronic acid (HA) as an index of sinusoidal cell function from the hepatic vein for 7 days after the operation.
Et varues before the operation didn't recognize significant difference in each group. Highest value of Et after the operation didn't recognaize significant diffrence in each group. Et values after the operation gradually decreased in each group, but didn't return to a value before the operation. HA values before the operation didn't recognize significant diffrence in each group. HA values after the operation were significantly higher in DHF group than in S group. HA values after the operation gradually increased to DHF group.
Endocytosis was not the obstacle postoperative seventh day from Et values chenge. We conclude that sinusoidal endothelial cell obstacle participated as a couse of heptic failure after the operation.

P086

CLINICOPATHOLOGIC STUDY OF EARLY-STAGE HEPATOCELLULAR CARCINOMA AND BORDERLINE LESIONS IN CIRRHOTIC PATIENTS

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Objective: Recently,adenomatous hyperplasia (AH) of the liver has been considered a early neoplastic lesions since AH coexists with hepatocellular carcinoma (HCC) and contains malignant foci. Object of this study is to clarify clinical characteristics and surgical results of AH and early-stage HCC. Patients and Methods: From 1994 to 1995, 36 patiens had surgery for HCC in our institute. Of these, 25 patients with 41 small HCCs(<3cm) (sHCCs) and one patient with Atypical AH (AAH) were selected for this study. Three lesions of AH, 5 lesions of AAH and 2 lesions of AAH with focal malignancy in 7 of 25 patients with sHCCs were found by histological examinations. The detectability of these lesions on imagings was evaluated. Cumulative survival and disease-free survival rates were also calculated. Results: Twenty one patients were diagnosed with Utrasonography(US) incidentally during the follow-up study for chronir disease. In two patients, it was first diagnosed on the basis of elevated serum alpha-fetoprotein (AFP) and 14 (54%) of all patients had normal AFP values. In the conventional studies, detection rates of US , CT and Angiography for sHCCs and borderline lesions were 73% 80%, 34% 10% and 33% 20%, respectively. MRI, intraoperative US, Helical CT, arterial angiographic CT and portal angiographic CT showed better results of 70% 20%, 100% 86%, 78% 50%, 60% 50%, and 78% 56% , respectively, except for CT-A. The six month and 1- year survival rates for all patients were 83% and 66%, while disease-free survival rates at six - month and 1 - year were 83% and 57% , respectively. A total of 7 patients (27%) had intrahepatic recurrence during a mean follow-up of 9.3 months. Conclusion: For tumors larger than 1 cm in diameter, the detection rates with various diagnostic modalities were rather high . However, the differential diagnosis of borderline lesions from sHCCs could be done only by pathologic studies . Most patients with HCC and AH have associated liver cirrhosis with viral hepatitis, which causes multicentric occurrence and high risk of residual cancerous foci. Early detection of small hepatic lesions and treatment such as resection or ethanol injection are of critical important in improving the long-term survival.

P087

BLOOD COAGULATION AND FIBRINOLYSIS AFTER HEPATIC RESECTION AND EFFECT OF PROTEASE INHIBITOR

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Objective : An abnormality of the blood coagulation and fibrinolysis sometimes occurs after hepatic resection and leads to a fatal outcome. Serine protease inhibitors (PI) such as nafamostat mesilate (FUT) or gabexate mesilate (FOY), have been widely used in Japan for the prevention and treatment of disseminated intravascular coagulation (DIC) , while these PI have not been given in clinical use in foreign countries . Therefore, a randomized prospective control study was done to clarify the changes of coagulation and fibrinolysis after hepatic resection and prophylactic effectiveness of PI for DIC. Patients and Methods: Forty five patients undergoing hepatic resection from 1994 to 1995 were evaluated and divided into the following three groups ; A: Administration of FUT (0-5 POD of 120 mg/ day , n=16), B: Administration of FOY (0-5 POD of 1200 mg/ day , n =23), C: without PI(n=6). Fifteen patients who underwent gastric or intestinal resection were used as controls. Several markers , namely fibrin degradation product (FDP) , thrombin-antithrombin Ⅲ complex (TAT) and plasmin-α_2 plasmin inhibitor complex (PIC) were examined and the relationship between these markers and cytokines (IL-6 , TNFα , HGF) was also examined. Results : Preoperative clinical data , operative time , weight of specimen and blood loss during hepatectomy were not significant in three groups. The TAT and HGF levels increased immediately after operation in 6 DIC cases. FDP and TAT in group A , B and C significantly increased from 3 postoperative days without an equivalent increase of PIC. Each 3 patients in group A and B died of aggravation of DIC , respectively. However , the FDP level of day 14 in group C was higher than those in group A and B . There was a tendency of high levels of cytokines in group C. Conclusion : These results demonstrated a hypercoagulable state occurred after hepatic resetion. The measurement of TAT was useful to detect early stage of DIC. HGF was also potential to confirm differential diagnosis of DIC from hepatic failure . The prophylactic use of PI for DIC woued be advocated to carry out difficult liver surgery.

P088

LOCALIZED FIBROUS MESOTHELIOMA OF THE LIVER

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Localized fibrous mesothelioma (LFM) is also known as:solitary fibrous tumor,localized fibroma etc.
LFM frecuently involves the pleura.Only 4 cases affecting the liver have been reported until 1991.
It seems to origin from a multipotencial subserosal cell, capable of differenciating along both mesothelial and fibroblastic lines Clinical presentation generally is a large epigastric mass,that swows up a low density area enhanced by contrast medium on CT.Angiography shows hipervascularity.MRI appearance has not been reported until now.
It can reach a diameter of 30cm, and the cut surface generally is grayish white and firm.Histologically is composed of fibroblast like cells and short spindle cells. Inmunofluorescence, inmunochemistry and electron microscopy are useful in the diagnosis. The treatment of choice is complete resection.
We report the case of a LFM of the liver in a 44 y/o female who presented with a mass in the rigth upper quadrant.CT showed a low density mass of 12 cm affecting the segments V and VI.NRI ruled out haemangioma.Rigth hepatectomy was carried out, and the diagnosis of LFM was reported. Actually 5 years later there is no evidence of recurrence.

P089

PROTECTIVE EFFECT OF CALCIUM CHANNEL BLOCKER (DILTIAZEM) AGAINST ISCHEMIA-REPERFUSION INJURY OF THE LIVER

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Elevation of intracellular calcium concentration is thought to be associated with the cell damage. In the present study, we evaluated the protective effect of diltiazem, a calcium channel blocker, on ischemia-reperfusion injury of the liver. **(MATERIALS AND METHODS)** The liver of male Wistar rat was isolated and perfused by flow through method. The perfusion started by the fluid consisted of Krebs-Henseleit bicarbonate solution regulated at 35° C of temperature, saturated with 95% 0_2 and 5% CO_2, during first 30 min. Then, 120 min Ischemia was induced by stopping perfusion keeping the temperature (35 ° C) of the liver. After the ischemia, the liver was reperfused for 120 min. Rats were divided into two groups: Group A (n=10),without adminstration of diltiazem ; Group B (n=10) with administration of diltiazem (1mg/kg/hr) , which was added intravenously during 2 hours before operation and to the perfusion fluid. The following items were examined at 120 min after reperfusion. Hepatic enzyme and hyaluronic acid in the perfused fluid, ATP and respiratory function of mitochondria (RCR) in liver tissue, and level of intracellular calcium concentration in hepatocytes by X-ray microanalyzer. **(RESULTS)** 1) The level of RCR (2.15) and ATP (3.12 n mol/mg dry weight) in the liver tissue of Group B were significantly higher than that of Group A (1.41,P=0.01; 2.33n mol/mg dry weight , P=0.02). 2) No significant differences were demonstrated in the level of hepatic enzyme and hyaluronic acid of the two groups. 3) The calcium concentrations in the mitochondria (3.02 m mol/kg wet weight) and cytoplasm (2.79 m mol/kg wet weight) of hepatocytes in Group B were significantly lower than that in Group A (3.73,P=0.03; 4.08, P=0.03). **(CONCLUSIONS)** Diltiazem demonstrated protective effect against ischemic liver injury. This phenomenon probably caused by maintaining the low level of calcium concentration in hepatocytes and the mitochondrial function.

P090

ANTERIOR SEGMENTECTOMY WITH PRESERVATION OF THE ANTERIOR-DORSAL BRANCH FOR MUCOUS PRODUCING CARCINOMA OF THE RIGHT HEPATIC DUCT

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Intraductal papillary adenocarcinoma of the bile is a minimally invasive carcinoma. When this tumor involves the right hepatic duct without infiltration of the left hepatic duct, the posterior hepatic branch and the anterior-superior-dorsal branch, anterior segmentectomy with preservation of the left hepatic duct and the anterior-superior-dorsal branch is indicated to the tumor. We describe our experience with anterior segmentectomy with preservation of the left hepatic duct and the anterior-superior-dorsal branch for mucin-producing intraductal papillary adenocarcinoma, involving the anterior-inferior bile duct, and infiltrating to the right hepatic duct. A 58-year-old female was admitted to our department for suspicion of the intra hepatic stone . Computed tomography demonstrated dilatation of the right hepatic duct and isodensity mass in the anterior segment. ERC showed mucous in the bile duct. The anterior bile duct was not detected. PTC demonstrated tumor shadow in the right hepatic duct, development of anterior-superior- dorsal branch. Hepatic venography demonstrated the right hepatic vein, the right inferior hepatic vein, and moreever branch from the base of the middle hepatic vein. This hepatic vein was regarded as drainage vein of the anterior-superior-dorsal subsegment. When this operation is indicated to the bile duct carcinoma of the right hepatic duct, it is important to recognized the condition of the ramification of the bile duct.

P091

Correlation between mutant p53 gene and biological behavior of hepatocellular carcinoma

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To investigate the biological behavior of the mutant p53 gene in hepatocellular carcinoma and to elucidate the possible role of hepatocarcinogenesis of mutant p53 gene in the invasiveness and the prognosis of hepatocellular carcinoma.

Seventy-nine consecutive patients having received resection of hepatocellular carcinoma entered this study. Tissue sections of resected HCC (deparaffinized and rehydrated from formalin-fixed and paraffin embedded sections) were incubated with Anti-Human p53 monoclonal antibody and received immunostain. Scoring of p53 result without knowing the patient status was undertaken. Two percent immunopositivity was regarded as the threshold value.

The immunopositive rate was 81% (61 out of 79 patients). The result of p53 immunopositivity, the clinical variables (associated liver cirrhosis, alphafetoprotein, HBV infection, dead, disease free interval, dead, and survival) and the histological variables (size, capsule, vascular permeation, grade of differentiation, multinodular, adequate margin, daughter nodule, rupture, tumor necrosis and hemorrhage) were compared.

From univariate, vascular permeation, adequate surgical margin, grade I, complete capsule and multi-focal lesions have statistically significant difference between those with p53 positive and those with p53 negative. From multivariate analysis, vascular permeation (78.1% vs 40.0% p=0.0088, O.R. (odds ratio)=5.357), grade I (1.6% vs 20.0%, p=0.0203, O.R.=15.750), complete capsule (20.3% vs 46.7% p=0.0496, O.R.=0.316), multi-focal lesions (60.9% vs 33.3%, p=0.0527, O.R.=3.120), dead (62.5% vs 33.3%, p=0.0683, O.R.=2.923) and disease free interval (8.3M vs 39.1M, p=0.0107, O.R.=4.900) have statistically significant difference.

Our results suggest that the biological behaviors of mutant p53 gene are strongly related to the invasiveness of HCC. We recommend the immunopositivity of mutant p53 gene may predict the prognosis of HCC in selected patients.

P092

PARASITIC DISEASE (Hydatid cyst and ascaridiasis) AS A COUSE FOR OBSTRUCTIVE JAUNDICE

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Examination was made on 25 pts.with sings of obstructive joundice , under suspection of intrabiliary rupture of hydatid cyst were further investigated by another US (ultra sound) examination and/ or ERCP, and 3 pts.with "strange bodies" like long tubes placed in common bile duct. During dynamic watching slow movements of the parasites had been seen.

US showed cystic liver lesion communicating with biliary tree and enlarged gallbladder in 22 pts., while ERCP was diagnostic in 14 pts. (19 pts. underwent surgery). All 3 pts.with corpora aliena in common bile duct were showed by US and ERCP. From the parasite invastigation of the feces ascaris lumbricoides was isolated. After that the patients were put on the corresponding antihelmintic therapy with Mebendasol. On the next echotomography check-up after two weeks the obstructive syndrome were solved,andthere were no signs for obstruction.

These obstructions could be diagnosed in the easiest and quickest way by means of iltrasonography, and also to foloow up the evaluation.

P093

ESTROGEN- (ER) AND PROGESTERONE RECEPTORS (PgR) IN HEPATOCELLULAR CARCINOMA (HCC)

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A survival benefit of the antiestrogen tamoxifen was observed in non-resectable HCC and in 60% of breast cancer patients with ER(+) tumors and up to 75% if the tumor was also PgR(+). Data on the female sex hormone receptor status in HCC are scarce, hardly checked for their clinicopathological relevance, and refer almost exclusively to Japanese patients. From 4/1992 to 12/1993, 34 hepatic resections for primary HCC were performed. Cancerous tissue for cytosolic preparation and receptor quantification in a monoclonal solid-phase enzyme immunoassay was obtained from 28 patients undergoing resection, 3 additional patients of the liver transplantation (LTX) program and 2 patients suffering from non-resectable HCC. A receptor status was assessed positive for ER- and PgR-levels exceeding 1.9 fmol/mg protein. ER and PgR could be detected in the HCC of 13 (39.4%) and 6 patients (18.2%), resp. A lower age was observed among the female patients, when their receptor status was negative for ER or PgR or both when compared to the respective receptor positive groups; a tendency that reached statistical significance in PgR(-) women (PgR(-): 53.5±17.5 years vs. PgR(+): 72.7±2.6 years; $p<0.05$). Liver cirrhosis was preexistent in 16 patients (48.5%) with an even distribution among the different groups. No significant differences with respect to tumor stage and grading could be observed. The most common histopathological pattern was the trabecular type, while the fibrolamellar variant occurred exclusively, though not statistically significant, in ER(-)/PgR(-) HCC. There was one perioperative death (3.2%). Patients undergoing LTX, explorative laparoto-my or non-radical resection were omitted for survival analysis. 1-year-survival in the ER(+)-group was significantly lower than in the ER(-)-group (40.0% vs. 78.6%, $p<0.05$). Though not statistically significant, the 2-year-survival rates in the ER(+)- and ER(-)-groups were 40.0% and 71.4%, resp. A comparable trend did not become evident for PgR(+) and PgR(-) patients. The reduced survival in the ER(+)-group may emphasize the putative potential of tamoxifen in an adjuvant regimen after resection of HCC, all the more as the female subgroup tended to be older than ER(-) patients.

P094

Case reports : 1) Anterior segmentectomy of the liver with reconstruction of middle hepatic venous tributary, and 2) extended hepatic resection of segment 8 associated with resection of a part of the right hepatic vein .

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Background : When a liver malignancy has invaded a hepatic vein, decisions regarding resection and / or venous reconstruction are necessarily a concern.

Patients : Case one was a 57-year-old male with two hepatocellular carcinomas located in segments (S) 8 and 5. The plasma retention rate of indocyanine green at 15 minutes (ICGR15') was 18.2 %. We carried out an anterior segmentectomy with the thick hepato-venous tributary draining all of S6. Following reperfusion, S6 was swollen and became dark purple in color. In this case, reconstruction of the tributary was performed because we considered a resection of S6 following anterior segmentectomy might produce liver failure.

Case two was a 64 -year-old female. A metastatic liver tumor was located in S8 and had invaded to the ventral area of S7 over the right hepatic vein (RHV). The right lobe was 70.2 % on CT volumetric examination. However, draining of S6 and S5 by the inferior right hepatic vein (IRHV) was confirmed by intraoperative ultrasonography. Therefore, to prevent postoperative liver failure following a right lobectomy, we carried out a systematic resection of S8 and the ventral area of S7 associated with resection of a part of the RHV.

Results : In case one, S6 liver remnant congestion disappeared immediately following reconstruction of the middle hepatic venous tributary. In case two, although a very slight congestion of liver remnant was found, the postoperative course was uneventful and without jaundice.

Conclusion : Obvious congestion may necessitate hepatic venous reconstruction. However, if liver function and the volume of liver remnant are considered adequate to prevent postoperative liver dysfunction, resection of a part of the RHV is acceptable.

P095

EFFECT OF LONG-TERM ENDOSCOPIC SCLEROTHERAPY ON PORTAL HEMODYNAMICS IN ADVANCED LIVER CIRRHOSIS

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Endoscopic sclerotherapy (ES) of bleeding esophageal varices proved to be the treatment of choice in patients with advanced liver cirrhosis. Changes of portal hemodynamics caused by ES were studied in 30 cirrhotic patients (Child-Pugh class B - 14, C - 16), who had bled from large (> 5 mm) esophageal varices. All of them were assigned to elective long-term ES, which consisted of combined intra- and paravariceal injections of 3% sodium tetradecylsulfate using free-hand technique. Sessions of ES included 3-5 injections performed every other day and were repeated every 6 month. Complications were of minor importance. Portal venous flow (PVF) was measured using duplex Doppler system before and after sessions. Patients' follow-up ranged from 12 to 36 months. Mean values of PVF showed evidence of significant increase after ES from 437,0 to 580,2 ml/min ($P<0,05$), but demonstrated a tendency to reduction before the next session. Complete obliteration of esophageal varices was observed after 4 sessions of ES in 18 patients (60%). At the end of the follow-up, PVF in this group was higher compared with that in patients with persistent varices (591,0 versus 476,6 ml/min). Considerable decrease of blood ammonia nitrogen level confirmed effective interruption of gastroesophageal collateral pathways. Thus, long-term ES in patients with advanced liver cirrhosis produces significant stable rise in PVF, providing that complete eradication of esophageal varices is achieved.

P096

THERAPEUTIC INDICATION FOR SMALL HEPATOCELLULAR CARCINOMA

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The best way of therapy for small hepatocellular carcinoma (sHCC) equal to or less than 2 cm in diameter was investigated. We experienced 185 (17%) sHCC cases among 1084 HCC cases from 1982 to 1993 in our institute. There were 142 male and 43 female patients. Age distributed 31 to 85 years old (mean 60 y.o.). One hundred and eighteen cases (64%) had solitary and 67 (36%) had multiple lesions. The first therapy were resection in 104 cases (56%), percutaneous ethanol injection (PEI) in 21 (11%), transcatheter arterial embolization (TAE) in 49 (26%) and no therapy in 11 because of liver dysfunction. Each of 3- and 5-year cumulative survival rates were 86% and 55% in resected cases, 76% and 57% in PEI cases, 52% and 35% in TAE cases, respectively. In solitary lesion group, each of 3- and 5-year cumulative survival rates were 89% and58% in resected cases, 80% and 53% in PEI cases, 66% and 37% in TAE cases. Each of 3- and 5-year cumulative disease free survival rates were 48% and 20% in resected cases 33% and 8% in PEI cases, respectively. These data indicate that survival rate in PEI group is fairly well considering that PEI had been performed mainly for inoperable cases. PEI is easy to be done, less risky, cheap, repeatable for recurrent lesions and need shorter admission. Indication of PEI can be widened to operable HCC cases in addition to inoperable cases, especially for sHCC with some risk for surgery.

P097

PORTAL ANGIOECHOGRAPHY USEFULNESS IN LOCALIZING HEPATOCELLULAR CARCINOMA

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(Purpose) As for the pre-operated examination, it is very difficult to determine the localization of Hepatocellular Carcinoma. Portal Angioechography is a method of enhancing ultrasonographic images by the injection of carbon dioxide gas into a branch of portal vein. We studied the localization of Hepatocellular Carcinoma by Portal Angioechography.
(Material) We used in 83 cases,101 nodules of Hepatocellular Carcinoma to determine the localization of tumor.
(Method) A 22-gauge needle for percutaneous transhepatic cholangiography was inserted into an intrahepatic portal branch under ultrasonic guidance. Ultrasonography was perfomed after the injection of 10-15 ml of CO2 gas into the branch. Gas was injected into the anterior segmental branch in 70 cases,the posterior segmental branch in 10 cases and the left lobe branch in 3 cases. The accuracy of these determinations was confirmed at operation. We studied the accuracy of Portal Angioechography, Ultrasonograhy, Computed Tomography and Angiography.
(Result) The accuracy of the localization was Portal Angioechography 89.1% (90/101), Ultrasonography 76.2% (77/101), Computed Tomography 65.2% (58/89), Angiography 71.4% (55/77). The misdiagnosis cases of Portal Angioechography were 11 cases (10.9%). The 8 cases were the localization of lower anterior and posterior segment borderline (so-called S5/S6). The 3 cases were the localization of upper internal and anterior segment borderline (so-called S4/S8).
(Conclusion) Portal Angioechography is very useful for the localizing of Hepatocellular Carcinoma. It is careful to determine the localization of lower anterior and posterior segment borderline (so-called S5/S6).

P098

SIGNIFICANCE OF HEPATIC RESECTION FOR HEPATOCELLULAR CARCINOMA PRESENTING WITH BILE DUCT TUMOR THROMBOSIS

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Hepatocellular carcinoma(HCC) is a common malignant tumor in korea, as in the south-east asian country. HCC presenting with obstructive jaundice(so-called icteric-type hepatoma) is uncommon and it's causes are known to be tumor thrombi, hemobilia, tumor compression, or tumor infiltration. Few published reports on HCC with bile duct tumor thrombi exist and its prognosis has been reported to be very poor. And so most of treatment used to be palliative procedure such as T-tube decompression, hepatic artery ligation or transarterial embolization. But occasionally, curative resection can be offered if the disease is still localized.
From June 1986 to July 1995, we managed 90 HCC patients by hepatic resection. Of them, six patients were presented with obstructive jaundice due to bile duct tumor thrombi. We performed curative hepatic resection with Roux-en-Y hepaticojejunostomy in two patients and curative hepatectomy with tumor thrombectomy and T-tube drainage in two patients and in the remaining two patients we performed only tumor thrombectomy with T-tube decompression. Only two patients who underwent curative hepatectomy with Roux-en-Y hepaticojejunostomy are alive more than two years after operation until now. In conclusion, the aggressive surgical approach including bile duct reconstruction for the HCC with bile duct tumor thrombi should be considered for long term survival.

P099

LIVER TRANSPLANTATION IN KOREA

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Even though the liver transplantation(LTX) has been accepted as the treatment modality of the end stage liver disease in western countries, there are many problems to perform LTX in Korea. Among them, most Koreans are basically occupied with Confucianism as a religion. Until now the brain death has not been officially accepted, and the medical insurance does not cover the expenses for the extrarenal organ transplantation presently. In 1988, the first successful LTX was done by the author on 13 year old girl with Wilson's disease. She is still alive. After that, the favorable public response to transplantation from the brain death patient has been induced. Fifty six cases of LTX were done at 7 organ transplantation centers by the end of May 1995. Orthotopic LTX was 49, reduced LTX was 5 and living related segmental LTX was 2. During the early period, poor success rate was faced. It may be due to high incidence of liver cirrhosis and hepatoma, and high prevalence of hepatitis B viral markers in recipients. Living related or reduced LTX has gradually increased in number. In conclusion, legal approval of brain death, careful recipient selection and financial support by medical insurance will facilitate our LTX outcome in the near future.

P100

Study of EGF on Hepatic Tissue PGE2 and hepatic blood flow in Rats using Acute Hepatic Failure Model

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(AIM) We reported that the administration of EGF kept the hepatic blood flow and protected hepatic cell necrosis in animal model of acute hepatic failure. The volume of hepatic tissue PGE2 that participate with hepatic cell regeneration and cytoprotection was measured.
(METHOD) EGF was administrated at 20μg/kg.Bw.iv, on male SD rats about 250g in weight (injection group).After 30 minutes, D-galactosamine (D-gal) was injected at 1g/kg.Bw.ip. Insted of EGF, the same volume of saline was administrated befor D-gal injection (non injection group). The volume of hepatic tissue blood flow (HTBF) and Hepatic tissue PGE2 were measured by semiconductor laser Doppler flowmeter and PGE method (RIA) befor D-gal injection (n=5), after 30minutes (n=5), and 48hours (n=5). Blood sampling were collected from inferior vena cava at same times. (RESULT) In non treatment group, serum ALT and HTBF were 51.6±12.3IU/l and 460±54.9mv. In EGF non injection group, those were 43.0±5.9 and 473.6±49.6 at 0 minute, 45.6±5.5 and 456.4±16.7 at 30minutes, 7614±1536 and 220.0±23.7 at 48 houres. In EGF injection group, those were 39.4±6.8 and 630.0±76.5 at 0 minute, 42.8±6.6 and 541.2±27.6 at 30 minutes, 5200±1812 and 296.8±30.7 at 48 houres. Serum ALT at 48 houres in injection group was significantly ($P<0.05$) lower than that corresponding value in non injection group. HTBF at 48 houres in injecton group was signifi- cantly ($P<0.01$) higher than that in non injection group. Hepatic tissue PGE2 was 0.26±0.06Pg/w.w.mg in non treatment group. In EGF non injection group, those were 0.19±0.13 at 0 minute, and 0.24±0.18 at 30 minutes. In EGF injection group, those were 0.94±0.20 at 0 minute, and 1.87±1.06 at 30 minutes. That value at 0 minute and 30 minutes in injection group were significantly (0 minute : $P<0.001$, 30 minutes : $P<0.002$) higher than that in non injection and non treatment group.
(CONCULUSION) The results suggested that cytoprotection and maintaining hepatic blood flow of EGF were induced by PGE2.

P101

PROGRESSIVE DECREASE IN TISSUE GLYCOGEN CONTENT IN RATS WITH LONG-TERM CHOLESTASIS

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Aims: To investigate glycogen metabolism in liver and skeletal muscle from rats with long-term cholestasis induced by bile duct ligation
Methods: Ligation of the common bile duct (BDL, n=6) or sham-operation (CON, n=6) for 1 or 4 weeks. CON pair-fed to BDL, rats studied in the fed state. Glycogen as glucose (Anal Biochem 1968;25:486), glycogen synthase (SYN) and phosphorylase (PHOS) by incorporation of radioactive substrates into glycogen (Hepatology 1991;14:1189), glucagon by RIA and glucose enzymatically. Stereological analysis of the livers (Hepatology 1987;7:457).
Results: One week after surgery, the hepatic glycogen content was 16.9+8.1 vs. 26.2+11.0 mg/g liver wet weight or 28.8+13.8 vs. 38.6+16.4 mg/ml hepatocytes in BDL and CON, respectively (both differences n.s.). Total activities and active forms of SYN and PHOS expressed per ml hepatocytes were both reduced in BDL vs. CON. Skeletal muscle glycogen was not different between BDL and CON. Four weeks after surgery, the hepatic glycogen content was 9.3+7.8 vs. 33.1+4.8 mg/g liver wet weight or 20.5+14.2 vs. 52.9+6.4mg/ml hepatocytes in BDL and CON, respectively (both differences $p<0.01$ BDL vs. CON). Total activities and active forms of SYN and PHOS were both reduced in BDL vs. CON. Skeletal muscle glycogen content (soleus) was 0.40+0.21 vs. 1.11+0.34 mg/g wet weight in BDL vs. CON ($p<0.01$). Plasma glucose concentrations were decreased and glucagon concentrations increased in BDL rats at both time points. There was a positive correlation between the volume fraction of hepatocytes (a measure of liver damage) and the glycogen content per ml hepatocytes and a negative between the plasma glucagon concentration and SYN activity.
Conclusions: Chronic cholestasis leads to a progressive decrease in the hepatic and skeletal muscle glycogen content which is metabolically significant as indicated by hypoglycemia. Both the decrease in SYN and the correlation between glucagon and SYN suggest that the decrease in the tissue glycogen content in BDL is due to impaired glycogen synthesis.

P102

FOCAL NODULAR HYPERPLASIA AND PORTAL VEIN THROMBOSIS - CASE REPORT

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Focal nodular hyperplasia (FNH) is a relatively rare benign focal liver lesion. It is characterized by presentation of the central scar.

We describe a case of a 40- year- old woman with chronic persistent hepatitis who had an episode of variceal bleeding four years after diagnosis established. A round tumor of the lobus quadratus with a diameter of 6 cm and splenomegaly were found by ultrasonography. Color doppler ultrasound (CDU) revealed incomplete portal vein thrombosis, which seemed to have been the cause of variceal bleeding. Due to signs of hypersplenism splenectomy was performed and then she was submitted to sclerotherapy with eradication of varices. Since liver tumor was not evaluated during operation, CT and NMR were provided. Based on CT, the diagnosis of adenoma or FNH was suggested. NMR could not exclude hepatocellular carcinoma. However, normal alfa- fetoprotein values were not indicative of a malignant origin. Dynamic liver scintigraphy with 99 Tc-colloid showed the typical image for FNH. Core - needle biopsy from the lesion confirmed this diagnosis.In the literature no case of simultaneous portal vein thrombosis and FNH has been described as yet and the association of the two conditions remains still vague.

Concluding, we would emphasize :

1. the efficacy of CDU for the diagnosis of portal vein thrombosis, and

2. the importance of 99 Tc-colloid scintigraphy for setting up the diagnosis of FNH when the typical central star does not occur; it can demonstrate the occurence of Kupfer cells in the lesion and thus differentiate it from adenoma, carcinoma or metastases.

P103

GALACTOSE ELIMINATION CAPACITY AND PROTEOSYNTHETIC LIVER FUNCTION IN LIVER CIRRHOSIS WITH PORTAL HYPERTENSION AND IN PATIENTS AFTER LIVER RESECTION.

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Galactose in organism is being metabolized predominantly in the liver, in the cytosol of hepatocyte. Galactose elimination determination expresses the total liver capacity of galactose phosphorylation, which is the limiting step in galactose metabolism and its elimination. We used examination of galactose elimination capacity (GEC) after intravenous administration of a 20 % galactose solution. After enzymatic determination of galactose concentration in six samples of venous blood GEC was calculated. At the same time we evaluated also proteosynthetic function of the liver, determining the albumin (Alb), transferrin (Tf), prealbumin (PA) levels, cholinesterase (CHE) activity and prothrombin time (Proth). Patients with histologically confirmed liver cirrhosis - with different severity of portal hypertension, patients after resection of the liver and healthy persons were investigated. The group of patients with liver cirrhosis was divided in 2 subgroups - according to the compensation of the illness: Ci c (compensated cirrhosis hepatis) and Ci d (decompensated cirrhosis hepatis) and in 3 groups - according to Child-Pugh criteria (Ci A, Ci B and Ci C). In patients with liver cirrhosis and patients after resection of the liver mean values of GEC in comparison with healthy control subjects were significantly lower. The mean levels of GEC between the subgroup Ci c and Ci d were statistically significantly different. Having divided the cirrhosis group according to Child-Pugh criteria, the most marked decrease of GEC was found in the group Ci C, the least marked one in the group Ci A. There were significant differences between the groups Ci A and Ci B, but not between the groups Ci B and Ci C. In liver cirrhosis the GEC assessment enabled to judge appropriately the amount of hepatic tissue reduction which does not necessarily correspond with the grade according to Child-Pugh classification. In the Ci group, the evaluation of serum PA and CHE levels showed the best differentiation of the Child-Pugh severity groups. Determination of GEC in patients with liver cirrhosis makes the evaluation of the functional state of the liver possible - it is a quantitative test of liver function. This test could be considered a quantitative index of functional mass of liver parenchyma. The method of combined testing of GEC and proteosynthetic liver function, that we propose, enables a better differentiation of the severity and degree of liver insufficiency. In patients with liver cirrhosis the most appropriate way is the usage of the dynamic evaluation of GEC. Long term follow-up of GEC can be used to advantage in patients with liver cirrhosis for prognostical criterion of survival, as well as for the course of disease severity.

P104

ALPHA-FETOPROTEIN VARIANTS IN PATIENTS WITH LIVER TUMORS AND CHRONIC LIVER DISEASES.

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Alpha-fetoprotein (AFP) is a fetal protein which is being formed during the fetal development period of the embryo but after birth the serum level falls rapidly. Production of AFP is not confined to fetal and malignant cells, the oval and intermediate cells formed in the course of liver tissue regeneration also posses this capacity.
The AFP levels were measured by radioimunoassay. The afinity chromatography on Con A-Sepharose was used for separating variants of AFP. The concentrations of Con-A reactive AFP and Con- A nonreactive AFP were examined in the sera of patients with chronic liver diseases (steatofibrosis hepatis, chronic active hepatitis, liver cirrhosis), in patients with liver tumors (primary hepatocellular carcinoma, liver metastases) and in control group. The diagnosis of liver diseases was confirmed by histology. The mean values of AFP in the patients with chronic active hepatitis, liver cirrhosis, liver metastases and primary hepatocellular carcinoma were significantly higher than in the control groupin patients with steatofibrosis hepatis. Patients in the active period of the disease showed significantly higher serum AFP levels than patients in the inactive period. The highest AFP concentration were found in the patients with hepatocellular carcinoma, mean values in this group were significantly higher than in the patients with liver metastases and patients in the other groups. The mean values of the concanavalin A non-reactive fraction of AFP of the examined groups did not differ significantly. This indicates that estimation of AFP variants in patients with liver diseases may not provide useful information additional to that provided by the values of total serum AFP. The different elevation in the concentration of alpha-fetoprotein in the serum of patients with primary and secondary tumors of the liver can be useful in differential diagnosis of the type of tumorous affection of the liver. Long-term follow-up of alpha-fetoprotein serum concentrations can be used to advantage in patients with cirrhosis of the liver for early diagnosis of primary hepatocellular carcinoma developing in a cirrhotic tissue. The higher levels of alpha-phetoprotein determined in the serum of patients with chronic active hepatitis and liver cirrhosis presumably reflect regeneration of the liver parenchyma in these pathological processes.

P105

LONG TERM ASSESSMENT OF LIVER BIOTRANSFORMATION FUNCTION AND ITS RELATION TO PROTEIN METABOLISM IN LIVER CIRRHOSIS WITH PORTAL HYPERTENSION

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The liver plays a dominant role in disposition of the majority of drugs. There is now clear evidence, that the pharmacokinetic disposition of a large number of drugs is abnormal in patients with liver diseases. The most important place of drug biotransformation, is the hepatic microsomal oxidative enzyme system (m.e.s.) localised in the smooth endoplasmic reticulum of the hepatocyte. Theophylline (TH) and antipyrine (AP) - drugs metabolized by m.e.s. were selected for this study. Since our model substances (TH and AP) are metabolized in the liver by the m.e.s., their elimination rate is an indicator of this system's functioning and estimation of their clearence and half-life (T 1/2) could provide a clinically useful functional assessement of the degree of hepatic damage. TH levels were determined by HPLC method. AP levels were determined by gas chromatography. Mean T 1/2 of TH and AP in patients with histologically confirmed liver cirrhosis were significantly longer than in the control group. Dividing the cirrhosis group according to Child-Pugh criteria (Ci A, Ci B and Ci C), the prolongation rate of T 1/2 TH and T 1/2 AP depended on the Child-Pugh groups severity. The most marked prolongation of T 1/2 TH and T 1/2 AP was present in the group with most severe portal hypertension and liver damage (Ci C), the least marked prolongation of T 1/2 TH and T 1/2 AP was found in the group with the slightest liver damage (Ci A). The mean levels of T /2 TH and AP between the groups Ci A, Ci B and Ci C were statistically significantly different. Serum protein concentrations in the examined groups were not influenced in the same way. By evaluating the proteosynthetic function of the liver, we found out that prealbumin and cholinesterase are more sensitive indicators of liver function than e. g. albumin , prothrombin time and transferrin . The differences of the mean levels of prealbumin and cholinesterase between the group Ci A, Ci B and Ci C were statistically significant. In the liver cirrhosis group statistically significant correlation between investigated biotransformation and proteosynthetic function was found. We came to conclusion, that the evaluation of T 1/2 of TH , or T 1/2 of AP with serum prealbumin level and cholinesterase activity can be very good markers of liver function and the degree of liver insufficiency.

P106

ULTRASOUND AND X-RAY GUIDED PERCUTANEOUS INTERVENTIONS FOR TREATMENT OF HEPATIC HYDATIDE CYSTS

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Surgical treatment of liver hydatide cysts is still considered as a highly risky operation due to its great mortality rate and serious postoperative complications such as parasites dissemination.

Between 1990 - 1995 years 5 patients with hydatide cysts of the liver underwent percutaneous transhepatic drainage. Moreover, from 26 patients who were examined intraoperatively 3 cases were taken for percutaneous draining because of the presence of multiple cysts or/and their deep localisation in liver parenchyma.

A complex set of diagnostic measures including serologic tests and ultrasonography in majority of cases provided sufficient information to diagnose hydatide cysts, their localisation, quantity, maturity level and to differ them from the other hepatic lesions. Ultrasound and X-ray-guided percutaneous diagnostic punction and drainage were performed simultaneously using multipurpose pigtail catheter /"COOK", Denmark/. Complete aspiration of cyst was followed by triple sanation of its cavity with 20% saline solution. The detachment of chitinic membrane and its partial discharge through the drainage tube were observed everyday during routine ultrasonic control. The sanation of cyst cavity with hypertensive saline solution was repeated in 7-8 days. Discharged fragments of chitinic membrane were taken for pathomorphologic investigation. Complete discharge of chitinic membrane was achieved after the substitution of drainage tube to a lager one. After receiving the cytological confirmation about the absence of living parasites sclerosing therapy with 96% ethanol was started. Diameter of cysts drained by us was ranging from 56 to 98 mm and only in one case residue of cyst was observed in subcutaneous tissue which was due to early substitution of draining tube. Early postoperative complications were not observed and long-term follow-up from 6-48 months revealed no residual cases. However, this problem require further investigations.

P107

CURRENT DIAGNOSIS AND SURGICAL MANAGEMENT OF LIVER TUMORS

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Every year increases number of diagnosed and operated on liver tumors. It is related with technical improved diagnostic methods and improved operating procedures.

In the authors Department between 1978 and 1995, 155 patients underwent surgery for various liver tumors. In 96 cases they were hepatic carcinomas, in 25 - cysts (20 nonparasitic and 5 parasitic), in 12 patients - abscesses and in 6 hemangiomas. In 4 patients focal nodular hyperplasia was established, in 2 inflammatory tumors and in 1 tuberculoma.

Multiple imaging modalities have been used in the diagnosis, including ultrasound, dynamic computed tomography, angiography, scintigraphy, and magnetic resonance imaging. Also Doppler (CDS) velocity histogram analysis and percutaneous liver biopsy with CDS guidance were performed.

Amongst 153 patients in 32 cases anatomical resection of the liver were done. Six underwent left lobectomy and 2 right lobectomy. In 11 patients extirpation of the cysts was carried out and 22 patients underwent nonanatomical resection of the liver parenchyma with tumors. In 80 cases only laparotomy and biopsy was performed.

The postoperative complications included: hepato-renal insufficiency - 5 cases, jaudance - 4, stress ulcer -3, prolonged leak out of the fluid - 6 patients, haemorrhage - 2 cases. Overall mortality ratio was 3.7 %

On the basis of our experiences we state that radical resection of the liver tumors are the best curative management.

P108

IN SITU ISOLATED HYPERTHERMIC LIVER PERFUSION WITH TUMOR NECROSIS FACTOR (TNF) IN PIGS

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Isolated hyperthermic limb perfusion with TNF is an effective therapy of irresectable soft tissue tumors. Only little data is available about TNF in isolated hyperthermic liver perfusion (IHLP). In this study we analyzed the hepatic and systemic toxicity of IHLP.

Methods: 21 pigs (3 groups, 7 pigs each) underwent IHLP via the hepatic artery and portal vein after total vascular isolation of the liver. The livers were perfused with a blood-saline mixture at an inflow temperature of 41.0°C for 45 minutes. 7 pigs (group A) underwent oxygenated IHLP without TNF, while in group B and C 50µg TNF/kgbw were administered. Before reperfusion the livers were washed with Ringer solution (group A and B) or with a protein/dextrane solution (group C). The TNF concentration (perfusate and systemic) was measured perioperatively. Laboratory data were obtained within one week, liver biopsies were taken at the end of the operation and at postop. day 7.

Results: In all pigs, a stable perfusion without major sytemic leakage could be achieved. Mortality was 1/7 (portal vein thrombosis) in group A, 5/7 (cardioresp. failure) in group B and 2/7 (hemorrhage, cardioresp. failure) in group C. Initial median TNF concentration in the perfusate were 2.3µg/ml and decreased during perfusion to 1.8µg/ml. The systemic TNF concentration was below 0.1ng/ml during perfusion but increased after reperfusion to 97.5ng/ml (group A) and 12.5 ng/ml (group B). Transient liver toxicity (GOT, GPT) was seen in all animals but normalized within one week. Bilirubin and AP remained unchanged. Histology showed sinusoidal dilation one hour and almost normal parenchyma one week after perfusion.

Conclusion: IHLP with high dose TNF is technically feasible without significant systemic leakage. Hepatic outwash with protein/dextrane seems to be most important to avoid high systemic TNF concentration after reperfusion. IHLP causes only mild hepatic toxicity which is almost reversible within one week. IHLP with high dose TNF appears to be ready for clinical use in the treatment of irresectable liver cancer.

P109

APROTININ REDUCES BLOOD LOSS IN LIVER SURGERY : RESULTS OF A CONTROLLED STUDY

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Although improvement in surgical management has allowed to decrease blood loss during liver resection, liver surgery still remains at risk of intraoperative bleeding and transfusion requirement. It has been shown that administration of aprotinin a fibrinolytic inhibitor and platelet protector decreased blood loss during open heart cardiac surgery, orthotopic liver transplantation and hip or knee replacement. The purpose of the present work was to determine if aprotinin could reduce blood loss during liver resection. Ninety seven consecutive patients undergoing liver resection for tumor were randomly assigned at time of surgery to aprotinin (48 pts) or placebo (49 pts) treatment. The aprotinin group received a loading dose of 2.10^6 kallikrein inactivator units (KIU) of aprotinin over a 20 minutes period after induction of anesthesia followed by a continous infusion of 5.10^5 KIU per hour until the end of surgery. The age, gender, liver function, nature of the tumor, status of the liver parenchyma and type of liver resection were similar in both groups. Intraoperative blood loss was significantly ($p<0.05$) less in patients receiving aprotinin (217 ml) than in those receiving placebo (1655 ml). There were significantly less patients ($p<0.02$) requiring blood transfusion in the aprotinin (17%) than in the placebo group (39%). Mean blood transfusion (PRC) was significantly less ($p<0.01$) in patients receiving aprotinin (0.6 U) than in placebo (1.5 U). The same tendency was observed in patients with malignancies with or without chronic liver disease and in those with a benign tumor. No major adverse effect was observed in patients receiving aprotinin. These results suggest that aprotinin reduces blood loss and blood transfusion in patients undergoing liver resection of a malignant or a benign tumor. Aprotinin is another mean of decreasing blood loss during liver surgery.

P110

ROLE OF LASER RAY IN TREATMENT OF LIVER INSUFFICIENCY.

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Manifold positive effect on human organism, availability, simplicity of laser using in any medicinal institutions give an opportunity of the broad use of laser ray in complex therapeutic and surgical treatment of disease of liver and biliary tracts. Ray of laser has especial significance in disease of liver's insufficiency. Activation of fermental, oxidizing - reductional reactions, and change of membrane's penetrability are important. Excitation of bioenergetical, biostimulational processes has analgetic, antioedema, anti-inflammatory effect. It creates stimulating of regeneration of tissue, increasing of protective strengths of organism. Different kinds of low intensive laser radiation are used for treatment after-effect of the gall stone illness of 170 patients. The red helium-neon and semi-conductor lasers for intravenous intracutaneous endocholedohial irradiation have been applied. The determination of individual sensibility of patient to laser radiation was distinctive peculiarity of research. It was permitted the nearest results to be 16.3 per cent more effective and to speed up the date of patients recovery .

P111

LIVER ASSOCIATED LYMPHOCYTES ISOLATED FROM PERITUMORAL REGIONS OF COLON METASTASES ARE HIGHLY RESPONSIVE TO MITOGENS

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Liver associated lymphocytes (LAL) have a well defined phenotypic pattern, are low responders to mitogens, and suppress the PHA responsiveness of peripheral blood lymphocytes (PBL). Their strategic location in the sinusoid suggests that LAL may constitute a first line of defence against gut - derived bacterial, viral and food antigens. The question arises whether LAL can also be involved in the recognition and reaction to the metastatic cancer cells in the liver. Fifteen patients undergoing partial hepatectomy for colorectal adenocarcinoma metastases were studied. In order to collect LAL population from normal liver fragments (LAL-1) and peritumoral areas (LAL-2) the removed tissue was perfused as described previously. The phenotype of isolated cells were studied in FACScan, and responsiveness to PHA and ConA in culture was measured. Results. There were no statistically significant differences in phenotypes of LAL-1 and LAL-2 population. Interestingly, cultures of both populations with mitogens revealed evident differences. The responsiveness to PHA (90 μg/ml) was 6304 ± 634 cpm for LAL-1 and 18156 ± 1147 cpm for LAL-2, (26547 ± 2137 cpm for PBL), whereas to ConA (5 μg/ml) the lymphoproliferative reponse was 8177 ± 814 and 13556 ± 1310 cpm, respectively (13706 ± 1023 cpm for PBL), $p < 0.05$. Conclusions. Liver associated population isolated from liver tissue adjacent to colonic adenocarcinoma metastases and remote normal areas displayed similar phenotypes, whereas their responsiveness to mitogens was different. Liver associated lymphocytes adjacent to tumor tissue reacted stronger than those from normal distant areas. This indicates that LAL could undergo subtreshhold stimulation by tumor antigens and this effect was amplified by mitogens acting as additive factors.

P112

OUTCOME RELATED FACTORS IN LIVER RESECTION FOR HEPATOCELLULAR CARCINOMA IN CIRRHOTIC PATIENTS

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Liver resection can offer a chance of cure for HCC. However, in cirrhotic patients the outcome may be endagered by the onset of postoperative liver failure leading to death.
The present study was aimed to identify factors correlated to the unfavorable outcomein such patients.
Post-operative liver failure, defined as the presence of ascites, jaundice and encephalopathy, major complications and death were the end points. The following variables Age and Sex, Child's score (CH), serum Albumin (ALB), Bilirubin (BIL), Prothrombin (PT), AST and γGT, number and size of cancer nodules, extent of resection (RES), Blood transfusion (BT) and Ischemic Time (IT) were analysed by multiple in 33 cirrhotic: Child A: 20, B: 11, C: 2) who underwent liver resection of 42 lesions (wedge and non anatomical resections 26, segmental 13, bisegmental 3) and standard perioperative cares.
Results 16/33 (48 %) patients experienced different grades of liver failure, 8 (24 %) developed major complications and 3 (9 %) died. Post-operative liver failure and complications were related to BIL,PT, and BT: $r^2 = 0.70$, $p<0.001$ and $r^2 = 0.54$, $p<0.001$ respectively, while Mortality was related to BIL, PT, ALB and BT: $r^2 = 0.75$, $p< 0.0001$.
In the present series of cirrhotic patients, poor residual liver function was the major factor determining liver failure, complications and death following liver resection. BIL resulted, by far, the most single relevant variable and BT the most important surgery related.

P113

COMBINED MINI-INVASIVE THERAPY FOR COMPLICATIONS OF ADVANCED LIVER CIRRHOSIS

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Mini-invasive approach seems to be most eligible in patients with advanced liver cirrhosis. The aim of the study was to evaluate results of elective combined therapy included splenic artery occlusion (SAO) with subsequent endoscopic sclerotherapy (ES) of esophageal varices, in 30 cirrhotic patients (Child-Pugh class B-18, C-12). All of them had large varices with previous bleeding, symptomatic hypersplenism and ascites, 8 patients had clinical signs of encephalopathy. SAO was performed in modified technique, that consisted of simultaneous insertion of steel coil into the main trunk and 10-15 synthetic emboli into the small branches of the artery. ES was carried out with intra- and paravariceal injections of 1% sodium tetradecyl sulfate. ES began 14 days after SAO and repeated every 6 month. Patient follow-up ranged from 12 to 36 months. Splenic infarction after SAO developed in 12 patients and resolved within 2 weeks. Complications of ES were transient and of little consequence. There was no mortality. During the follow-up no variceal rebleeding occurred. Non-aggressive hemorrhage from gastric erosions was observed in 3 patients. Four patients had episodes of mild encephalopathy. Fifteen patients demonstrated complete eradication of esophageal varices, accompanied by the reduction in size of gastric varices. Correction of symptomatic hypersplenism was universal. Twenty patients showed complete absorption or considerable improvement of ascites. Child-Pugh score significantly decreased in 15 patients.Thus, subsequent application of SAO and ES proved to be effective for the management of patients with complicated advanced liver cirrhosis.

P114

HEPATIC RESECTION FOR THE TREATMENT OF WESTERN'S WORLD PRIMARY INTRAHEPATIC LITHIASIS.

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Thirty nine patients with intrahepatic lithiasis (IHL) were treated between 1974 and 1993. There were 21 women and 18 men with a mean age of 38 years (range 11 to 75).
In 64.1% of the cases stones were bilateral in the liver parenchima and in 23.1% were located only in the left lobe. We adopted a systematic approach in the treatment of these patients with an individualized surgery according to the presentation of the disease. All patients were submitted to surgical treatment, including biliary drainage procedures and hepatic resections. Indications for hepatic resection were the presence of liver atrophy or non-removable stones, specialy in unilateral disease. Eleven patients were submitted to liver resection, as an isolated procedure in 5 with unilateral disease and associated to a biliary drainage procedure (hepatic-jejunal anastomosis) in 6 patients with bilateral stones. There was no operative mortality.
In patients with unilateral disease where a resection was performed, good late results were found in all (100%) cases. Hepatic resection associated to biliary drainage surgery for bilateral disease leaded to 66.6% of good results.
In the treatment of IHL best late results occurred in patients with unilobar disease, specially when a hepatic resection was performed. In bilateral disease symptoms recurrence occurred in 33.4% of the resected cases. Overall good results in the treatment of 39 patients with IHL were observed in 70.2% of the cases after a median follow up of 58 months.

P115

TISSUE CHARACTERIZATION WITH MR IMAGING OF FOCAL LIVER LESIONS: CAN THE BIOPSY BE ABANDONED?

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PURPOSE: to evaluate the diagnostic accuracy of MR Imaging in characterising focal liver lesions.
MATERIALS AND METHODS: We prospectively evaluated 51 patients with focal liver lesions with different pulse sequences before and after the e.v. administration of contrast media (Gd-DTPA). Morphologic data (Signal intensity, margins, internal structure) and functional data were recorded. All patients underwent percutaneous biopsy 1-7 days after the MR examination; that was considered our gold standard. In case of hemangioma, the gold standard was considered the ^{201}Tl-labelled RBC scintigraphy.
RESULTS: All hemangioma appeared hypointense on T1-weighted images and markedly hyperintense on T2-weighted images; all presented a peripheral, globular enhancement during the arterial phase with centripetal progression. Focal nodular hyperplasia (FNH) appeared isointense on T1- and T2-weighted images in 71% of the cases; all lesions presented the central scar. All FNH appeared hyperintense during the arterial phase of the dynamic scan because of the hypertrophied arterial supply. On T1-weighted images hepatocellular carcinoma (HCC) presented a variegate appearance (Hypo- Iso- and Hyper-intense). Conversely on T2-weighted images appeared in 94% of the cases hyperintense. A pseudocapsule was observed in 70% of the cases. In 74% of the HCCs presented hyperintensity during the arterial phase. Metastases had a homogeneous appearance: hypointense on T1-weighted images and hyperintense on T2-weighted images. MRI is able to differentiate coagulative from colliquative necrosis.
CONCLUSION: MR Imaging is a powerful tool in characterising focal liver lesions, reducing, in that manner, the number of percutaneous biopsies.

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PREOPERATIVE DETECTION OF HEPATOCELLULAR CARCINOMA NODULES: MR IMAGING WITH HEPATO-BILIARY CONTRAST MEDIA.

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PURPOSE: To prospectively compare the diagnostic accuracy of Magnetic Resonance Imaging (MRI) before and after the administration of a biliary excreted contrast media (Gd-BOPTA) in the preoperative evaluation of hepatocellular carcinoma (HCC) nodules.
MATERIALS AND METHODS: 14 consecutive patients with cirrhosis and, at least, one HCC nodule, underwent MR Imaging before and after the administration of Gd-BOPTA, in order to determine the number and the site, before surgical procedure. All patients underwent angiography with lipiodol injection and lipiodol-CT 3 weeks after. In patients undergoing surgical procedure, an intraoperative ultrasound (IOUS) was performed. Lipiodol-CT and IOUS were considered as gold standard of diagnosis. All patients had 6-months follow up. 2 blinded readers reviewed the MR images for site, number, and maximum diameter of the lesions. The results were recorded on evaluation sheets and compared with gold standard findings.
RESULTS: 3 patients with a single nodule (diameter 1,5-7,2 cm) underwent surgical procedure. The other 11 patients underwent chemioembolization because 8 had poor functiontal reserve and 3 had satellite nodules. The sites of the satellite nodules were: 6 in the VIII and IV segment, 4 in the II and VI segment, 2 in the III and VII segment, and 1 in the I segment (diameter 0.2-13, mean 3.1).

Procedure	Sensitivity			
	< 1 cm (N=2)	1 - 2 cm (N=14)	> 2 cm (N=20)	Total (N=36)
MR	0	10 (71%)	16 (80%)	26 (72%)
MR + Gd-BOPTA	1 (50 %)	14 (100%)	19 (95%)	34 (94%)

The number and the site of the lesions were correct in all patients. The conspicuity and the confidence in detecting/excluding lesions were superior in post contrast images.
CONCLUSION: Gd-BOPTA-enhanced MR Imaging enables a better depiction of satellite nodules and improving the selection of patient amenable of surgical procedure.

P117

PREOPERATIVE EVALUATION OF LIVER METASTASES: MR IMAGING WITH HEPATOSPECIFIC CONTRAST MEDIA.

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PURPOSE: To prospectively compare the diagnostic accuracy of MR imaging with hepatobiliary excreted contrast media, Gd-BOPTA (Phase III clinical trial) in detecting focal liver lesions.
MATERIALS AND METHODS: 20 consecutive patients with synchronous or metachronous liver metastases were included in the study. All patients underwent MR imaging before and after the e.v. administration of Gd-BOPTA. Gd-BOPTA has a specific hepatocellular uptake. 2 radiologist independently evaluate the MR images. The number, the site and the eventual coexistence of benign focal liver lesions were recorded. All patients underwent surgical procedure with intraoperative ultrasound (IOUS). The liver was scanned on its superior and inferior face, with high resolution probe.
RESULTS: the sensitivity of the MRI before and after the administration of contrast media is reported in the table below:

Procedure	Sensitivity			
	< 1 cm (N=23)	1 - 2 cm (N=28)	> 2 cm (N=33)	Total (N=84)
MRI	13 (56%)	23 (82%)	32 (96%)	68 (80%)
Gd-BOPTA-enhanced MRI	20 (86%)	28 (100%)	33 (100%)	81 (96%)

There is an increase in the detection rate for small lesions (diameter < 2 cm) after the administration of contrast media, specially for subcentimeter lesions. There was a complete agreement on the site of the lesions between IOUS and MRI. Benign lesions were characterized as such, even if they were very small (4-6 mm). The conspicuity of the lesions and the confidence in detecting/excluding lesions were significantly superior after administration of contrast, because of the higher contrast between the normal parenchyma that enhances and metastastic lesions that no not.
CONCLUSION: Gd-BOPTA-enhanced MRI detects a higher number of metastases and enables a more accurate selection of patients undergoing hepatic resection.

P118

DISTAL SPLENORENAL SHUNT. LONG TERM RESULTS.

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MATERIAL AND METHODS
From January 1987 to December 1995, 84 patients were operated due to bleeding esophageal varices. Forty-five patients underwent Warren operation with a mean age of 55.8 ± 13 years. Elective surgery was performed in 32 cases (71.1%) and urgent in 13 (28.9%). Ethiology of portal hypertension was: liver cirrhosis in 40 patients, liver fibrosis in 1, portal thrombosis in 1, and rebleeding in patients with previous portal hypertension surgery in 3. Child A was in 32 patients (71.1%), B in 9 (20%) and C in 4 (8.9%).
RESULTS
Operative mortality was 6.7% (3 patients) and early rebleeding occurred in four patients (8.9%) but shunt occlusion was found in only one.
Follow-up: forty-two patients were discharged from the hospital. Mean follow-up was 41.9 ± 26.9 months (range: 2.2 to 93.7). Ten patients (23.8%) died in the follow-up (1 from rebleeding, 3 from liver failure, 2 from hepatoma, 1 from alcoholism, 1 from post-transplant sepsis, 1 from respiratory infection, and 1 from rectal adenocarcinoma).
Three patients presented encephalopathy requiring medical treatment and three developed hepatoma. Three underwent liver transplant.
Recurrent hemorrhage occurred in 4 cases (9.5%) and shunt occlusion was found in two by ultrasonography. Several hemorrhage episodes were presented in other patient despite open shunt and no evidence of bleeding lesion was found by colonoscopy and upper endoscopy.
Actuarial survival were: 83.5%, 80.8%, 77.7%, 70.1%, and 60.8% at 1, 2, 3, 4 and 7 years, respectively.
CONCLUSION
Warren operation is a safe procedure with a low rebleeding and encephalopathy rate, and low mortality. We recommend this shunt as elective operation in patients with bleeding esophageal varices.

P119

SURIGAL TREATMENT OF CYSTS HYDATID OF LIVER

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Department of Surgery, Medical centre of Kraljevo, Yugoslavia In their retrospective study, the authors the results of surgical treatment of liver's hydatid cysts. The study covers 42 patients in the period 1980-1994. Regarding pathology, solitary and uncomplicated forms dominated, as well as location at right liver's lobe. The diagnosis was based on clinical, laboratory, radiological, and serological examinations, as well as on echo-sonography of abdomen, and CT. Operative procedures consisted of cystectomy with partial pericystectomy (32 pts), total pericystectomy (2 pts), atypical and typical resection of liver (6 pts), marsupialisation (2 pts). Other organs were surgically treated at 7 patients. Early postoperative complications (bilious pertonitis, onter bilious fistulas, liver's abscess, subphernic abscess, dehiscence of operative wound, hemorrhage of abdomen, etc). Were hoted in 30.9%. Early postoperative mortality is 7.1%. Bsed on our results, we are for operative treatment in the form of cystectomy with partial percystectomy and omentum tamponade of the cavity. We think this is most secure procedure in majority of the cases.

P120

PREVALENCE, CLASSIFICATION AND INCIDENCE OF GASTRIC VARICES IN PORTAL HYPERTENSION OF DIFERENT ETIOLOGIES.

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A prospective study was done to document prevalence of gastric varices (GV) and incidence of bleeding from various types of GV in patients of portal hypertension (PHT) of different etiologies and to propose a rational classification for GV. The study includes 501 patients of PHT (cirrhosis 224, extrahepatic portal venous obstruction [EHPVO] 195, non cirrhotic portal fibrosis [NCPF] 80 and isolated splenic vein thrombosis 2 patients) managed over a 10 year period; 349 males and 152 females with age ranging from 1 to 87 years. The GV were classified (modified Hosking's classification as LCGV (Type 1), subcardiac (Type 2a), diffuse fundal (Type 2b), diffuse fundal with splenic vein thrombosis (Type 3a), diffuse fundal with generalised PHT (Type 3b), LCGV with fundal varices (Type 4) and antral varices (Type 5).The overall incidence of GV was 86%. (LCGV-65%, Type 2-13%, Type 3-3%, Type 4-14% and Type 5-5%) According to etiology, incidence of GV was 82% in cirrhosis, 95% in EHPVO and 75% in NCPF. However, the incidence of bleed from GV was low, being 13%. (LCGV-13%, Fundal Type 2 & 4- 24%, Type 3- 100%) According to etiolgy, the incidence of bleed was higher in patients of NCPF (22%) as compared to cirrhotics and EHPVO (11%). In conclusion, though the incidence of gastric varices is high (86%), the incidence of bleed is only 13%. Bleed is more common from fundal varices (31%) and in patients of NCPF.

P121

LIVER MITOCHONDRIAL GLUTATHIONE METABOLISM AND THE EFFECTS OF SOMATOSTATIN AND MANNITOL ON GLUTATHIONE METABOLISM IN AN EXPERIMENTAL OBSTRUCTIVE JAUNDICE MODEL

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Great efforts are made to determine the hepatic reserves and to predict the prognosis and the severity of the negative effects caused by obstructive jaundice besides treatment of obstruction. As we know, in obstructive jaundice, respiratory functions in liver mitochondria deteriorate, ketogenesis diminishes, bile duct proliferation and hepatic fibrosis developes.
In this experimental tudy the hepatic metabolism of glutathione is evaluated. Glutathione is found naturally in the body and in recent years is popularised by its reducing effect on toxic metabolites and preventing cell injury. Additionally the effects of mannitol, a scavenger on free oxygen radicals, and somatostatin, a naturally occuring cytoprotective hormon, on hepatic glutathione metabolism are studied. After establishing experimental obstructive jaundice, 5 groups (Control-C n:7, sham operation-SO n:7, obstructive jaundice-OJ n:8, obstructive jaundice treated with somatostatin-OJ+S n:7, and obstructive jaundice treated with mannitol-OJ+M n:7) are formed to measure the hepatic glutathione up-take labeled with Tc-99m. The hepatic injury is also confirmed histopathologically.
Finally we observed that in obstructive jaundice liver glutathione reserve is decreased and up-take is increased parallel to the severity of histological injury . Mean liver glutathione up-take was 3.39 in C group, 6.96 in SO group, 8.18 in OJ group, 11.74 in OJ+S group and 9.22 in OJ+M group ($p<0.05$). It is also found that mannitol and somatostatin did not improve glutathione reserves.
Clinically, glutathione scan can be helpful to evaluate the liver injury caused by obstructive jaundice, to predict the prognosis of disease and to assess the results of different kinds of treatment modalities.

P122

ORTHOTOPIC LIVER TRANSPLANTATION (OLT): AN ITALIAN EXPERIENCE

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Between 1/7/1991 to 31/12/1995 we submitted 67 patients to 77 OLT. The indications to liver transplantation were: 41 chronic viral cirrhosis (18 HCV, 11 HBV all but 2 HBsAg+, and 12 mixed HBV and HCV), 11 alcoholic chirrosis, 4 primary sclerosing cholangitis, 3 primary biliary cirrhosis , 1 secondary biliary cirrhosis, 2 HCC both in HBV and HCV related cirrhosis, 3 fulminant hepatic failure (1 HBV related, 1 autoimmune and 1 drug induced), 1 Budd-Chiari syndrome and 1 cryptogenic cirrhosis. The patients mean age was 47 +/- 10 (range 22-63). Accoprding to UNOS score at the time of transplantation 9 patients were status 1, 43 status 2, 12 status 3 and 3 status 4. Nine patients needed a retransplantation because of PNF (5), chronic rejection (1), fulminant hepatic failure (1), IVC thrombosis (1), arterial thrombosis (1); the last one required a third transplant because of PNF. The incidence of retransplantation was 12.9%. Seven (10,4%) early perioperative deaths occurred (1 ventricular fibrillation, 1 cerebral infarction, 1 hepatic artery mycotic aneurysm, 1 fulminant hepatic failure and 3 MOF) and 5 late (1 intestinal volvolus, 1 Pneumocistis Carini pneumonia, 1 PTLD, 1 autoimmune hepatitis recurrence and 1 HCV hepatitis recurrence with tunsilla cancer). The patients and grafts 1 year actuarial survivals are respectively 83.5% and 72.6% with a mean follow-up of 486 and 421 days; chronic cholestatic liver diseases obtained the best results, with a 100% survival, compared to the patients opereted on for fulminant hepatic failure with the worst, all dead at 1.5 year.

P123

HEPATIC FIBROLAMELLAR CARCINOMA WITH ENDOCRINE CHANGES

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A 18-year-old man was referred to our Institution with a 3-month history of bilateral gynaecomastia. Also US findings of liver haemangioma were reported. Phisical examination was normal, as were haematologic and liver function test. Serum α-FP, HBV and HCV markers were negative. CEA level was normal. CT scan and MRI showed a 10-cm solid tumour in the right lobe of the liver without evidence of extra-hepatic spreading. Des-γ-carboxy protrombin (DCP) level was elevated (162 ng/mg) and by a needle biopsy a fibrolamellar carcinoma was diagnosed. A right hemiepatectomy was performed and the postoperative course was uneventful. The patient was discharged 12 days after his laparotomy. He is currently alive without evidence of recurrence 12 months after removal of the tumour. After surgery DCP and oestradiol levels rapidly decreased and gynaecomasty disappeared (DCP= 15 ng/ml; oestradiol= 69 pg/ml). Specimen's histologic examination confirmed the preoperative diagnosis. Intracellular (hepatocytes) oestrogens were found, but oestrogen (ER) and androgen (AR) receptors were negative.
Conclusions 1) Surgical resection remains primary therapy for fibrolamellar carcinoma with long-term survival. Liver transplantation may be undertaken in patients with unresectable tumour or hepatic tumoral recurrence. 2) Hormonal and metabolic changes have been described in association with HCC (erythrocytosis, hypoglicaemia, hyperlipidaemia, hypercalcemia). A fibrolamellar carcinoma producing oestrogens is rare and intriguing observation. 3) According to HCC negative ERs and ARs could be a better prognostic factor. 4) DCP positivity is an interesting report and its investigation could allow an early diagnosis.

P124

LYMPHOBLASTOID IFN-ALPHA VERSUS RECOMBINANT IFN-ALPHA.2a IN THE TREATMENT OF CHRONIC HCV HEPATITIS

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Background. Chronic hepatitis C is usually a mild progressive liver disease due to an infection with hepatitis C virus (HCV). Interferon-alpha is at present the treatment of choice for chronic viral hepatitis. Available data show that interferon (IFN) is more likely to be effective if administered for a prolonged time (6-12 months).
Methods. To evaluate the efficacy of treatment with IFN, we retrospectively studied 158 HCV-Ab positive, HIV-Ab negative patients (pts.) (89 men and 69 women) aged between 16 and 63 (mean 43.1 years old) with chronic HCV hepatitis (130 histologically proved, 82.3%) who received long-term therapy with IFN-alpha (89 pts. with lymphoblastoid IFN-alpha and 69 pts. with recombinant IFN-alpha.2a). The patients received IFN-alpha therapy for 1 year at the dosage of 3 million units (MU) thrice a week. In the lymphoblastoid IFN-alpha group (54 men and 35 women; mean 43.2 years old) 19 patients had a history of intravenous drug use (IVDUs) with a drug free period >12 months before therapy, 16 had been haemotransfused; 12 had histological evidence of severe fibrosis and/o cirrhosis. In the recombinant IFN-alpha.2a group (35 men and 34 women; mean 42.7 years old) 9 patients had a history of IVDUs, 22 had been haemotransfused; 8 had histological evidence of severe fibrosis and/o cirrhosis. Treatment was completed in 101 pts. (63.9%; in 53 pts. with lymphoblastoid IFN, 52.5%); was stopped during therapy in 26 pts. (16.5%) because of absolute no response (18 with lymphoblastoid IFN, 69.2%) and in 16 pts. (10.1%) for intolerable adverse effects (11 with lymphoblastoid IFN, 68.7%) and 15 pts. (9.5%) for other reasons.
Results:

	Norm. ALT end therapy	Norm. ALT at 12 mths FU	Norm. ALT at 24 mths FU
1- lymph. IFN-alpha	35/53 (66.0%)	17/43 (39.5%)	13/21 (61.9%)
2- IFN-alpha.2a	23/48 (47.9%) **P=0.07**	13/43 (30.2%) **P=0.37**	9/23 (39.1%) **P=0.13**

14 pts. included in the group 1 and 11 pts. in the group 2, non responders after 12 months of f-up, recieved a second course of IFN treatment with higher doses and excluded at the 24 months of f-up evaluation.
Conclusions. In about half the patients with chronic hepatitis C treated with IFN-alpha for a prolonged time, the serum ALT levels become normal, with decreased activity in liver histology in 42.4% (14/33); a relapse is relatively common after treatment has been stopped. There is no statistical difference in biochemical response at the end of the therapy at 12 months and at 24 months of follow-up in patients who received lymphoblastoid IFN-alpha or recombinant IFN-alpha.2a.

P125

INTERFERON THERAPY IN LIVER CIRRHOSIS ASSOCIATED WITH CHRONIC HEPATITIS C.

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Background: Chronic infection with Hepatitis C Virus (HCV) can lead to cirrhosis and hepatocellular carcinoma. The prognosis of advanced cirrhosis due to chronic hepatitis C is poor, and results of therapies, including liver transplantation, have been unsatisfactory. Effectiveness of interferon alfa (IFN-alpha) in preventing hepatocellular carcinoma in HCV positive patients with and without cirrhosis is unknown.
Methods: Thirty-five HCV Ab positive and HIV Ab negative patients (pts.), with well compensated cirrhosis and chronic active hepatitis, treated with IFN-alpha in the period 1/1990-12/1993, were retrospectively evaluated. Thirty-four pts. (97.1%) had an histologically proven diagnosis, whereas in one patient liver cirrhosis was diagnosed based on unequivocal clinical signs and on results of imaging procedures. These 35 pts. (16 men and 19 women, aged between 26 and 62 [mean 51 years old]) were treated with recombinant or lymphoblastoid IFN-alpha, 3 millions units (MU) thrice at week for 1 year. Twenty-four pts. (68.6%) completed the treatment, whereas IFN-alpha was discontinued in 4 pts. (11.4%) because of intolerable adverse effects, in 3 pts. (8.6%) for thrombocytopenia, in 3 pts. (8.6%) because of no response and in one patient (2.9%) because of marked exacerbation of liver cells necrosis.
Results:

	ALT Norm. end therapy	ALT Norm. 12 months FU
IFN-alpha	8/24 (33.3%)	3/24 (12.5%)

Treatment with IFN-alpha was not associated with an improvement of histological features (periportal necrosis and portal and lobular inflammation). A liver biopsy was performed in 7 pts. after the treatment, and all patients did not show any hystological changes.
Conclusions: Our findings shows that interferon alfa may be useful in selected patients with compensated cirrhosis and chronic active hepatitis C, as 33,3 % of patients normalized aminotransferase levels at the end of therapy and 3 patients are well and do not present any signs of reactivation of liver disease after one year of follow-up. We think that IFN-alpha therapy should be considered for selected cirrhotic patients, also in order to prepare them for a possible liver transplantation. IFN-alpha should be started at low doses and the patients should be carefully monitored.

P126

EVALUATION OF FUNCTIONAL CAPACITY IN LIVER SURGERY

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The high rate of postoperative mortality in extended liver surgery is mainly caused by liver dysfunction. In the recent study we tried to evaluate liver function and liver biosynthetic capacity for perioperative functional disorders.
Material and Methods: In a prospective study we analysed 41 patients (19 males ; 22 females) with hepatic tumors. The age ranged from 26 years up to 76 years, mean age was 59 years. Liver resection was performed under pringle manoeuvre (i.e. partial vascular exclusion). Apart from quantitative liver function test MEGX (Mono-Ethyl-Glycin-Xilidid) labor diagnostics, CT-Scan and Abdominal Ultrasonography were performed preoperatively.
Results: Multivariate stepwise logistic regression analysis revealed that parameters as CHE, Quick, PTT, bilirubin, albumin, GGT, GPT, Child-Pugh score and MEGX were significant predictors. In order to determine the relationship between the preoperative liver chemistry and the laboratory data of the postoperative course, aprincipal components analysis was carried out on the correlation matrix of the significant variables. Preoperatively there were no additional information for the surgical risk using the MEGX - Test in comparison with the single parameters (Bilirubin, albumin, GGT, GPT, Quick and PTT).
The correlation matrix showed a decrease of single variables of significant predictors postoperatively. In cirrhotic patients the MEGX test showed an increase of significance.
Conclusion: The decrease of valence in single parameters was based on operative and ischemic liver trauma (posttraumatic enzyme shedding) and therefore the significance of MEGX test increased postoperatively.

P127

DIAGNOSIS OF ABSCESSES AT THE RESECTION MARGIN AFTER HEPATECTOMY -EVALUATION OF COMPUTED TOMOGRAPHY APPEARANCE OF PERIHEPATIC FLUID COLLECTION-

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Postoperative diagnosis based on computed tomography (CT) was investigated for the early recognition of intra-abdominal infectious disease following hepatectomy. This study included 159 patients in whom CT was undertaken during postoperative hospitalization,among 637 patients who had undergone hepatectomy during the 7-year period from 1987 to 1994. The CT findings of 75 patients with infection and 84 patients without infection were compared. Fluid collection at the resection margin was observed in 66 and 63 of the patients with and without infection, respectively. The significant CT findings observed in the patients with infection were (1) uneven fluid collection indicated by a high attenuation value,(2) gas in fluid collection, (3) irregularity of the fluid collection margin, (4) marginal enhancement,and (5) complications of pleural effusion. These findings were more significant in patients with hyperthermic symptoms than in those without such symptoms. The investigation of postoperative CT findings in post-hepatectomy patients makes the diagnosis of intra-abdominal infection more certain,and appears to be useful for applying treatment with drainage.

P128

INCIDENCE HBV INFECTION AND AUTOIMMUNE HEPATITIS BETWEEN PATIENTS WITH CHRONIC HCV INFECTION

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The study was performed to establish the incidence of HBV infection or autoimmune hepatitis in the patients with HCV positive, and chronic liver disease. All patients were testing on HCV by a second generation ELISA tests, and were tested on antinuclear and smooth muscle antibodies. We tested 39 patients, 18(46,15%) female. Theirs growth were from 1920-1975. All off them were with chronic liver disease,. like hepatitis chronica activa were 17(43,59%), cirrhosis 13(33,33%), and HCC 9(23,08%). HBV and HCV positive were 15(38,46%), only HCV positive were 23(58,97%), and 1(2,56%) was with autoimmune chronic hepatitis. We conclude that autoimmune chronic hepatitis is a rare condition, buth possible, and that HBV infection combine with HCV were very often probably because intravenous drug abuse and transfusion.

P129

RUPTURE OF SPLENIC ARTERY ANEURYSM AFTER LIVER TRANSPLANTATION

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Aneurysm of the splenic artery (SAA) is a very rare disease in the general population (0.7 %), but relatively frequent in patients with liver cirrhosis and portal hypertension, with an incidence reaching 8-10%. In cirrhotic patients this alteration is due to the hyperkinetic splancnic circulation. The spontaneous rupture of the splenic artery aneurysm in cirrhotic patients with portal hypertension is very rare and has only been described in patients who have previously undergone liver transplantation (OLT).
The authors report their experience of two cases of rupture of splenic artery aneurysm out of 230 liver transplants performed over the last 8 years. Both patients, a male aged 38 transplanted for advanced stage cirrhosis HCV related and a female aged 19 transplanted for an anti-LKM positive autoimmune liver cirrhosis developed the rupture of the splenic artery aneurism within two months after the transplant. Both were asymptomatic before the event and underwent emergency splenectomy. At the time of transplant, the splenic artery did not appear to present any pathology in either of our cases. Neither of the patients had undergone preoperative abdominal arteriography or MRI. Both have survived and this is certainly not the rule, as shown by the data in the literature. Attempts have been made to evaluate the risk of rupture in relation to the volume of the aneurysm and 15 mm is believed to be the threshold diameter. Pain in the upper left quadrant of the abdomen may be a warning symptom of rupture. Echo-Doppler alone is not sufficient to exclude an aneurysm of the splenic artery. The high mortality reported after SAA rupture suggests that arteriography or MRI should be carried out during the preoperative work-up of the candidates for liver transplant. Once recognized, especially if it is larger than 15 mm, the SAA must be treated by proximal and distal ligation at the origin of the splenic artery and, when possible, the aneurysm itself must be resected, since partial ligation alone may not be sufficient for the formation of collaterals. When splenectomy is unavoidable, some authors suggest delaying it until after the liver transplant.

P130

ADVANTAGES OF AUTOLOGUS BLOOD TRANSFUSION FOR HEPATECTOMY

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Seventy-one cases undergoing hepatectomy were investigated in regards to advantages of autologous blood transfusion. Forty-four cases were donated autologous blood before operation. Donated autologous blood volume significantly increased, 550g on an average in patients treated with recombinant human erythropoietin (rh-epo). After donation, hematocrit treated with rh-epo was as equal as without rh-epo. To investigate postoperative changes in hematocrits and in liver function test, we classified the subjects into 4 groups by intraoperative transfusion method, autologous blood transfusion without rh-epo, autologous blood transfusion with rh-epo, homologous blood transfusion only, and no blood transfusion. Post-operative hematocrits recovery was delayed in homologous transfusion group, with hematocrit of 29.4% on 14 POD. In homologous transfusion group,serum total bilirubin and transaminases were significantly higher than in autologous and no blood transfusion group. In autologus with or without rh-epo groups, liver function tests had similar courses in no blood transfusion group, and the highest serum total bilirubin was 1.20 mg/dl on 1 POD. We consider that autologous blood transfusion was more beneficial for hepatectomy than homologous blood transfusion. And 800g of preoperative autologous blood donation and less than 1500g intraoperative blood loss will allow a safe hepatectomy without homologous blood transfusion.

P131

HEPATIC RESECTION FOR METASTATIC TUMORS FROM COLORECTAL CANCER:ANALYSIS OF PROGNOSTIC FACTORS AND PRESENT OF NEW PROGNOSTIC FACTORS

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Objective;
Determinants of prognosis after hepatic resection for metastatic tumors from colorectal cancers were retrospectively studied in 64 patients.
Methods;
Clinicopathologic features of 64 patients were reviewed retrospectively to determine which ones were strongly corelated to prognosis after hepatic resection for metastatic tumors from colorectal cancers, using univariate and multivariate analysis.
Results;
1,3, and 5 years survival rates after hepatic resection were 88.0%, 56.2%, and 48.6% respectively. In a stepwise Cox regression analysis, infiltrative growth of hepatic metastases(hep-inf:p=0.0019), cancer positive of hepatic resectional margin (rm;p=0.0022), lymphatic invasion of primary colorectal tumors(ly;p=0.0048), adjuvant arterial infusion chemotherapy (p=0.0200), and positive of other distant metastases (p=0.0367) were significant prognostic factors for survival after hepatic resection.
Conclutions;
It is suggested, first that hepatic resection shuld be done without expose of cancer at resectional margin, second that hepatic resection should be attempted in patients without infiltrative growth of hepatic metastases, lymphatic invasion of primary tumors, or other distant metastases, and third that adjubant arterial infusion chemotherapy might be useful after hepatic resection.

P132

THE FEASIBILITY OF PARTIAL HEPATIC GRAFT BY ARTIFICIAL IVC: A PROPOSED MODEL FOR LIVING LIVER TRANSPLANT (LLT) IN PIG

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INTRODUCTION. Living related liver transplantation (LRLT) is the most recent surgical innovation to supply at the availability of donor organs for children. Today, the most common animal model of LLT utilizes the chimpanzee. Infact, it is very difficult to perform total hepatectomy in pigs while preserving the intrahepatic IVC because of a large number of tiny short hepatic veins. An anatomical study was performed to evaluate the feasibility of a LLT model in pig. **MATERIALS AND METHODS**. Five large cadaveric white female pigs, utilized for thoracic surgery, were used as liver donors and recipients. Donor operation. The vascular and biliary elements to the left lobe were isolated. Two small cannulae were inserted respectively in the left branch of the portal vein, and in the left hepatic artery for the in-situ cold perfusion of the left graft. The middle and left hepatic veins were clamped at the confluence into the vena cava, and transected to permit the outflow of the perfusate. The left lobe was resected along the demarcation line, due to the parenchimal cold perfusion. The liver graft was removed. Finally, common venous orifice of the middle and left hepatic veins was sutured before removing the clamp. Bench table surgery. An aortic graft with iliac bifurcation was employed for the replacement of the IVC in the left graft. The right iliac branch was cut 1.5 cm below the bifurcation and its orifice was anastomised to the common duct of left and medial hepatic veins. Recipient operation. The same animal was utilised as recipient, after removal of the right lobe, as well as the intrahepatic IVC. The left graft was implanted ortho-topically by suturing end-to-end the suprahepatic vena cava to the aortic prosthesis, the portal vein, after clamping distally the prosthesis, the iliac left branch of the prosthesis to the inferior vena cava, and the hepatic artery. Finally, biliary drainage was accomplished with a Roux-en-Y jejunal loop. **RESULTS**. The left hepatectomy time ranged from 135 to 185 min (mean 150). The bench surgery mean time was 25 min (range 20-33 min). The time of removal of the native right lobe ranged from 8 to 14 min (mean 10 min). The mean anhepatic time was 93 min (82 to 104 min). The total recipient time was 183 min (range 161-216 min). The left lobe amounted to 31-42% (mean 35%) of the liver mass. **CONCLUSIONS**. The present anatomical study demonstrates that it is possible to use a vascular prosthesis to replace the intrahepatic IVC in the recipient pig of the left liver graft. This animal model could therefore be useful for the experimental study of LLT in pig.

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INTRATUMORAL AND PERITUMORAL REGIONAL DIFFERENCES IN DNA-PLOIDY OF RESECTED HEPATOCELLULAR CARCINOMA

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INTRODUCTION: Human hepatocellular carcinoma (HCC) often reveals the histopathological presence of a "tumor within a tumor", where the central part of the nodule is composed of more malignant cells than the peripheral (Sugimura, Science 258:603,1992). In this study we examined DNA ploidy and binuclearity in the central and peripheral parts of the HCC nodule and in the surrounding cirrhotic tissue.

MATERIALS AND METHODS: Fifteen cases of surgically resected solitary HCC were selected. Central and peripheral parts of the neoplastic nodule and surrounding cirrhotic tissue were available for 10 cases; in the remaining cases the samples were taken from the central portion of the nodule and from the surrounding cirrhosis. Control specimens were additionally obtained from normal liver of 5 patients which underwent surgery for non-neoplastic pathology. Single cell suspensions from formalin fixed specimens were Feulgen stained and the cellular DNA content was quantified by image cytometry.

RESULTS: The main stem line was peridiploid all through the nodule in 4 HCCs, peritetraploid in the central part and peridiploid at the periphery in 4 HCCs, peritetraploid in both parts in 2 HCCs. The main stem line in the samples taken only from the central portion of the HCC was peridiploid in 3 cases and peritetraploid in 2. The fraction of mononucleate cells in the population of polyploid (FMP) was generally higher in the central (78±17%) than in the peripheral fragment (60±16%) of HCCs. Only two patients died of neoplasia during the follow up (ranged from 80 to 1070 days); both presented a peritetraploid main stemline of mononucleate cells in the central part of the tumor. The main stem line of the surrounding cirrhotic tissue was always peridiploid; however, in 4 cases, the FMP (44%, 45%, 56%, 66% respectively) was much higher than in control liver (28±3%).

CONCLUSIONS: Our data indicate that peritetraploid stem line are more frequent in the central portion of nodular HCC. Being a high ploidy of the main stemline associated to a more aggressive clinical behaviour, the central part of these HCCs might be in a more advanced stage of malignant progression then the peripheral portion. In 4 cases the surrounding cirrhotic liver tissue presented an abnormal amount of mononucleate polyploid cells; we will further evaluate if this pattern may be associated to tumor recurrence after resection of a solitary HCC nodule.

P134

A 20-YEAR EXPERIENCE IN THE SURGICAL TREATMENT OF RECURRENT HEPATIC HYDATID DISEASE

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INTRODUCTION. Despite chemotherapy, surgery remains the treatment of choice of hepatic hydatid disease (HHD). Although the literature on recurrence rates of HHD is sparse, data on surgical treatment of recurrent disease seems to be almost nonexistent. We report a 20-years experience in the surgical management of post-operative recurrence of HHD.

MATERIALS AND METHODS. From 1975 to june 1995, 23 patients (pts) with recurrent HHD underwent surgery. Seven among 191 pts of our series, treated for primary HHD, developed recurrence (3.6%). The remaining 16 pts have had a surgical treatment in other Hospitals. The mean age of pts was 48 yrs (range 22-74 yrs). A total of 44 cysts were found: 26 in the right lobe, 10 in the left lobe, and 8 in both hepatic lobes. Diagnosis of post-operative recurrence of HHD was based on US (91.3% of cases) and TC scan (100% of cases). Angiography and endoscopic retrograde cholangiopancreatography (ERCP) were used in the assessment of complex problems in 12 pts and 3 pts, respectively. Nineteen pts had undergone non-radical procedures (82.6%), and 4 pts radical procedures (17.3%), for the primary HHD. The mean interval time from primary to secondary HHD was 5.5 yrs. A total of 27 operations for recurrent HHD were performed: 14 radical and 13 non-radical procedures. After surgery, albendazole treatment in all pts was given. Eight non-radical and 4 radical procedures were performed in the period 1975-85 vs 5 non-radical and 10 radical procedures in the latest 10 yrs. In 5 cases (21.7%) an US intraoperative was utilized.

RESULTS. There has been one death, due to sepsis after reintervention. Post-operative complications, not requiring surgical reintervention, were seen in 6 pts (26%): 5 infections of the residual cavity, and 1 external bile fistula. The complications were higher after non-radical surgery (4 cases) than following radical procedures (2 cases). Mean hospitalization period was also longer in pts treated by non-radical surgery as compared to pts operated by radical procedures (21.8 vs 17.7 days). No re-recurrence of hydatid cysts in the liver was observed during a mean follow-up time of 3.5 yrs (range 6 months-5.8 yrs).

CONCLUSIONS. An higher recurrence rate appears after non-radical surgery of primary HHD. Similary to primary HDD, the management of recurrent HHD is radical surgery, whenever possible. In our experience, an improved operative technique has allowed an increasing number of radical procedures in the last decade.

P135

EFFICACY AND MECHANISM OF PGE1 (PROSTAGLANDIN E1) INTRAPORTAL INFUSION ON HEPATIC ISCHEMIA - REPERFUSION INJURY

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Ischemia-reperfusion induced liver injury is one of the major problems in surgical liver dysfunction. Recently greater attention has been paied to the interaction of neutrophils and endothelial cells through adhesion molecule. On the other hand, PGE1 has been demonstrated to have protective effect on liver dysfunction. However its precise mechanism has not been clarified. The AIM of our study is to asses the efficacy of PGE1 intraportal infusion on hepatic ischemia-reperfusion injury and clarify its mechanism. MATERIALS and METHODS: 70% ischemic livers were established by clamping the left portal vein and hepatic artery of the male SD rats for 60 min. After 3hrs of reperfusion samples were collected, and measured the following items with or without intraportal infusion of PGE1 (1 μg/ kg•min). 1) ALT,AST and the amount of bile 2) serum TNFα,IL-8 3) the clearance of serum hyaluronic acid 4) histological analysis by HE staining and immunohistochemical staining with ICAM-1 expression on endothelium 5) the production of oxygen free radical of the liver under fluorescence microscope in vivo RESULTS: 1) PGE1 decreased the serum level of ALT and AST. 2) PGE1 increased the bile production significantly. [0.97mg/g•liver•min(PGE1) vs 0.45mg/g•liver•min(CONTROL),p<0.05] 3) The serum level of IL-8 was decreased in PGE1 group, although TNFα was not detected in both groups. 4) The clearance of hyaluronic acid was kept higher in PGE1 group than in CONTROL group. 5) Histological study revealed that the number of the cells of focal necrosis of hepatocytes and infiltration of neutrophils were decreased in PGE1 group. The expression of ICAM-1 on endothelium cells was also suppressed by PGE1. 6) The production of oxygen free radical was decreased in PGE1 group. CONCLUSION: These data indicate that PGE1 decreases production of IL-8 and suppresses expression of ICAM-1. PGE1 intraportal infusion may protect against the endothelial cell injury by reducing adhesion and migration of activated neutrophils induced by ischemia-reperfusion of the rat liver. PGE1 intraportal infusion could be an effective and practical strategy for hepatic ischemia-reperfusion injury.

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ANATOMICAL SEGMENTECTOMY FOR LIVER TUMOURS

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The classic hepatic resections require removal of a large volume of liver tissue. Resection of individual liver segments allows preservation of a greater mass of normal liver parenchyma without reducing the curative potential of the operation.

From 1989 to 1995 35 patients (20 female, 15 male; average age 56 years, range 30-70 years) had liver segmentectomies. Fourteen patients had resection of single hepatic segment and 21 patients had two or more segments resected separately or in continuity. Indications for operation included colorectal metastases (16), gallbladder carcinoma (5), carcinoid (2), hepatoma (1), benign lesions (11).

The limits of the anatomical segments were defined by intraoperative ultrasonography and the resections were performed by ultrasonic dissection with portal inflow occlusion (mean clamp time 34 mins). One patient died following resection. One other patient died six weeks later from cardiorespiratory failure. The only major postoperative complication consisted of a haematoma at the resection site which resolved with conservative management. Eight patients developed local recurrences and subsequently died despite chemotherapy. The remaining 25 patients are alive and disease free with a mean follow-up of 30 months.

Conclusions: Segmentectomy of the liver is a safe procedure which minimizes loss of normal parenchyma during hepatic resection. Segmental resection is the logical procedure for isolated or smaller hepatic lesions.

P137

THE NEODJUVANT TRANSARTERIAL CHEMOEMBOLIZATION IN HCC SUBMITTED TO LIVER RESECTION. OUR EXPERIENCE

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The transarterial chemoembolization (TACE) was introduced in mid '70 by Japanese authors as palliative therapy of HCC. We tested this method also as neoadjuvant therapy in liver tumours followed by surgical resection. We consider 28 patients affected by resectable HCC with a mean age of 63.3 ±10.3 years; they were divided in two group: 13 treated with a cycle of TACE before the surgery (TS) and 15 treated only with surgery (S). All the patients were evaluated by US scan, CT scan and clinically by Child-Pugh risk, Okuda stage, TNM stage, Karnofsky index and AFP value at admission. The TACE was followed by repetition of CT scan for evaluation of gained LUF after fifteen days. No patient was excluded to surgical resection after the CT scan control for lesions previously not recognized. The therapeutic efficacy was evaluated by percentage of necrosis resulted of 70% meanly. Both the groups were evaluated by US scan, CT scan, clinically and with blood samples after one, three, six months and later every six months. The TACE was well tolerated with lesser complications as fever (38%), pain in upper right abdominal quadrant (30.8%) and early nausea and vomiting (85%). The relapses in TS group were less than S (0 vs 40%) during the first year of follow up. The actuarial survival was 82.8% vs 86.6% in the first year, and 69% vs 65.1% at three years, respectively. The overal mortality was 38.4% in TS and 60% in S. We concluded that TACE as neoadjuvant therapy is well tolerated and "protect" from tumor relapses favouring a better survival wthin two years fron surgical treatment.

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CLINICOPATHOLOGICAL ANALYSIS OF 42 INTRAHEPATIC BILE DUCT CANCER (CHOLANGIOCARCINOMA) PATIENTS WHO UNDERWENT LIVER RESECTION.

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In 10 years between 1985 and 1995, 42 cholangiocarcinoma patients underwent liver resection (resectability, 83.1%) in our department. [1 in Stage I, 11 in Stage II, 5 in Stage III, 11 in Stage IV-A and 14 in Stage IV-B (UICC)]. No patients of bile duct cancer occurred at the porta hepatis were included. All had mild liver dysfunction preoperatively; 6 with jaundice, 1 with hepatolithiasis, 1 with liver cirrhosis. The total maximal diameters of tumors were; more than 10 cm in 16, 5 to 10 cm in 15, 2 to 5 cm in 9, and less than 2 cm in 2. 27 patients had a single tumor and 15 had multiple tumors. Vascular invasion was observed in 17 (to the PV trunk in 3, to the first branch of PV in 9, to the main hepatic vein in 4 and to IVC in 2). Biliary invasion was seen in 29 (to the extrahepatic bile duct in 10). Liver resection was performed as follows; trisegmentectomy in 11, bisegmentectomy in 27, segmentectomy in 2, less than segmentectomy in 2. Concomitant resection of the extrahepatic bile duct was performed in 26, that of the hepatic artery in 3, that of the PV in 8 and that of IVC in 2. Macroscopic appearance of tumors were divided into 3 types: the intraductal growth type in 2, the mass forming type in 37 and the periductal infiltration type in 3. Histologically lymphnode metastasis was found in 14. As of Oct. 1995, 1- , 3- and 5-year cumulative survival and recurrence-free survival rates of 42 patients were 63.6%, 21.2% and 21.2% in the former and 54.7%, 18.3% and 14.6% in the latter, respectively. Three year-survival rate of Stage II patients (52%) was better than that of Stage III (20%), IV-A (26.4%) and IV-B (13.6%) patients. Survival periods of patients with lymphnode metastasis, either regional (n=5) or distant (n=9), were lower than those in patients without metastasis. The analysis suggested that early detection of the mass forming type tumors without bile duct invasion or lymphnode metastasis is mandatory for longer survival of patients.

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PATTERNS OF RECOVERY AFTER LIVER RESECTION

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Data from 160 pts undergoing liver resection for malignant or benign diseases were analyzed to characterize peculiar patterns of recovery after surgery, based on the postoperative monitoring of blood laboratory measurements and other data. Three main postoperative trajectories were defined by a multivariable quantitative selection: 1) uneventful clinical course with early discharge; 2) complicated course (with hepatic insufficiency, sepsis or other complications) and delayed discharge; 3) lethal outcome. Within this framework, the possibility of identifying each trajectory soon after surgery was explored: among the relevant variables, the fall in cholesterolemia (CHOL) in postop. days 1-3 correlated well in survivors with the lenght of hospital stay (r^2= 0.30, p< 0.01). The fall in CHOL was larger in trajectory 2 vs 1 (p<0.01) and in trajectory 3 vs 2 (ns: too few cases in trajectory 3). A delayed persistent increase in total bilirubin (BT) without cholestasis or main signs of hepatic insufficiency was a peculiar pattern in 3 pts: BT peaked after the 3rd week and returned to normal after the 8th, with the following evolution: $BT = 2.6 + 2.0(POD) - 0.052(POD)^2 + 0.00034(POD)^3$ [r^2 = 0.74; BT mg/ dl, 60% direct; POD = Postop. Day]. These data may help to improve the characterization of postoperative trajectories, with the early prediction of complicated courses and of the need for supportive therapy.

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HEPATIC RESECTIONS IN NORMOTHERMIC ISCHEMIA

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Temporary vascular inflow occlusion of the liver is an effective technique to reduce the risk of bleeding and the number of blood transfusions during hepatic resection. Aim of this study is to evaluate the influence of normothermic hepatic ischemia (NHI) obtained by routine use of pedicle clamping (PC) on postoperative outcome in 71 hepatic resections (2 re-resections). Pts were 33 men and 36 women (mean age 56±14 yrs; range 2-76). The most common indication for liver resection was malignant tumors (80%). Liver cirrhosis was present in 12 pts and 19 pts had been submitted to preoperative systemic chemotherapy. In cases with contemporary resection of a portion of the digestive tract and with an intestinal anastomosis, and in the case of deep jaundice, the use of PC was limited for the risk of venous stasis on the intestinal anastomosis and for the fear to worse the liver function already compromised. In 63 cases, hepatic resection was performed with PC alone and in 8 cases hepatic vascular exclusion (HVE) was used. Major resections were performed in 38 cases (53.5%). In 2 cases a tangential resection of the retrohepatic vena cava under HVE was associated to right hepatectomy. The mean duration of NHI was 42±20 min (7-107). Plasmatic values of ALT, AST, total and conjugated bilirubin, prothrombin time, total cholesterol were evaluated at I, III and VII p.o. days. Mortality was nil. Major complications occurred in 12.7% of cases. Twenty-eight pts (39.4%) received intraoperative (i.o.) blood transfusions: the mean of transfused blood units was 2.5±1.3 (1-6). Sixteen major resections (42.1%) did not require any transfusion. Postoperative changes in liver function tests were moderate and transient. This study confirms the benefit of PC in reducing i.o. bleeding and postoperative complications. The routine use of PC during hepatic resections is not associated with severe adverse effects on liver function.

P141

INTRAARTERIAL CHEMOTHERAPY IN TREATMENT OF COLORECTAL LIVER METASTASES.

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From 1989 to 1994 a total of 217 patients with colorectal carcinoma were admitted for surgery at our department.

We found in this group of patients during preoperative examination and postoperative monitoring 78 cases of liver metastases, 51 of them were synchronous, 27 metachronous.

From this group of 78 patients 14/18%/ underwent resectional treatment, 35/45%/ paliative treatment, 20/25%/ patients were treated by i.a.chemotherapy and 9/12%/patients by metastasectomy and i.a.chemotherapy.

Hepatic artery acces was made by surgically implanted catheter /Implantofix Braun/ through gastroduodenal artery.

In the group of 29 patients treated by i.a.chemotherapy monitoring of tumor response was made by tumor marker levels/CEA at 3m intervals/ and liver function tests. US imaging every 3m and abdominal CT scan every 6 months was made.

2 different chemotherapy protocols were used during the years 1989-1994.

We observed- no change or progression in 11 cases/38%/
- partial response in 6 cases/20%/
-objective response in 12 cases/42%/

Higher response rate 4/45%/ we observed in the group of patients treated by metastasectomy and i.a.chemotherapy compared with group treated with simple i.a.chemotherapy 8/40%/.

We had no cases of hepatic toxicity or duodenal ulceration, we observed 1 case of port infection and 4 cases of catheter obstruction.

Median survival time was 11,2 months in the group of i.a.chemotherapy patients.

Conclusion:Intraarterial chemotherapy has its place and benefit in treatment of liver metastases, we observed response to the treatment in 62% of our patients with minor toxicity.

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ALVEOLAR LIVER HYDATID DISEASE: AUDIT OF SURGICAL MANAGEMENT

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Alveolar Liver Hydatid Disease (ALHD), a rare (5% of all cases of liver hydatid disease) but often fatal disease, can be efficiently cured only by complete surgical resection of the Echinococcus multilocularis(=alveolaris) lesion.

We report our experience on 21 patients (10 male, 11 female) with a mean age 47.4 years (range 19 to 86) who underwent surgery for symptomatic ALHD from 1972 to 1990. The main clinical manifestations were hepatomegaly in 15 (71.5%) patients, right upper quadrant pain in 4 (19%) and cholangitis in 2 (9.5%).The right liver lobe was involved in 11 (52.5%) patients, the left in 2(9.5%) and both lobes in 8 (38%) patients, respectively. Eight patients (38%) underwent radical surgery in the form of liver resection whilst in the remaining 13 (62%) patients various palliative procedures were carried out: liver resection (n=8), biliary-enteric bypass (n=2), debridement and drainage (n=2), exploratory laparotomy (n=1). The complication and recurrence rates were 28.5% and 38%, respectively. There were 4 postoperative deaths (19%) due to multiple organ failure (n=2) and advanced local disease (n=2) leading to hepatic failure.

It is concluded that Echinococcus multilocularis is an aggressive parasite resulting in extensive liver invasion and requiring radical surgery which is associated with a high mortality rate.

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THE POST CHEMOEMBOLIZATION SYNDROM IS NOT RELATED TO TUMOUR NECROSIS.

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Neoadjuvant chemoembolization (CE) preceeding the resection of hepatocellular carcinoma (HCC) prompted us to precise the frequency and the causes of the post chemoembolization syndrom (PCS), which associates pain, fever, raise of plasma transaminases levels, and is generally considered as a result of tumour necrosis.
From 1989 to 1994, 29 patients with HCC including 8 with cirrhosis and 15 with fibrosis had the whole procedure (CE and resection) in our department and form the basis of this study. One to 4 CE (Doxorubicin+Lipiodol+gelatin particles) have been performed per patient. The PCS was defined by the occurrence, during the first 3 days post CE, of a fever $\geq 38.5°C$ and/or a raise of plasma transaminase levels (ASAT or ALAT) > 100 U/l and > 2 fold the pre CE values.
After their first CE, PCS was present in 16 (55%) patients and absent in 13. Among 8 patients who had several preoperative CE, PCS recurred after a second CE in 3 (37%) but It never appeared after iterative CE if it was absent after the first CE.
Histological examination of resection specimens revealed in patients with PCS absence of tumour necrosis in 3 (19%), tumour necrosis $\leq$ 50% in 7 (44%) , > 50% in 4 (25%), and a complete necrosis in 2 (12%), whereas in the group without PCS tumour necrosis was always present including $\leq$ 50% in 5 (38%) , > 50% in 5 (38%) and complete in 3 (23%). Liver cirrhosis involving the non tumorous liver was present in 2 (12%) patients with PSC and in 6 (46%) without PSC ($p = 0.04$). Adhesions surrounding the liver (perihepatitis) were present at surgery in 9 (56%) patients with PCS versus in 3 (23%) without PCS ($p = 0.07$).
In conclusion, the post chemoembolization syndrom was not related to hepatocellular carcinoma necrosis but to the non-tumorous liver status. It could be the result of a chemoembolization toxicity on non-tumorous liver, which perihepatitis could be a sequellae.

P144

SHORT-TIME WARM ISCHEMIA INDUCES HEAT SHOCK PROTEIN 70 (HSP70) SYNTHESIS IN HUMAN LIVER.

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Primary failure is a poorly understood complication possibly related to the ischemia-riperfusion injury of the transplanted liver. Heath Shock Protein (HSP) system is one of the most studied mechanisms of defense against cell damage. The HSPs are a familv of highly evolutionary conserved proteins, constitutively expressed by the cell, but rapidly induced by several types of acute stress causing protein damage. HSPs contribute to the removal of altered proteins and to the recovery of the protein machinery synthesis. In a model of kidney transplant in pigs, heat induction of HSPs correlates with enhanced survival upon the further stress of ischemia-riperfusion. Aim of this work is to evaluate whether a short period of warm ischemia is a good inducer of HSP70 in human liver. In 10 subjects undergoing partial hepatectomy for localized lesions, liver biopsies were obtained, from the unaffected portion of the organ, before the clamp of the hepatic vessels and at the end of the surgical procedure, after an average period of recovery from ischemia of 76±39 min. Total RNA was isolated by the guanidine isothiocyanate method. The amount of HSP70 and γ-actin mRNAs was determined by the Norhtern technique, with ^{32}P-labeled cDNA probes. HSP70 mRNA increases (150±70%, $2p<0.05$) after ischemia. The enhancement of HSP70 mRNA correlates with the length of ischemia ($r=0.658$, $2p<0.05$). Our results show that a short-time (30 min.) warm ischemia induces HSP70 synthesis in human liver. The HSP induction preceding the harvesting and processing of donor liver may enhance the organ ability to recover from the ischemia-reperfusion injury, possibly reducing the occurrence of primary failure.

P145

LIVER TUMORS IN OUR DEPARTMENT

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During last ten years (1985-19995) 129 patients with liver tumor were treated in our department. 72 of them (56%) were qualified for operation. This group consisted of 52 patients with primary tumors and 20 patients with metastatic tumors. 29 of 52 primary tumors were benign and 23 malignant. The benign tumors were: hemangioma 13 (18,1%), cysts 10 (13,9%) and inflammatory tumors 6 (8,3%). 72 partial liver resection were performed. In 6 cases metastatic tumor was synchronic with primary tumor (30%) and in 14 cases metachronic (70%). The most common reason of metastases was colorectal cancer (75%). The other reasons were: gastric cancer (20%) and ovarian cancer (5%). The extension of resection was determined according to Jorshy's classification. There were no deaths in postoperative period in a group of 29 patients with benign tumors. Several postoperative complications occurred: biliary fistula 1 (3,4%), subphrenic abscess 2 (6,8%), pneumonia 5 (17,2%), wound infection 2 (6,8%). The mortality rate in the group of 43 patients with malignancy was 9% (4 patients). Postoperative complications rates were as follows: biliary fistula 9%, acute liver insufficiency 7%, subphrenic abscess 4,6%, pneumonia 14%, wound infection 7%. Besides liver resection we performed 5 liver transplantations in patients with primary liver tumors. We consider the extended liver resection as a difficult technically operation demanding perfect hemostasis (possibly with the help of argon coagulation or ultrasound knife) and high quality intensive care during and after operation.

P146

HEPATECTOMIES WITH TOTAL RESECTION OF INFERIOR VENA CAVA

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Between January 1982 and December 1995 700 liver resections were performed two of which with total resection of the inferior vena cava (**IVC**) for tumor invasion. **Patients and Methods:** Two patients affected by metastasis from colorectal cancer and hepatocellular carcinoma respectively were submitted to hepatectomies with total resection of the retrohepatic vena cava under total vascular exclusion of the liver (**TVE**). No patient required venovenous by pass. None had anticoagulant or antiplatelet therapy after the operation. The median TVE time was 48 min. The first patient underwent a right hepatectomy for a colorectal metastasis: the retrohepatic vena cava involved by the tumor was replaced with a 18 mm ring-enforced polytetrafluoroethylene (PTFE) prosthesis. The second patient had a right hepatectomy with a total resection of retrohepatic vena cava for an hepatocellular carcinoma in non cirrhotic liver continuity was established with a 16 mm PTFE prosthesis. **Results:** No patient died in postoperative period. The first patient died 28 months after the operation for tumor recurrence. The second patient is well and free of desease 4 months after liver resection. **Conclusions:** tumor involvement of the vena cava is not yet a controindication for liver resection When is feasible direct suture is preferable. In case of diffuse involvement of the retrohepatic vena cava a prosthesis is required. Vena cava resection is easily performable with TVE avoiding venovenous by pass.

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RIGHT HEPATECTOMY IN ELDERLY PATIENTS

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Less tolerance to liver resection in old patients has been suggested. The aim of this retrospective study was to asses the recovery of old patients submitted to right hepatectomy. **Patients and methods**: Forty non cirrhotic patients with class I or II of ASA were submitted for right hepatectomy (26 M; 15 F) from January 1990 to July 1994, Patients were classified according to their age in two groups. In the first group were included patients younger than 65 yrs (13 M, 11 F; average age: 46.1±12), while in the second were enrolled patients older than 70 yrs (12 M, 4 F; average age 72.7±3) Preoperative assessment of PT (86±13% vs 89±12%), factor V (94±10 vs 102±13%), removed liver weight (1213±1348 vs 1080±1230 gr) type of vascular exclusion (2 TVE vs 1 TVE) or Pringle maneuver and time of ischemia (31±12 vs 36±8 min) were comparable in both groups. **Results**: blood transfusion rate (1.5±2 vs 2.3±2.4 units) and operative time (318±110 **vs** 342±118 min) were comparable in the two groups. Postoperatively (PO), ALAT rate on day 1 PO (357±233 **vs** 358±218 UI/L) and day 7 PO (44±38 **vs** 58±25 UI/L) were not significantly different. Assessment of PT on day 1 PO (50±10 **vs** 43±14%) and day 7 PO (71±17 **vs** 68±20) showed lower values in the age group >70 year, however the difference was not statistically significant. On day 1 PO, factor V (57±18 **vs** 43±20%) was significantly lower in the age group >70 years ($p<0.05$) than in the < 65 years group, but there was not significative difference at day 7 PO (74±26 **vs** 85±45%). A significant increase in bilirubine level was noted on day 1 PO (43±22 **vs** 92±75 mmoles/l) and day 7 PO (24±22 **vs** 47±50) in the >70 year group ($p<0.01$ and $p<0.05$ respectively). One patient died in both groups (4% **vs** 6%). Postoperative course was uncomplicated in 15/24 (62,5%) **vs** 11/16 (68.7%) patients. Hospital stay was the same in both groups (16±6 **vs** 16,5±2 days). **Conclusions**: the above described results indicate that age is not a major predictive factor of recovery from right hepatectomy. However, our findings, indicate that older patients show a delayed postoperative improvement of hepatic function.

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A JOINT MANAGEMENT USING INTERVENTIONAL RADIOLOGY FOLLOWED BY DERIVATIVE SURGERY IN THE TREATMENT OF BUDD-CHIARI SYNDROME

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Porto-systemic shunts are generally considered the most effective therapy for primary Budd-Chiari Syndrome (BCS) in absence of cirrhosis. However, when the BCS is complicated by the presence of compression of inferior vena cava (IVC) with elevated pressure in its subhepatic tract, an adequate decompression of the liver and portal system is not possible. In these cases the complex surgical procedures advocated in 1980's (meso-caval shunt or combined porto-caval and cava-atrial shunts) present a high risk of failure. In 1990's endoprotheses of various designs (Palmaz, Strecker, Wallstent and Gianturco) have been used experimentally and clinically to reestablish patency of occluded or stenotic tubular structures. In particular, caval obstruction syndromes may be treated using expandable metallic stents with a good efficacy. We present two patients with a form of portal hypertension, characterized by massive ascites and marked hepatomegaly, not responding to aggressive medical treatment. In both cases the preoperative investigations have revealed the presence of a BCS complicated by compression of IVC with elevated pressure in its subhepatic tract. Therefore, we decided, before performing a side-to-side porto-caval shunt, to clear the caval stenosis with several dilatations and the placement of expandable metallic stents inserted by means of a transfemoral venous approach. This stenting permitted to decrease the subhepatic caval pressures respectively from 25 to 11 mmHg and from 29 to 20 mmHg. After the subsequent surgical derivation, both patients experienced an immediate relief of symptoms and a good long-term result, respectively at 30 and 5 months of follow-up. We conclude that the joint management using caval stents and porto-systemic shunt can be useful in the treatment of the primary BCS complicated by compression of IVC with elevated caval pressure.

P149

CHANGES OF SYSTEMIC CIRCULATION SIX MONTHS AFTER LIVER TRANSPLANTATION.

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Introduction: liver cirrhosis is characterized by a progressive systemic hemodynamic derangement, the "hyperdynamic circulation", characterized by increased heart rate and cardiac output, with reduced mean arterial pressure. Aim: to assess the effect of orthotopic liver transplantation (OLT) on systemic hemodynamic changes of liver cirrhosis. Materials and methods: 20 patients submitted to transplant for end stage liver cirrhosis (m=14; with ascites=12; 14 HCV+ and/or HBV, 3 alcohol, 1 PSC, 1 PBC, 1 Byler's disease), when first in the waiting list, underwent impedance cardiography (by NCCOM-3, BoMed) in order to measure cardiac index (CI), stroke volume index (SVI) and ejection fraction (EF), mean arterial pressure (MAP) and heart rate (HR) were also recorded. Cyclosporine and corticosteroids were administered to all patients to prevent rejection. Hypertensive patients after OLT were treated by Nifedipine. The same measurements were repeated at six months in 17 patients (none with ascites, two suffering from rejection, two retransplantated). The 3 other patients had died (two in the first week after OLT and one at fourth month for HBV reinfection). Student t-test for paired data was used for statistical analysis. Results: at six months CI dropped from 5.55 to 2.53 L/min/sqm ($p<0.001$) and SVI from 67.1 to 35.3 ml/sqm ($p<0.001$), MAP increased from 88.4 to 109.5 mmHg ($p<0.001$) and HR decreased from 82.3 to 74.0 rpm (<0.01). EF remained in the normal range but decreased from 61.4 to 52.9% ($p<0.05$). The three patients who suffered from primary liver non function (two of which died) didn't show different preOLT hemodynamic parameters.
Conclusions: the typical features of systemic hyperdynamic circulation are corrected six months after OLT.

P150

ASSESSMENT OF LIVER REGENERATION BY QUANTITATIVE MRI ANALYSIS

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Liver regeneration after extensive hepatic resection is a serious clinical problem. Presently there are no harmless and accurate methods routinely used for the assessment of the progress of the liver regeneration in patients. As MRI is a harmless diagnostic method for assessment of soft tissues it seemed reasonable to investigate the possibility of quantitative assessment of the liver regeneration on animal models by use of MRI. Experiments were performed on male rats weighing 150-200 g at the time of the major surgical liver resection. 75% of the liver was removed and MR images were taken every day during the first week after the resection, and later at 4 or 7 days intervals. The control group of animals was sacrificed at the same time intervals and the liver was weihed and examined macro- and microscopically. Additionaly, the synthesis of acetyl-cholinesterase by the regenerating liver was measured on liver homogenate by use of the constant pH-metric titration. The results show that the liver regeneration reaches 60-75% during the first 4 days, judged by the estimated size of the liver measured by MRI. The results were in accordance with the increase of liver weight measured in the control group of rats. Comparable although smaller progress in liver regeneration was also revealed by use of the methods, including the functional test of anabolic activity of the regenerating liver by measurements of the cholinesterase activity in a homogenized liver specimen. MRI gave a further insight in the process of the regeneration. The analysis of images revealed that the remaining part of the liver undergoes degeneration and simultaneously the total liver mass is rapidly increased by the regenerating tissue. We suggest that MRI is a reliable and harmless method for the assessment of liver regeneration after surgical resection.

P151

MORBIDITY VARIATIONS AFTER LIVER RESECTION IN CONSECUTIVE TEN-YEAR PERIODS 1975-84, 1985-95

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In order to determine complication types and fluctuations in incidence, a retrospective study was conducted on two groups of patients undergoing curative hepatic resection for neoplasm in consecutive ten-year periods: 1975-84 (group 1 - 52 patients) and 1985-95 (group 2 - 57 patients). Operative mortality in groups 1 (6.1%) and 2 (3.2%) did not differ significantly ($p>0.05$). The postoperative complication rate decreased significantly in group 2 (19%) vs. 1 (33%) ($p<0.01$). Abdominal complications decreased significantly, from 25% to 10.5%, in group 2 ($p=0.01$); postoperative hemorrhage occurred in two (4%) group 1 patients, necessitating reoperation in both cases with no mortality, vs. none in group 2. While subphrenic abscesses decreased significantly, from 9.1% to 1.9%, in group 2 ($p=0.01$), bile leak incidence in groups 1 (5.1%) and 2 (4.6%) showed no significant difference (p=ns). Pulmonary complications occurred in 15% group 1 and 7% group 2 cases ($p=0.01$), and pleural effusion decreased from 8.9% in group 1 to 6.5% in group 2 ($p=0.05$). Although morbidity after liver resection for neoplasm has declined in the last ten years, it still remains relatively high (27-47%) (1).

References

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P152

OCCURRENCE AND OUTCOME OF TUBERCULOSIS AFTER LIVER TRANSPLANTATION

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Purpose: Patients with impaired T-cell function are at high risk for mycobacterial infections. A particular problem in liver transplant recipients is the hepatotoxicity of the antimycobacterial drugs and their interaction with the metabolism of immunosuppressants. In a retrospective study we analysed the incidence and outcome of tuberculosis after liver transplantation (LTX).
Material and methods: The charts of 570 patients who received a LTX between 9/88 and 12/94 were reviewed.
Results: The incidence of tuberculosis was 1,2% and the mortality 0%. All of the infections were caused by Mycobacterium tuberculosis. There were two cases of rejection and one drug induced hepatitis during treatment.

	pat. 1	pat. 2	pat. 3	pat. 4	pat. 5	pat. 6	pat.7
age in years	55	22	58	61	52	41	57
previous Tb	yes	no	no	no	yes	yes	yes
days after OLT	189	350	375	920	21	60	120
immuno-suppression	CsA BT 563	CsA	Fk 506	Fk 506	CsA	Fk 506	CsA
risk factors	none	none	none	none	rejection CMV	rejection CMV	CMV
organs involved	lung	dissemi-nated	lung	kidney	lung	lung	kidney
clinical symptoms	none	menin-gitis	pneu-monia	neph-ritis	MOFS	fever	fever

Conclusion: In order to reduce the incidence and mortality of tuberculosis a PPD-test should be performed before OLT to define patients at high risk. Because of the low mortality a routine INH-prophylaxis in PPD-positive patients does not seem to be justified.

P153

CMV-RETINITIS - A RARE MANIFESTATION OF CMV-DISEASE FOLLOWING LIVER TRANSPLANTATION

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Purpose: In immunosuppressed patients CMV-disease has a high morbidity and mortality. Following liver transplantation (LTX) clinical manifestations mostly consist of pneumonia, hepatitis or unspecific symptoms like fever and arthralgia. In a retrospective study we analysed the incidence and prognosis of CMV-retinitis.

Material and methods: Between 9/88 and 6/94 500 LTX were performed at our centre. In the same period 83 CMV-infections occurred in 65 patients. Five of these patients developed CMV-retinitis.

Results:

	patient 1	patient 2	patient 3	patient 4	patient 5
indication for LTX	acute liver failure	cryptogenic cirrhosis	nutritiv toxic cirrhosis	hepatitis C - cirrhosis	HCC in hepatitis C
time after LTX	5 months	24 months	5 months	2 months	3 months
symptoms	impaired vision	pneumonia, impaired vision	impaired vision	none	impaired vision
risk factors	overimmuno suppression	immun-deficiency	pancytopenia rejection	renal failure	tuberculosis
therapy	cytotect/ cymevene	foscavir	cytotect/ cymevene	cytotect/ cymevene	foscavir
clinical course	recovery	loss of vision	recovery	recovery	recovery

Conclusion: In contrast to liver transplant recipients CMV-retinitis is the most common site of infection in AIDS patients and occurs in 15-20% of the patients. It requires a continuous therapy with cymevene or foscavir.
Following liver transplantation CMV-retinitis is rare and can be treated sufficiently with a short term therapy. Because of its location in peripheral areas of the retina and the lack of additional symptoms CMV-retinitis is difficult to diagnose. Therefore a fundoscopy should be performed in every patient with a presumed CMV-disease.

P154

INFLUENCE OF POST-REPERFUSION BILIARY DAMAGE ON THE DEVELOPMENT OF BILIARY STRICTURES (BS) AFTER LIVER TRANSPLANTATION (OLT)

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BACKGROUND: Biliary strictures (BS) still represent an important cause of morbidity after OLT. Other than surgical technique, other factors, like vascular thrombosis, may predispose to BS. It was also suggested that prolonged cold ischemia time (CIT) could be a risk factor for BS, and our previous report stated that a significant post-reperfusion biliary damage occurs after a CIT > 10 hours. Others reported a major incidence of BS after primary graft dysfunction (AST > 2000 in the first 72 hours after OLT). Aim of this study is to verify if in our experience the development of BS of unclear origin after OLT could be related to a ischemia/reperfusion pathogenesis.
MATERIALS AND METHODS: From Apr 1986 to Sep 1995, 220 liver transplants were performed in 198 patients (pts) (123 males, 75 females, mean age 42,48 ± 12.06 years, range 7-60). Biliary reconstruction was choledocho-choledochostomy on T-tube (C-C) in 208 cases, or choledocho-jejunostomy (C-J) in 10 cases. In two pts biliary anastomosis was not performed because of intraoperative death. Pts surviving less than 1 month (n= 21) and pts with BS due to arterial thrombosis (n = 2) were not included in this study. In 22 pts the Euro-Collins solution and in 153 pts the UW solution was used for organ preservation; 41 grafts in the UW group had CIT > 10 hours.
RESULTS: Eight pts developed a BS after OLT. All in the C-C group. All in the UW group. One pt, that showed BS 13 months after OLT, had a Non-Hodgkin limphoma involving the biliary tree. Another pt developed BS 40 months after OLT becouse of alcoholic chronic pancreatitis. The remaining 6 pts developed BS in the first month after surgery. One pt received a reduced-size and ABO-incompatible graft, two known risk factors of BS. Another pt had a stenosis at the anastomotic level surgically corrected by re-doing C-C anastomosis. In the other 4 cases there were not evidences of gross technical defects; in 2 cases primary graft dysfunction was observed in the immediate post-operative period; in the other 2 cases CIT exceeded 10 hours. These cases were treated by percutaneous balloon dilatation of multiple intra- and extrahepatic BS (n = 1) or reconvertion to C-J (n = 3) with success.
DISCUSSION: BS were observed esclusively in the UW group, suggesting a possible relation to the longer CIT permitted by the UW solution. Nevertheless, only 5% of pts with CIT exceeding 10 hours developed a BS, supporting that the damage could have a multifactorial etiology. BS were also seen after graft dysfunction. A relative major sensitivity of non-parenchimal cells (bile duct and vascular endothelial cells) to reperfusion injury could be assumed.

P155

RISK AND BENEFIT OF LIVER RESECTIONS FOR MALIGNANCIES IN THE ELDERLY PATIENT

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Radical liver resections are the only chance of cure in patients with hepatic malignancies. Nevertheless, liver resections still bear the risk of complications and mortality, although the procedure has become more safe in the recent years. The study was performed to rule out the risks of liver resections in patients of more than 70 years of age compared to younger patients. From January 1986 to June 1995 we performed 330 liver resections in 288 patients with hepatic metastases (n = 228) or primary liver malignoma (n = 60). There wer 37 trisegmentectomies, 46 hemihepatectomies, 34 left lateral segmentectomies, 71 segmentectomies and 142 subsegmentectomies. 63 patients (71 resections) were older than 70 years at the time of operation. The kind of resection in this group was comparable to the entire group. Overall 26 patients died subsequently to operation (hospital lethality 7,9%), 7 of them were more than 70 years old. The postoperative morbidity and long-term survival rates were comparable in both groups. The mortality rate was influenced by the kind of liver disease (primary vs. secondary tumour), the extent of liver resection, and concomitant diseases rather than by the patients' age. Liver resections for hepatic malignancies are feasible even in the elderly patient and provide considerably low mortality and morbidity rates. As a conclusion the only chance of cure in malignant hepatic disease should be offered to resectable patients regardless of their age.

P156

EXPRESSION OF TUMOR ASSOCIATED ANTIGENS BY HEPATOCELLULAR CARCINOMA

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Many human tumours express antigens that are recognized by cytolytic T lymphocytes (CTL). Recently several tumour specific antigens, coded by MAGE, BAGE and GAGE genes, have been identified in melanoma cells as well as non small cell lung carcinoma, breast and ovarian tumours. These family antigens are potential targets for an immunotherapeutical approach.
Liver tumours are a major cause of cancer death in cirrhotic patients. Chemotherapy has failed to demonstrate a significant therapeutical efficacy therefore a specific immunotherapy should be an interesting goal. In order to examine the presence and distribution of tumour associated antigens in hepatocellular carcinoma (HCC) we used PCR analysis and ethidium bromide staining to test the expression of the MAGE, BAGE and GAGE family genes in 8 patients with HCC.
According to TNM Classification there were one T1, four T2 and three T3 tumour; three tumour were well differentiated (G1), two moderately differentiated (G2) and three undifferentiated (G3). Fifty percent of the lesions expressed at least one of the antigens; MAGE-1, MAGE-2 and MAGE-3 were expressed in 37.5% of the tumours; BAGE in 25% and GAGE in 12.5%. Antigen expression seems related to tumour grading, in fact 2 out of 3 of the less differentiated tumour expreessed 4/5 antigens while 2 out of 3 well differentiated showed no antigen expression. However, due to the small sample, no significant correlation was observed between antigen expression and tumour grading or staging.
Our results suggest that MAGE, BAGE and GAGE tumour antigens could be targets for specific immunotherapy in patients with HCC.

P157

PLEURAL EFFUSION AFTER HEPATECTOMY: CAUSES AND CONSEQUENCES

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The incidence of and risk factors for pleural effusion after liver resection are ill-defined. To address this issue, a prospective study was performed between january and july 1995 in every patient undergoing elective hepatic resection by an abdominal incision.

Patients and Methods : 52 consecutive patients underwent hepatic resection of whom, 6 were excluded because they had undergone a simultaneous diaphragmatic resection. Ages of the 46 patients included for analysis ranged between 21 and 77 years (51±14 years). Indication for resection was a primary hepatocellular carcinomas in 22 patients (of whom 17 had an associated chronic liver disease) a benign liver tumour in 15 patients, liver metastasis in 5 patients and a cholangiocarcinoma in 4 patients. The abdominal incision was an upper midline incision (n=7), a right subcostal incision (n=7), a right and left subcostal incision (n=20)or a J staped incision (n=12). Major hepatic resection (resection of ≥ 3 segments) was performed in 21 (46%) and 31 (67%) underwent hepatic resection with a complete dissection of the right coronary ligament. All patients had pre and postoperative pulmonary function tests. Pleural effusion was diagnosed by means of chest X ray examination who was realised daily from day 2 onwards. Postoperative ascites developed in 13 patients.

Results : 31 patients (67%) developed a pleural effusion requiring aspiration in five and chest tube drainage in 4. The parameters significantly associated ($p<0.05$) with pleural effusion were ascites (n=13 (100%), total dissection of the right coronary ligament (n=25 (80%) and chronic hepatopathy (n=13 (76%). Postoperative function tests (EVMS) was significantly decreased in patients with pleural effusion (58% vs 71%)

In conclusion these results indicate that after liver resection by an abdominal incision, 2/3 of the patients developed a pleural effusion. This complication required a specific treatment in 1/3 of the patients. The parameters associated with pleural effusion were a postoperative ascites, the presence of chronic hepatopathy and the total dissection of the right coronary ligament.

P158

LAPAROSCOPİC TREATMENT OF LİVER HYDATİD CYSTS

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Laparoscopic use of a novel Perforator-Grinder-Aspirator (PGA) apparatus which is specfically designed for the evacuation of hydatid cysts has been reported. Fifteen hepatic hydatid cysts in nine patients were treated by laparoscopic technique using this tool which mainly penetrates the cyst by opening a hole on the cyst wall, grinds the particulate and sucks it all out; while the classical surgical aspirators are almost always blocked by the daughter cysts and laminated membranes.

If the cyst is small, the management of the cavity is achieved by simple drainage, otherwise vacuum obliteration with the application of -250 mbar negative pressure may be necessary. High vacuum obliterates the cystic cavity by clinging to the opposing cyst walls, and collapses the bile ducts which opens into the cavity.

In the postoperative period, none of the patients had bile drainage. In the following 4-32 months period, Computerized Tomography (CT) and ultrasound examinations revealed progressive decrease in the size of six cysts and disappearance of the lesions in nine cysts.

It is therefore concluded that laparoscopic treatment of hepatic hydatid cyst could be easily and effectively done by the use of this novel instrument. Obliteration of the cyst cavity by high vacuum is a time saving procedure, easy to perform and reduces or totally eliminates bile drainage.

P159

UNRESECTABLE COLORECTAL LIVER METASTASES: RESULTS OF HEPATIC ARTERY CHEMOTHERAPY USING A TOTALLY IMPLANTED PUMP

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Intra-arterial chemotherapy in the treatment of colorectal liver metastases without extrahepatic desease seems to increase the response rates compared with systemic chemotherapy. From January 1990 to September 1995, 54 patients (39 male, 15 female) with a mean age of 62 years (range 36-77 yrs) were treated with floxuridine 0.25 mg kg^{-1} over 14 days via a totally implanted infusion pump (Synchromed Medtronic) with the addition of systemic folinic acid (100 mg m^{-2} day^{-1} over 4 days) and 5-fluoruracil (5-FU) 400 mg m^{-2} day^{-1} over 4 days. There was no operative death. Post-operative complications were: 3 haematomas, 4 wound infections, 2 catheter tromboses, 2 pump failures, 5 catheter dislocations, 4 pseudo-aneurysms. In the follow up 49 patients were evaluated. The median extent of liver envolvement was 30.6±9.9%. A complete response was achieved in 14 patients while a partial response in 18 patients and no change in 12 patients. The overall response rate was 65%; 48.9% of patients are alive at 2 years, with a median survival of 20 months. 22 patients developed chemically reversible hepatitis and 15 diarrhoea; there was neither biliary sclerosis nor gastric ulcer. Systemic and intra-arterial chemotherapic infusion via an implanted pump seem to reduce hepatic progressive disease with an acceptable toxicity and postoperative complications. A multicentric randomized trial to evaluate the efficacy of intra-arterial ± systemic chemotherapy in the treatment of colorectal liver metastases has been instituted.

P160

HEPATIC TRAUMA. A 16 YEARS STUDY

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Trauma is the principal cause of death in young people, and liver injuries the most frequent abdominal lesions that lead to death. We review our experience, with emphasis on clinical and therapeutic aspects. From January 1979 to December 1994, 111 patients with liver trauma were operated on in our unit. There were 91 men (81.9%) and 20 women (18.1%), with median age 31 years (range 5-84). Etiological factors, clinical aspects, method of management, complications and mortality were assessed. 80 (72.1%) sustained blunt injuries (60 (54.1%) motor vehicle lesions) and 31 (27.9%) penetrating trauma (24 (21.6%) stab wounds). There were 60 patients (54.1%) who arrived at the emergency room with shock, 20 (18%) with open abdomen and 8 (7.2%) with coma. 74 (66.6%) had associated lesions. Abdominal injuries included the spleen 28 (25.2%), the mesenteric vessels 12(10.8%), the pancreas, duodenum and vena cava 3, the porta/mesenteric vein 2 and the hepatic veins 1 as the most notable lesions. According to Calne [1], the majority of lesions were grade II, 46 (41.4%) and III, 38 (34.2%). Surgical therapy included hepatorrhaphy 80 (72.1%), perihepatic drainage 16 (14.4%) and resectional debridement 15 (13.5%). Secondary hepatic procedures were required in 16 patients including perihepatic packing in 13 and selective hepatic artery ligation in 4. 22 patients (19.8%) died, 10 in the operating room (9 due to exsanguination) and 12 in the postoperative period. From 89 patients who survived, 56 (62.9%) had complications: systemic 45 (50.6%) particularly pulmonary complications, and abdominal 39 (43.8%), intraabdominal abscess 19, wound infection 15. 24 (21.6%) required reoperation and 6 (5.4%) radiological drainage of hepatic / perihepatic collections. Hepatic trauma is, in our experience, a problem most frequent among young adults, and is mainly related to motor vehicle accidents. Mortality in these cases is moderate and morbidity high. Haemorrhage control is the principal determining factor in reducing mortality.

1. Calne et al. Br.J.Surg. 1982;69:365-8.

P161

LIVER RESECTION FOR METASTASES OF NON-COLORECTAL ORIGIN

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Resection of liver metastases of colorectal origin is of proven benefit in properly selected cases; resection of liver metastases of non-colorectal origin, on the other hand, is less commonly performed and less widely accepted. We report on a series of 29 such cases. Methods: The records of all patients who underwent resection of non-colorectal liver metastases between 3/89 and 11/95 were reviewed. Primary site, length of time from resection of the primary tumor, indication for resection of liver metastases, type of resection, adjuvant therapies, and patient survival were recorded. Results: Of 221 liver resections performed at our institution between 3/89 and 11/95, 29 were for tumors of non-colorectal origin. Tumor types included: ovarian-9; leiomyosarcoma-3; lung (adeno)-2; hemangiopericytoma-2; melanoma-2; adrenal-1; ampulla of Vater-2; anus (squamous)-1; breast (adeno)-1; breast (angiosarcoma)-1; salivary gland-1; hypernephroma-1; thyroid (follicular)-1; malignant fibrous histiocytoma-1; pancreas (neuroendocrine)-1. Indications for resection included: palliation of symptoms due to large tumor mass-8; palliation of symptoms due to tumor hormone secretion-2; asymptomatic liver-only tumors resected to alter prognosis-13; debulking, along with resection of diaphragmatic/peritoneal metastases-6 (all ovarian). Thirteen patients underwent anatomic lobectomy, and 16 underwent nonanatomic resection. Mean time between resection of the primary and liver resection was 27 months. Nineteen patients received adjuvant chemotherapy post-liver resection. At mean follow-up of 26 months, 20/29 patients are alive; 13 of these are clinically tumor-free, and 7 have or have had recurrent tumor. There was one perioperative mortality, and there have been 8 tumor-related deaths. Conclusion: These patients can be broadly classed into three groups: A) Patients with ovarian Ca, in whom debulking is of established value, B) Patients with metastases apparently confined to the liver from a wide variety of non-colorectal primary sites, and C) Patients with large, symptomatic liver metastases of a variety of slow-growing types with or without less significant disease elsewhere. As part of a mulitdisciplinary approach, liver resection in these three groups of patients has a role both in palliation of symptoms and in extending survival.

P162

RADIOFREQUENCY ABLATION OF LIVER TUMOURS

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Tumours of the liver remain a major worldwide management problem. Primary tumours often occur in patients with very poor liver function making surgery impossible or complicated. Metastatic lesions may be too extensive for complete surgical removal. Multiple modalities for tumour ablation have been studied, including alcohol injection, cryosurgery and tumour embolization - all have disadvantages. Radiofrequency ablation of tumours has recently shown promise. Our experience in humans comprises 12 patients who have had their primary or metastatic tumour ablated with radiofrequency energy applied by insertion with 14 gauge probe followed by hepatic resection. This probe generates a spherical area of tumour destruction up to 3 cm in diameter with a temperature between 80-90° for 4 minutes. All tumours are stained with NADH stains demonstrating tumour membrane destruction without protein coagulation. We have recently embarked upon ablation of subtotally resected tumours (carcinoid and colorectal metastases) using radiofrequency ablation as an adjunct to surgical resection. Our operative experience with this radiofrequency probe has demonstrated its usefulness as a potential treatment for small liver tumours.

Patient Initial	Tumour Type	Tumour Diameter	Type of Probe	Associated Structure	Injury
BT	RRM	2.2	bi-polar	hepatic vein	bubble in vein
RS	CRM	3.5	bi-polar	portal hepatic	bubble in vein
DH	CRM	5.5	bi-polar	nil	-
SM	PM	2.7	mono-polar	hepatic vein	-
VL	HCC	5.0	mono-polar	nil	-
FS	HCC	1.0	mono-polar	nil	-
NK	CRM	2.7	mono-polar	portal hepatic	-
CC	Cyst	4.0	mono-polar	nil	-
RB	CAR	1.5	mono-polar	nil	-
CL	CRM	3.8	mono-polar	hepatic vein	-
TH	HEM	1.5	mono-polar	hepatic vein	-
ML	HCC	3.0	mono-polar	nil	-

CRM → colorectal metastases; PM → pancreatic metastases; HCC → hepatocellular metastases; HEM → hemangioma; CAR → Carcinoid

This preliminary study demonstrates that radiofrequency ablation shows promise for the nonoperative management of liver tumours.

P163

COMPARISON OF DIFFERENT APPARATUSES FOR FINAL HEMOSTASIS ON THE RAW LIVER SURFACE (ARGON BEAM COAGULATOR VS. PLASMA FLOWS AND ND:YAG LASER) IN COMBINATION WITH TACHOCOMB AND TISSUCOL

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Introduction: There are a lot of different apparatuses to control oozing from the raw liver surface after liver resection. Argon beam coagulator, plasma flows and laser irradiation (most frequently Nd:YAG laser) are usually used for these purposes.
Objective: To evaluate the local influence of different physical methods on the liver tissue and on the whole body.
Patients and methods: We used argon beam coagulator (Pfizer, USA), plasma flows (Fakel 1, Russia) and Nd:YAG laser irradiation (Dornier, FRG) to control oozing from liver raw surface after resection during 21 operations. The final hemostasis was achived by Tissucol or TachoComb. The general influence of diff.phys. methods was calculated by means of APACHE score system and clinical course. The local damage was evaluated by the hystological examination of intraoperative biopsy. Every time, for each clinical situation a certain apparatus was selected.
Results: No significant differences were found in APACHE system for different apparatuses. There were no differences in hystology for argon beam coagulator and plasma flows. The damage of liver tissue from laser irradiation was the deepist. The post-operative course was much more favourable in laser group. There were no any differences between groups with Tissucol and TachoComb. On the base of empiric data, precise indications for each apparatus were defined.
Conclusion: There are a lot of different apparatuses to control oozing from liver raw surface. They look very similar, but according to our data the use of each apparatus is very specific and depends on the clinical situation and intraoperative findings.

P164

SURGICAL TREATMENT OF CIRRHOTIC ASCITES (PARACENTESIS, PERITONEOVENOUS SHUNTING, NARROW-LUMEN MESOCAVAL PTFE INTERPOSITION SHUNT WITH FIBRIN SEALANT)

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Ascites is common in patients with cirrhosis. The most logical treatment of cirrhotic ascites (CA) is hepatic transplantation. Because of the obvious impracticability of that option and the fact that the presense of CA usually means terminal liver disease, a number of different treatments had come to use. OBJECTIVE: To estimate the clinical course of treatment of patients with CA. PATIENTS & METHODS: In 1994-1995 we treated 34 patients with CA. The treatment was begun from diuretics (180 mg/day of furosemide and 400 mg/day of spironolactone) during 10 days. On the basis of this test we selected patients with diuretic-resistant ascites (5 patients). Next stage was paracentesis with albumin infusions. We achieved success in 2 patients (positive protein and amino-acids balance, rare admittion to the hospital) during next 6 months. Failure of treatment was in 3 patients. For these patients we used peritoneo-venous shunting (Denver, USA) and after normalization of nutritional status we used a narrow-lumen (up to 10 mm) H-mesocaval interposition shunt with PTFE vascular graft (Impra, USA) with the support of vascular anastomoses by fibrin sealant (Tissucol, Immuno, Austria). Long-term successful results were obtained during next 5 months after the last surgery. CONCLUSION: Aggressive approach for patients with CA could prolong and normalize the life of this group.

P165

FIRST EXPERIENCE OF SCLEROTHERAPY OF SMALL LIVER LESIONS

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The question of treatment of the small liver lesions (hemangiomas/HA with a diameter up to 4 cm, small non-parasitic cysts/NPC, non-resectable metastases/MTS) is not cleared up yet. OBJECTIVE: To develop an effective treatment for small non-resectable liver lesions. PATIENTS & METHODS: In 1995 we treated 2 patients with Polidocanol/PC/Aethoxysklerol (intra-lesional injections) and 2 patients with fibrin sealant/ Tissel/TS, Immuno (intra-lesional injections) for small HA, 1 patient with a single non- resectable gastric cancer MTS in the liver (deep location, poor condition of patient), 2 patients with NPC of the liver (diameters were 2 cm and 10 cm). After US-guided byopsy with frosen section examination and cytology for NPC, we injected up to 20 ml of 0.5% PC or up to 4 ml of rapid TS. In case of single MTS (2.5 cm) we injected (under US-guide) intraoperatively up to 5 ml of 1% PC into the lesion and apx. up to 10 ml of 0.5% PC para-lesionally. RESULTS: There was a reduction of HA sizes up to 50% on the 7th post-procedure day (for PC and for TS). We didn't find one NPC (2cm) during US-examination on the 2nd month, and the 2nd NPC (10 cm) was reduced to 3 cm. in diameter. In case of MTS we didn't discover new metastses and the size of the treated MTS was the same on the 3rd month after surgery. CONCLUSION: The use of PC and fibrin sealant (TS) is an acceptable method for the treatment of small lesions of liver.

P166

EXPERIMENTAL STUDY ON HEPATIC CYTOPROTECTIVE FUNCTION OF NITRIC OXIDE IN OBSTRUCTIVE JAUNDICE

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Obstructive jaundice is closely associated with endotoxemia. Bacterial endotoxin (LPS) and proinflammatory cytokines induce nitric oxide(NO) synthase in various organs *in vivo* as well as in a variety of cells *in vitro*. We investigated whether NO production is increased in obstructive jaundice by determining NO_2^-/NO_3^- levels in portal plasma of common bile duct-ligated rats. While the NO_2^-/NO_3^- levels in portal plasma of control rats did not change during the observation, a gradual increase up to day 7 was seen after the ligation. Although the NO synthase mRNA in the liver was undetectable before the bile duct ligation, it was substantially induced by day 7 following the ligation. A decreased peripheral blood flow in the liver was observed in the bile duct-ligated rats, which was further reduced by treatment of the rats with the NO synthase inhibitor, L-NAME. We also investigated the effect of bile acids on the induction of NO synthase in LPS-stimulated J774 macrophages. Whole bile from control rats and, to a lesser extent, from the bile duct ligated-rats inhibited NO synthase induction in macrophages. Five different bile acids (cholic acid, lithocholic acid, deoxycholic acid, chenodeoxycholic acid and ursodeoxycholic acid), all inhibited NO synthase with similar dose dependency.

In conclusion, obstructive jaundice is associated with increased NO production which is derived from induced NO synthase. Elevated NO may play an important role in obstructive jaundice, especially in the peripheral blood flow in the liver.

P167

CRYOTHERAPY FOR COLO-RECTAL HEPATIC METASTASES

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Between October 1993 and October 1995 we have treated 45 patients with hepatic tumour using cryosurgery. This paper presents our early results and attempts to evaluate the role of this technique in the treatment of patients with irresectable colo-rectal liver metastases. 34 Patients (20 men and 14 women, with mean age 60, range 40-75 years) treated had multiple colo-rectal metastases (range 1-14). There were also 3 cases of carcinoid, 1 renal cell carcinoma, 1 neuro-endocrine tumour and 1 small bowel schwannoma metastasis. There were 2 primary hepatomas. 17 patients underwent cryotherapy alone, 13 patients underwent combined cryotherapy and resection. Of the patients with metastases, the median number of lesions treated was 5. Mean operative blood loss for cryo-therapy alone was 480 ml. (range 100-2.25 litre). 2 patients required re-exploration because of reactionary haemorrhage. In this group 1 patient died within 30 days of surgery related to ventricular arrhythmia (2 others died of cardiac problems and 1 died with coagulopathy giving a total mortality of 4 in our series of 45 patients). 6 months survival is 83% (33% disease free), while the 12 month survival is 47% (8% disease free). We conclude that cryotherapy is still in its early stages of evaluation, but from our preliminary data, it may offer survival benefit for patients with previously irresectable liver metastases of colo-rectal tumours.

P168

META-ANALYSIS OF EFFICACY OF β-BLOCKERS (β-B) ON THE FIRST VARICEAL BLEEDING (FVB) AND MORTALITY RATE IN CIRRHOTICS WITH HIGH RISK VARICES (HRV) IN LONG TERM (24 mo) RCTS.

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In unselected cirrhotics the 2 yr. FVB rate is 25% and 40% of the episodes occur within the first 6 mo (Hepatology 1994;20:66). Pts with HRV should have at least a 10% higher FVB rate respect the baseline risk. To minimise heterogeneity we grouped RCTs with similar: a)FVB rate in the placebo groups; b)length of f-u. RCTs whose placebo groups had a 24 mo FVB rate ≥35% were defined as RCTs of HRV. We included RCTs: a)with an average f-u of 24 mo; b)with a 2 yr. FVB rate ≥35% in the placebo group; c)whose results were published in life tables or data communicated by the Authors when requested. Only 3 studies had a FVB rate in the placebo group ≥25% but lesser than 35%. The overall number of pts included in the 3 RCTs was 337 :158 treated by β-B and 179 controls (CTR). The FVB rate in the pooled control groups was 28.5% (range 22%-32%) and 35% of the episodes occurred within 6 mo. The overall sample size of 337 pts was that required to significantly decrease by ≥15% the risk of a FVB during a 2 yr. (α=5%; 1-β=90%) (Stat. Med. 1982;1:121). The Messori's meta-analysis method for censored data was used (Comput. Progr.Meth.Biom.1993;40:261). The table show the results: among treated patient there was a significant reduction of the FVB rate during and after the first 6 mo. However, surprisingly β-B did not reduce the mortality rate.

	CUM. BLEED. FREE RATE		CUM .SURVIVAL RATE	
	< 6 mo β-B - CTR	> 6 mo β-B - CTR	< 6 mo β-B - CTR	> 6 mo β-B - CTR
G Idéo et al. (1988)	100% - 92%	95% - 71%	93% - 96%	88% - 75%
I.M.P.P. (1988)	95% - 93%	73% - 59%	94% - 98%	54% - 67%
T. Andreani et al.(1990)	95% - 79%	95% - 60%	80% - 73%	67% - 55%
% reduction of risk	**13.3**	**24.2**	**-0.9**	**-1.2**
Long rank OR (95% C.I).	**0.38 (0.16 - 088)**	**0.37 (0.22 - 0.63)**	**1.09 (0.44 - 2.39)**	**1.05 (0.66 - 1.69)**
Significance	**0.01**	**<0.001**	**0.4**	**0.4**

CONCLUSIONS. Because the β-B efficacy has never been assessed in patients with HRV, β-B long-term prophylaxys in pts with HRV should not be recommended. The long term effects of β-B on FVB and mortality rate should be assessed by appropriate RCTs in selected pts with HRV

P169

META-ANALYSIS OF EFFICACY OF ENDOSCOPIC SCLEROTHERAPY (ES) ON THE FIRST VARICEAL BLEEDING (FVB) AND MORTALITY RATE IN CIRRHOTICS WITH NON-HIGH RISK VARICES (NON-HRV) IN SHORT TERM (12 mo) RCTS.

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Istituto di Clinica Medica e Gastroenterologia. Bologna - Italy

Studies of the natural course of oesophageal varices in unselected cirrhotics show that among 1753 pts 14.9% bled during an average f-u of 12 mo and 63% of the episodes occurred during the first 6 mo. Pts with HRV should have at least a 10% higher FVB rate respect the baseline risk. To minimise heterogeneity we grouped RCTs with similar: a)FVB rate in the placebo groups; b)length of f-u. RCTs whose placebo groups had a 12 mo FVB rate ≤25% were defined as RCTs of non-HRV. We included RCTs: a)with an average f-u of 12 mo; b)with a FVB rate in the placebo group ≤25% ; c)whose results were published in life tables or communicated by the Authors if requested. Three of four RCTs met all the inclusion criteria. The overall number of pts included was 281:143 treated by ES and 138 controls (CTR). The FVB rate in the pooled control groups was 16.6% and 56.5% of the episodes occurred within 6 mo. The overall sample size of 281 pts exceeded that required to significantly decrease by ≥15% the risk of a FVB during a 12 mo period (α=5%; 1-β=90%). The Messori's method for censored data was used (Comput. Progr.Meth.Biom.1993;40:261). The table show the results: ES did not reduce the FVB and mortality rate.

	CUM. BLEED. FREE RATE		CUM . SURVIVAL. RATE	
	< 6 mo ES - CTR	>6 mo ES - CRT	> 6 mo ES - CRT	> 6 mo ES - CRT
W. Santangelo et al .(1988)	79 - 86	77 - 84	79 - 82	75 - 75
A. Russo et al. (1989)	100 - 95	100 - 85	100 - 95	100 - 90
PROVA (1991)	89 - 90	75 - 76	74 - 83	72 - 77
% reduction of risk	**-3.0**	**-1.2**	**-4.8**	**-1.7**
Long rank OR (95% C.I.)	**1.31 (0.61-2.38)**	**1.07 (0.58-1.98)**	**1.39 (0.74-2.64)**	**1.11 (0.63-1.96)**
Significance	**0.3**	**0.4**	**0.1**	**0.4**

CONCLUSIONS. In short term studies ES do not have not effect in patients with non-HRV. This might be due to the f-u length. Trials of prophylactic ES with adequate sample size, appropriate selection criteria and study design (long term f-u), should be undertaken in cirrhotics with non-HRV

P170

META-ANALISYS OF EFFICACY OF β-BLOCKERS (β-B) ON THE FIRST VARICEAL BLEEDING (FVB) AND MORTALITY RATE IN CIRRHOTICS WITH NON-HIGH RISK VARICES (NON-HRV) IN LONG TERM (12 mo) RCTS.

S. Siringo, C. Carbone, B. Misitano, R. Cogliandro, L. Bolondi, R. Corinaldesi.
Istituto di Clinica Medica e Gastroenterologia - Bologna. ITALY

Studies of the natural course of oesophageal varices in unselected cirrhotics show that among 1753 pts 14.9% bled during an average f-u of 12 mo and 63% of the episodes occurred during the first 6 mo. Pts with HRV should have at least a 10% higher FVB rate respect the baseline risk. To minimise heterogeneity we grouped RCTs with similar: a)FVB rate in the placebo groups; b)length of f-u. RCTs whose placebo groups had a 12 mo FVB rate ≤25% were defined as RCTs of non-HRV. This meta-analysis assessed the efficacy of ES in pts with non-HRV in short term (12 mo) RCTs. We included RCTs: a)with an average f-u of 12 mo; b) with a FVB rate the placebo group ≤25%; c)whose results were published in life tables or individual patients data communicated by the Authors when requested. Two studies met the inclusion criteria. The overall number of patients included was 246 :121 were treated with β-B and 125 controls (CTR). The FVB rate in the pooled control groups was 18.4% and 39% of the episodes occurred within 6 mo. The overall sample size of 246 was that required to significantly decrease by ≥15% the risk of a FVB during a 1 yr. (α=5%; 1-β=90%). The Messori's meta-analysis method for censored data was used (Comput. Progr.Meth.Biom.1993;40:261). The table show the results: β-B were neither able to reduce the FVB and mortality rate.

	CUM. BLEED. FREE RATE		CUM .SURVIVAL RATE	
	< 6 mo β-B - CTR	> 6 mo β-B - CTR	< 6 mo β-B - CTR	> 6 mo β-B - CTR
D. Lebrec et al. (1988)	100 - 94	85 - 80	100 - 96	79 - 80
PROVA (1991)	92 - 91	77 - 76	90 - 83	87 - 77
% reduction of risk	**5.3**	**3.7**	**9.9**	**6.5**
Long rank OR (95% C.I.)	**0.56 (0.19 - 1.65)**	**0.81 (0.43 - 1.56)**	**0.47 (0.18 - 1.23)**	**0.71 (0.37 - 1.37)**
Significance	**0.1**	**0.3**	**0.06**	**0.1**

CONCLUSIONS. In patients with non-HRV β-B did not reduce both FVB and mortality rate in the short term. This might be due to the shortness of f-u. Adequate sample size, appropriate selection criteria and study design should be used for RCTs of prophylactic β-B treatment in cirrhotics with non-HRV.

P171

FIRST VARICEAL BLEEDING (FVB) IN UNSELECTED CIRRHOTICS: TIME-INTERVAL EVENTS IN SHORT AND LONG TERM STUDIES.

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To asses the FVB risk of cirrhotic patients enrolled in prophylactic RCTs the observed FVB in the placebo groups should be compared with that reported in unselected cirrhotics. This report is to asses the FVB rate in short (12 mo) and long term (24 mo) natural course studies in unselected cirrhotics with never bleeding varices: through the whole f-u period and during the first six months that is the highest risk period for a FVB (Hepatology 1994;20;66). The data reported were obtained from the authors as personal communications. The tables show the FVB rate in 12 mo and 24 mo f-u studies.

TABLE 1-FVB rate in short term (12 mo) studies.

			Patients with bleeding	
Author	**No**	**F-U(mo)**	**Total**	**< 6 mo**
A.K. Burroughs et al. (1987)	111	17	24 (21.6%)	16 (66.7%)
NIEC (1988)	321	12	57 (17.7%)	35 (61.4%)
G. Minoli et al. (1990)	267	12	37 (13.8%)	26 (70.0%)
G. Piai et al. (1991)	383	12	51 (13.3%)	31 (60.8%)
G. Kleber et al. (1991)	109	12	26 (23.8%)	16 (61.5%)
G. Rigo et al (1992)	320	14	39 (12.1%)	18 (46.0%)
S. Siringo et al. (1994)	87	12	11 (12.6%)	9 (81.8%)
S. Siringo et al. (1994)	155	12	16 (10.3%)	14 (87.5%)
Total	**1753**		**261(14.9%)**	**165(63.0%)**

TABLE 2-FVB rate in long term (24 mo) studies.

			Patients with bleeding	
Author	**No**	**F-U(mo)**	**Total**	**< 6 mo**
NIEC (1988)	321	23	85 (26.5%)	35 (41.2%)
G. Piai et al. (1991)	383	25	90 (23.5%)	31 (34.4%)
G. Kleber et al. (1991)	109	21	32 (29.3%)	16 (50.0%)
S. Siringo et al. (1994)	87	24	22 (25.3%)	9 (40.9%)
S. Siringo et al. (1994)	155	25	37 (24.0%)	14 (37.8%)
Total	**1055**		**266(25.2%)**	**105(39.5%)**

This review confirms that the first six months of f-u is the highest risk period for a FVB. Risk criteria for early and late FVB should be identified. The present survey gives figures of baseline risk for the FVB in unselected cirrhotics that should be taken into account in evaluating the selection criteria for prophylactic trials and pooling studies for meta-analysis.

P172

HEPATIC ARTERY THROMBOSIS FOLLOWING LIVER TRANSPLANTATION : DEVELOPING A THERAPEUTIC STRATEGY

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Between 1978 and 1995, 236 liver transplantations were performed on 204 patients. 20 patients (8.5%) developed hepatic artery thrombosis (HAT) post-operatively. all files were reviewed retrospectively in an attempt to define a therapeutic strategy for this potentially lethal complication.

Materials and methods : there were 11 males and 9 females with a mean age of 44.4 years (range 28-66 years). 14 patients (70%) had anomalous arterial anatomy of their liver graft and / or incongruity of the arterial anastomosis. 4 patients had concomitant graft rejection. HAT occurred within 30 days of transplant in 16 patients and after 30 days in 4 patients. 8 patients underwent revision procedures, 3 of which ultimately required a retransplant. 4 patients underwent immediate retransplantation. 5 patients had radiologic or endoscopic interventional treatment and 3 of these patients later underwent bilio-enteric bypass.

Results : 11 patients (55%) died, the primary cause of death being HAT in 10 patients. 9 patients (45%) are alive with a follow-up ranging between 4 and 66 months. Liver function was normal in 5 patients and poor in 4 patients.

Conclusions : Early diagnosis of HAT is necessary for revisional surgery to succeed. Immediate retransplantation is indicated in patients with a poor general status who would not survive unsuccessful revisional surgery and in patients with aberrant graft arterial anatomy or complex arterial anastomoses because of the high risk of rethrombosis. Infected patients are contraindications to retransplantation and can benefit from a multidisciplinary approach (medical, endoscopy, interventional radiology). Infections and late biliary complications following late HAT can be treated by bilio-enteric anastomosis of liver resection after initial radiologic or endoscopic management.

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SURGICAL TREATMENT OF HEPATIC METASTASES FROM COLORECTAL CANCER : A COMPARATIVE STUDY BETWEEN "CONVENTIONAL" AND POSTERIOR APPROACH TECHNIQUE - PRELIMINARY REPORT

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Surgical resection still represents the best chance of improving survival for some patients with hepatic metastases of colorectal origin.

The aim of this study is to compare the outcome of hepatic resection for metastases of colorectal cancer in two similar groups of patients using two different techniques of hepatectomy.

The group I was constituted of 25 patients (15 men and 10 women, with mean age of 63.1 years - range, 32 to 80 years). The surgical procedure was hepatic resection employing the posterior approach of the hepatic hilum technique with intermittent clamping of glissonian sheaths.

The group II was constituted of 23 patients (12 men and 11 women, with mean age of 63.8 years - range, 40 to 73 years). The surgical procedure was hepatic resection employing the conventional technique with in mass continuous clamping of the hepatic pedicule.

There was no statistical difference between the two groups concerning sex, age and number of metastases. The duration of ischemia was superior in the posterior approach patients (group I) with a mean of 84.2 minutes against 37.5 minutes of the group II ($p < 0.0001$). There was no influence of the ischemia time in the postoperative hepatic function, postoperative course or recovering time.

The survival rate was superior in the group of the posterior approach technique: 778.8 ± 410.2 days (group I) Vs 572.5 ± 349.7 days (group II). Although this difference, it was not statistically significant ($p = 0.14$).

We concluded that the posterior approach procedure is a feasible and safe technique allowing to perform segmentary and subsegmentary anatomical resection. This new technique seems to improve the survival of patients with hepatic metastases of colorectal cancer. This results still has to be confirmed by subsequent series with greater number of patients.

P174

ALTERED EXPRESSION OF DIPEPTIDYL PEPTIDASE IV IN RESECTED HEPATOCELLULAR CARCINOMA

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INTRODUCTION: Several malignant epithelial tumors often reveal alterations in protease expression. In this study we investigated the activity and the distribution of the exopeptidase dipeptidyl peptidase IV (DPP IV) in human hepatocellular carcinoma (HCC).

MATERIALS AND METHODS: Twenty-one cases of surgically resected HCC were selected. Samples taken from the central and/or peripheral part of the neoplastic nodule and from the surrounding cirrhosis were analyzed. Control specimens were additionally obtained from normal liver of 7 patients which underwent surgery for non-neoplastic pathology. Frozen sections were incubated at 25°C for 10 min in a medium containing the specific substrate and Fast blue B salt and DPP IV activity was quantified by image cytometry.

RESULTS: In control specimens DPP IV hepatocyte staining was confined to the bile canalicular domain, with a centrolobular gradient. The DPP IV expression was altered in all HCCs examined, both from central and peripheral parts of the tumor; 2/21 cases showed loss of DPP IV activity and 19/21 remodeling of DPP IV distribution on bile canalicular domain. In 17/21 (81%) HCCs also staining of basolateral hepatocyte membrane was found. The surrounding cirrhotic tissue of 20 patients revealed the same expression observed in control samples, one case presented an altered distribution of DPP IV.

CONCLUSIONS: Our data indicate that alterations in DPP IV distribution and activity occur in HCC. Being the difference in DPP IV pattern between neoplastic and non-neoplastic tissue clearly evident, cytochemical determination of DPP IV could be useful support to the diagnosis of HCC, including intra-operative pathological diagnosis.

P175

PARASITE CYSTS OF THE LIVER

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502 patients with liver echinococcosis have been operated since 1971 up to 1994 and 125 of them were with a recurrence of the diseases. The diagnosis was confirmed by sonography (78.9%) and computer tomography (90.5%). The immunological examinations were positive as follows: Weinberg's reaction (72.1%), latex agglutination (80.1%) and passive hemagglutination (86.7%). In our opinion the hepatoscintigraphy has no advantages for the diagnosis of the liver echinococcosis. This examination was positive only in 63.2 % of the patients. The most frequent applying method was sonography combined with immnological examinations. Thus the diagnosis was confirmed by 90% of the patients. Different surgical methods were applied, but the "closed" methods were of main importance. We prefer to use the excision of the prominent part of the cysts and omentoplastic with tissue glue. The intraoperative sonography is an useful method for detecting small cysts in cases of polyechinococcosis. The mortality rate was 3.98%. The operated patients are followed up and criteria for prognosis and treatment are created.

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HEPATIC CRYOTHERAPY FOLLOWED BY HEPATIC ARTERIAL 5FU FOR COLORECTAL LIVER METASTASES.

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Methods: Patients were selected for treatment on the basis of 1) metastatic colorectal cancer confined to the liver, 2) unsuitability for resection, and 3) less than 50% liver involvement. Hepatic cryotherapy was performed under general anaesthetic using a Cryotech LCS 2000 system with intra-operative ultrasound monitoring. An hepatic artery Infuse-a-port was inserted into the gastroduodenal artery at the time of surgery for subsequent administration of arterial 5FU which was given on an outpatient basis by continuous infusion for 4 days in 4-weekly cycles using a disposable infusion pump. Follow-up monitoring included regular CEA estimations, 3-monthly CT scans of the liver and CXR.
Results: 24 patients had a median of 8 lesions treated (2-23) and have been followed for a median of 30 months (20-47) from liver tumour diagnosis. 15 patients were thought to have received complete macroscopic tumour destruction at the time of surgery and 9 had incomplete destruction. Post-operative complications occurred in 10 patients but were generally not serious. There was no 30-day mortality and the median hospital stay was 9.5 days (6-23). Arterial chemotherapy was well tolerated with severe side effects occurring in only 12% of cycles. 12 of 22 patients showed progression of tumour within the liver within 9 months of cryotherapy. Of these 7 received less than the planned 6 cycles of chemotherapy compared with only 1 of the 10 who did not have progression in the liver by that time ($p = 0.03$, Fisher Exact). Median survival from cryotherapy is 17 mo (7-33) and from liver tumour diagnosis is 22 mo (10-39). Comparison with historical untreated controls suggests a survival advantage of approximately 12 months for those receiving the treatment.
Conclusions: This initial experience indicates the safety of the technique and the results suggest there is an encouraging extension of life for those so treated.

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SURGICAL TREATMENT FOR MANY LIVER METASTASES FROM COLON CANCERS

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A total of 12 patients with metastatic liver tumors from colorectal cancers were treated surgically at our department from October 1994 through December 1995. Two of the 12 patients had many (more than 10) liver metastases. The first patient, who had undergone sigmoidectomy for colon cancer, was found to have synchronous liver metastatic lesions and referred to our department. In the other patient, who had received hemicolectomy for the ascending colon cancer, three liver metastatic lesions were found in the left lateral segment and the anterosuperior area, 14 months after colectomy, they were resected. Two months later, the patient was found to have other metatatic lesions and referred to our hospital. The clinical data for the patients were listed in the Table. Preoperative careful examinations, not only of the liver function and volume but also of the location and number of metastatic lesions suggested that all the lesions could be resected safely. During surgery, all the metastatic lesions were visualized using intraoperative ultrasonography, which contributed to leaving no lesions behind in the liver. The levels of serum carcinoembryonic antigen fell rapidly to below 5 ng/ml within a month after surgery in both patients. We believe that the presence of many metastatic lesions from colon cancers is not a contraindication for hepatic resection if the primary lesion has been curatively resected. ■

Table

case (age/gender)	primary tumor location	No. and location of metastatic lesions	Time between colon and hepatic resection	ICG 15' and liver volume	type of hepatic resection	weight of resected specimen
1 (46/F)	sigmoid colon	17 (III, IV, VI, VII, VIII)	synchronous	3.8%/1152cm^3	enucleation	155 g
2 (49/M)	ascending colon	10 (I, IV, V, VII, VIII)	14 months	4.6%/945cm^3	segmentectomy IV & I, enucleation	322 g

* The Roman number indicates that of Couinaud's segments. ' Indocianine green retention rate at 15 min.

P178

DIAGNOSIS OF PORTAL VEIN THROMBOSIS

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Portal vein thrombosis (PVT) is usually seen as a complication of malignant or inflammatory abdominal disease, splenectomy, trauma or liver cirrhosis. It may occur also as a complication of myeloproliferative diseases and hypercoagulative states. During the last 2 years we had 9 cases of PVT in our department diagnosed by color doppler ultrasonography (CDU). Complete thrombosis was described in 2, incomplete in 3 and findings of cavernomatous transformation of portal vein was present in 3 patients. The following diseases were identified as causes: hepatocellular carcinom (1), primary sclerotizing cholangitis (1), myeloproliferative disease (2), status after cholecystectomy (1), chronic active hepatitis (1), acute attack of pancreatitis (1),status after new-born trauma with omphalitis (1). In one patient the etiology of PVT was unknown. Six of the patients were referred to our department for bleeding from esophageal varices, 1 for ascites of unclear etiology, and 1 for chronic pancreatitis with suspection of pseudocyst. In 8 patients coeliaco- and mesentericography (AG) and computer tomography (CT) were performed. Four of them were examined also by dynamic scintigraphy with 99 Tc-colloid and the arterio -portal ratio was calculated. Arteriography was conclusive in 4 patients, in whom it confirmed diagnosis while CT did so only in 3 cases. The arterio - portal ratio of hepatic blood flow proved to be inversed, indicating relative arterialization of the liver as a consequence of PVT in all the patients examined.

In conclusion, CDU was found to be the most effective of the commonly used non invasive and invasive imaging methods when performed by an experienced examiner. CDU is indicated in patients with hemorrhage from esophageal varices, particularly when liver disease does not explain the presence of varices. Method of choice signalising changes in liver hemodynamics appears to be dynamic scintigraphy with calculation of arterioportal ratio .

P179

THE KEY ROLE OF HEPATOCYTE GROWTH FACTOR (HGF) IN LIVER REGENERATION EVALUATED BY POLICLONAL ANTI - HUMAN HEPATOCYTE GROWTH FACTOR ANTIBODY (ANTI- HGF)

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The study of the factors involved in the hepatic regeneration process is still among the main subjects of research for hepatologists and liver transplantation teams. The HGF in vitro is a direct potent mitogen which controls the hepatic regeneration since the onset of the process. This factor has been isolated in the serum of animals and patients with acute hepatic liver failure. We sought more direct evidence in vivo by using anti - HGF in animals which had a stimulus for liver regeneration.

Methods:

20 Male Wistar rats weighing 100 grs. were divided into four groups, the amount of anti - HGF used was estimated according to the power of neutralization of the antibody and the amount of plasma levels of HGF after a 70% hepatectomy. Group I (G I) n: 6 : 70% hepatectomy and a 75 µgr. anti - HGF bolus injection right after hepatectomy (at zero time), G II n: 6 : 70 % hepatectomy only; G III n: 4 : Sham operation G IV n: 4 : Control group (no manipulation). The animals were killed after 24 hours and received a systemic injection of 3H thymidine 50 µci two hours prior to death. All groups were compared with group I by the student test.

Results:

The DNA syntesis in G I was 59847 ± 7739, in G II: 180725 ± 38353, in G III: 43511 ± 3984 and in G IV: 19924 ± 1545 DPM/mgr. DNA
G I vs G II $p < 0,001$, G I vs G III $p < 0,01$, G I vs G IV $p < 0,001$

Conclusion:

1- The HGF action develops in the "priming" phase the DNA synthesis and this single bolus injection of anti-HGF was effective at neutralizing the HGF action.
2- The effective use of an antibody from another species shows that the HGF is not specific to species.
Inhibition of the parenchymal proliferative response to liver injury by in vivo neutralization of HGF provides direct evidence that this growth factor plays an important role in liver regeneration.

P180

EXPERIMENTAL STUDY ON WARM ISCHEMIC LIVER INJURY : COMPARISON OF CONTINUOUS VERSUS INTERMITTENT ISCHEMIA-REPERFUSION

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The tolerance of the liver to ischemia is controversial. The aim of this study was to compare its effects during continuous versus intermittent occlusion of blood flow to the liver, as measured by mean arterial pressure, hepatic tissue blood flow, serum levels of GOT, GPT, arterial ketone body ratio, hepatic tissue adenine nucleotides, energy charge (EC), hepatic tissue lipid peroxide (LPO), hepatic tissue superoxide dismutase (SOD) and histological examination.

Male Wistar rats were allocated to have either a continuous duration of ischemia of 60 minutes (group A), intermittent inflow occlusion (four 15-minutes periods of ischemia separated by 5 minutes reperfusion, group B) or sham operation (group C). A temporary perioperative porta-caval shunt was used to exclude the effects of splanchnic venous stasis and allow independent study of the effects of hepatic ischemia. Wilcoxon-test was used for statistical analysis.

In group A, the hepatic tissue blood flow was significantly increased at 120 minutes after reperfusion and EC was significantly increased at 30 and 120 minutes after reperfusion. There was a significantly lower hepatic tissue LPO level at 120 minutes after reperfusion and a significantly higher hepatic tissue SOD level at 30, 60 and 120 minutes in group A. Histological changes were milder in group A, which reveals ischemia-reperfusion injury was less severe and viability of the liver was well preserved.

It is suggested that for a given duration of ischemia of the liver, continuous inflow occlusion is more beneficial than intermittent occlusion during liver surgery.

P181

MORTALITY AND MORBIDITY OF 210 ELECTIVE HEPATIC RESECTIONS

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Between April, 1988 and October, 1995, we had 210 elective hepatectomies. These were performed on 87 patients with hepatocellular carcinomas, 74 with hepatic metastases, 26 with cancer of the biliary tree, 21 with benign disease, and 2 miscellenous. Thoracoraparotomy was performed on 84 hepatectomies out of 210. Hepatecomies for cirrhotic liver were performed for 71 cases. We had 5 operative death (2.4%) and 4 hospital death (1.9%). The morbidity of all patients was 54.4% including minor complications. Major complications was occured in 47 patients (22.4%) including 6 moderate (2.9%) and 15 severe (7.3%) pleural effusion, 12 ascites (5.8%), 9 pneumonia (4.4%), 4 bile fistula (1.9%), 3 abdominal abscess (1.5%), 4 hepatic coma (1.9%), and 6 postoperative bleeding (2.9%). There were no valuables which explained pneumonia, bile fistula, abdominal abscess, and hepatic coma. Wound dehiscence and pleural effusion were explicable by prothrombin ($t=-2.41$, $p=0.017$) and incision ($t=5.571$, $p<0.001$), respectively. Ascites was explicable by operation time ($t=2.245$, $p=0.026$), blood transfusion ($t=2.232$, $p=0.027$), prothorombin time ($t=2.158$, $p=0.032$), and serum total bilirubin ($t=-2.026$, $p=0.044$). Postoperative bleeding was explicable by blood loss ($t=3.922$, $p<0.001$), blood transfusion ($t=-2.732$, $p=0.007$), and additional surgery ($t=2.151$, $p=0.033$).

P182

THE ROLE OF PROSTACYCLIN ON LIVER REGENERATION IN RATS: ASSESSMENT OF DNA INCORPORATION IN DIFFERENT LOBES FOLLOWING 40% PARTIAL HEPATECTOMY.

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Basic mechanisms involved in liver regeneration are still under debate. The Arachinoid Acid Cascade (AAC) has been implicated in the early prereplicative hepatocyte development that is activated by liver resection. Purpose of this study was to analyze the regeneration of different liver lobes following 40% hepatectomy and the contribution of prostacyclin in this process.

Animals and methods: Twentyfour male Wistar rats, weighing 225 to 318 g underwent 40% partial hepatectomy (PH) by resection of the Left Lateral Lobe (LLL). [H3]Thymidine, 1.0 mCi/g body weight was injected intravenously 2 hours before sacrifice and animals were killed 24 hours after the PH. Regeneration of the remaining liver lobes (Left and Right Anterior [RAL / LAL] versus Left and Right Posterior [RPL / LPL]) was separately determined by [H3]Thymidine nuclear DNA incorporation. Animals were randomly assigned to two groups. Group I: control animals (weighing 257 ± 26g) treated with saline injection at the time of PH (n = 12). Group II, 12 animals (weighing 251± 26g) were given 10 μg Iloprost, a PGI2 analogue (ILOMEDINE Shering AG Pharma) at the time of PH.

Results: The [H3]Thymidine incorporation in the nuclear DNA for RAL vs LAL and RPL vs LPL in both series was statistically not significant. However in the control group, a counting of 7237 ± 2254 (mean ± sd) dpm x mg DNA for anterior lobes (RAL + LAL) versus 9960 ± 2825 dpm x mg DNA for posterior lobes (RPL + LPL), (p = .046) was recorded. In the Ilomedine group the corresponding values of 16938 ± 8629 dpm x mg DNA for the RAL + LAL versus 31809 ± 10072 dpm x mg DNA for the RPL + LPL (p = .045). The difference between the two series was statistically significant (p = . 045).

Conclusions: 1. After 40% partial hepatectomy in rats, the regeneration of different remaining liver lobes (RAL vs LAL and RPL vs LPL) is quite similar. **2.** The posterior liver lobes regenerate more than the anterior, and this for unclear reasons. **3.** Administration of PG2 analogue (Iloprost) is associated with a significant increase of nuclear DNA incorporation as compared to the control animals, enhancing the liver regeneration in toto and of posterior liver lobes, confirming that the initiation of DNA synthesis is mediated by metabolites of the Arachinoid Acid Cascade.

P183

GAMMA-GLUTAMYLTRANSFERASE ISOENZYME TYPES IN SERUM AS A MEAN FOR DISCRIMINATING BETWEEN BENIGN LIVER DISEASES AND LIVER TUMORS

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The enzyme gamma-glutamyltransferase (GGT, EC 2.3.2.2) is a glycoprotein present in various human tisuues and organs. GGT in serum is generally thought to originate from the liver, because activities are increased only in hepatobiliary disesaes. There are several reports of binding of GGT to lipids or lipoproteins. The different isoforms of GGT in serum, particularly those found in the course of hepatobiliary diseases, are associated with various lipoproteins. Sacchetti et al.(1988) studied the association of GGT to lipoproteins in patients with hepatobiliary diseases. In our work, we have also evaluated the percentage of GGT complexed with low (LDL) and very low (VLDL) lipoproteins in chronic liver diseases (cirrhosis, chronic hepatitis) and liver malignancies. The comparison of the percentage of GGT activity after VLDL+LDL precipitation in sera from cirrhotic and neoplastic patients showed, that the percentage of GGT associated with LDL+VLDL is much greater in sera of patients affected by neoplasia as compared to sera of cirrhotic patients. In the work of Sacchetti et al.(1988) a cut-off of 20 U/l of GGT complexed with LDL+VLDL was used. Our results showed, that by this cut-off level the diagnostic sensitivity for liver tumor patients was 80%. But the diagnostic specificity towards cirrhosis and chronic active hepatitis was only 29% and 50% resp. The increase of cut-off level of GGT complexed with lipoproteins to 40 U/l increased the diagnostic specificity tumors versus chronic active hepatitis to 87% and tumors versus cirrhosis to 65%. A comparison of the primary and metastatic liver tumors population with the cirrhosis and chronic hepatitis groups gave a diagnostic efficiency of 73% at a cut-off level of 40 U/l. The estimation of the percentage of GGT complexed with LDL+VLDL is a useful addition to estimation of total GGT and other laboratory tests that serve to discriminate chronic hepatobiliary diseases from liver malignancies.

P184

DYNAMIC THREE-DIMENSIONAL SPIRAL CT IMAGING OF THE LIVER. AN AID TO PLANNING PARTIAL LIVER RESECTIONS.

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Hepatic surgery is based on a precise knowledge of the segmental anatomy of the liver. The segmental division of the liver is determined by the intrahepatic ramifications of the portal vein and distribution of the hepatic veins. A technique has been developed by which life-like three-dimensional (3-D) models of the portal and venous hepatic systems are created, using spiral CT. Video representation of this 3-D model allows accurate assessment of the portal system and hepatic veins, in relation to the liver lesion(s). Application of this technique in the work-up of 20 patients considered for partial liver resection, is reported. *Methods:* Spiral CT scans (SR 7000, Philips Medical Systems) were obtained using 5mm slices, reconstructed at 2mm intervals. 3-D renderings of the liver parenchyma and the portal and hepatic veins were blended into a color video representation. *Patients and results:* 20 patients (age 28-70 years) underwent the 3-D imaging procedure, on which basis a strategy for resection was planned. Anatomical vascular variations were noted; the identification of accessory hepatic veins proved particularly valuable. Dynamic (video) representation provided most information. 13 pats. had 1-6 metastases, 3 pats. had a hepatocellular carcinoma, 2 pats. had an adenoma, 1 pat. had FNH and 1 pat. multiple carcinoid lesions. 3 pats. were considered unresectable due to localisation or extent of the lesions (confirmed by laparotomy or laparoscopy). The following resections were undertaken in the remaining 17 pats.: right hemihepatectomy (n=7), extended right hemihepatectomy (n=4), left hemihepatectomy (n=2), segmental resections (n=4). All resections were histologically radical, postoperative mortality was 0. Samples of the 3-D video representations are shown, displaying the liver at different angles, as a corrosion cast specimen in which the lesion is projected inbetween the portal (red) and hepatic venous (blue) branches.

Conclusion: Video representation of 3-D spiral CT images of the liver improves accurate assessment of lesion(s) in relation with the portal and hepatic veins, and proved a valuable tool in planning liver resections.

P185

SURVIVAL AFTER LIVER RESECTION OF HEPATIC METASTASES FROM COLORECTAL CANCER

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INTRODUCTION:There are many estudies, since Foster described liver resection, that show a 5 years overall survival between 20 and 45% after hepatic resection for colorectal metastases (HM). This survival is greater than in patients with metastases no resected.
MATERIAL AND METHODS:Between 1987 and January 1994, 548 patients underwent surgery for colorectal cancer at our hospital. Of this group 23 patients underwent surgery for HM. Number, size, localitation, presentation, surgical treatment, and survival were analized in this study.
RESULTS:In 10 patients HM were synchronous, and metachronous in 13. Diagnosis was made by routine ultrasonography or CT scan examination in 18 patients, increased CEA blood levels in 2, and in 3 patients during operation. HM were single in 14 patients, and multiple in 9. Sizes were between 0.5-5cm. Surgical treatment was local resection in 11 patients, segmentectomy in 5, and hepatectomy in 7 (6 right, and 1 left). Morbidity was: subphrenic abscess 2, hepatic abscess 1, pleural efusion 1, transitory liver failure 1, urine infection 1. There was no operative mortality. During follow up seven patients died after 5,10,11,12,25,30 and 37 months. Five year overall survival was 64%.
CONCLUSION: As is well known survival after resection depends on number of HM (<4); colorectal tumor stage; disease-free interval; positive hepatic nodes; free margen of resection (>1cm). When a radical resection of HM is possible without leaving residual disease, survival is better than if no surgical resection is performed, even if previous conditions are not present.

P186

MAJOR HEPATIC SURGERY. EXPERIENCE WITH 100 CASES

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The improvement of surgical and anesthetic techniques have contributed to progress in liver surgery. So, hepatic resection is now associated with low morbidity and mortality rates.

Since 1986, 100 patients, who underwent major hepatic surgery, were reviewed. The indication for liver resection was: Hydatid cysts (36), non-parasitic cysts (3), cystadenomas (3), cystoadenocarcinomas (1), adenomas (2), myoangiolipomas (2), primary malignant neoplasms (18), 14 of them in patients with liver cirrhosis, secondary malignant neoplasms (25), carcinoma of the gallbladder (4), carcinoma of bile duct (2), monolobar Caroli's disease (2), adrenocortical carcinoma (1) and gastric cancer (1) with infiltration of right and left hepatic lobe respectively.

The surgical technique used for echinococcal and non-parasitic cysts was: Total excision of the cyst (23), non anotomical liver resection (11), left hepatectomy (1) and left lateral sectorectomy (1). The anatomic resections used were: Right lobectomy (11), right trisegmentectomy (5), left lobectomy (9), left lateral sectorectomy (3), bisegmentectomy (13), segmentectomy (3) and metastasectomy (6). In four patients, liver resection was associated to duodenopancreatectomy (2), portal vein resection (1), adrenal gland resection (1), total gastrectomy (1) and left colectomy (1).

Intraoperative ultrasound was used in 36 patients. Pringle occlusion prior to parenchymal division was applied in 49 patients for 10 to 75 minutes. One patient required total vascular exclusion. In 31 patients, the ultrasonic dissection for fragmentation of tissue was used.

Four patients died of hepatic failure after liver resection. Two of the four dead were of patients who had cirrhosis ond hepatocellular carcinoma and underwent hepatic bisegmentectomy. Two other patients who died had a massive liver metastasis from colorectal cancer and required right trisegmentectomy. Moderate esteatosis were confirmed in the remanent liver parenchyma. We conclude that major hepatic surgery is now performed with good results. Careful patients selection remains crucial en order to decrese the incidence of postoperatory hepatic failure.

P187

HEPATIC NODULES IN PATIENTS WITH BUDD-CHIARI SYNDROME.

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The occurence of nodules in the liver has been described in a few patients with a Budd-Chiari syndrome (BCS). However the incidence of such nodules, their nature and their significance remain unknown. The aim of this work was to determine the incidence, histological features and evolution of hepatic nodules in patients with BCS. From 1981 to 1995, 65 patients with BCS secondary to a hypercoagulable state were treated and regularly followed-up. There were 41 women and 24 men. Mean age at time of diagnosis was 27 years (range : 11-54 years). Porto-systemic shunts (PSS) were performed in 39 patients and medical treatment in 26. All but 15 patients had long-term anticoagulant therapy. Hepatic nodules were found on liver US, scan or MRI in 16 patients (25%, 10 women and 6 men) during follow-up. Mean interval between diagnosis of BCS and discovery of liver nodules was 5 years (range : 1-14 years). Hematologic disorders in these 16 patients were primary myeloproliferative disease in 12, paroxysmal nocturnal hemoglobinuria in 3 and antiphospholipid syndrome in 1. Nodules were present in 10 out of 39 patients after PSS (26%) and in 6 out of 26 patients medically treated (23%). The interval between diagnosis of BCS and occurence of nodules was similar in patients with or without PSS. In 10 patients, hepatic nodules were diffuse in both lobes of the liver. In 6 patients, there were 1 to 3 nodules. In 9 patients, biopsy (5 during laparotomy) was performed and led to the diagnosis of regenerating macronodule in 4 cases, an area of sinusoidal congestion, hemorrhage, necrosis and neoductular proliferation simulating a tumor in 2 cases, and hepatocellular carcinoma in 3 cases. These last 3 patients had cirrhosis but the 13 others did not. One patient experienced rupture of a regenerating macronodule as a result of excessive anticoagulation. One patient died of multinodular hepatocellular carcinoma. In 2 patients hepatic nodules were no more visible on liver imaging one year after discovery. In conclusion, hepatic nodules are commonly found in BCS. They are not enhanced by PSS. Nodules may be regenerating macronodules but may also be hepatocellular carcinoma particularly in patients with cirrhosis.

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RESULTS OF LIVER RESECTION IN POLYCYSTIC KIDNEY LIVER DISEASE.

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Partial hepatectomy and total hepatectomy followed by orthotopic liver transplantation have been advocated in patients with polycystic kidney liver disease (PKLD) and massive enlargement of the liver. The purpose of this work was to evaluate the results of partial liver resection in 9 consecutive patients. Between 1991 and june 1995, 9 patients (8 women, 1 man ; mean age : 55 years, 33-66) with PKLD and symptoms related to massive liver enlargement (pain, abdominal distension, gastroesophageal reflux, dysphagia, and decrease of mobility) have had partial hepatectomy. All patients had severe arterial hypertension, and chronic renal failure. Three patients were on chronic hemodialysis. Four patients had a left lateral lobectomy, 4 had a left hepatectomy. One patient had a right hepatectomy extended to segment IV. In three patients anatomical resection was associated with removal of cysts in another part of the liver. In the three patients with end-stage renal failure a right nephrectomy was also performed. Three patients required blood transfusion (33%). There was no intraoperative or postoperative death. All patients had postoperative ascites. This was easily treated in patients with persistent diuresis. In hemodialysed patients ascites persisted and was eventually treated by renal transplantation in one patient. One patient (11%) died on day 45 postop of ascites infection. Another patient had no improvement because of persistent ascites and is presently awaiting for liver and kidney transplantations. All other patients have had marked improvement in their status. These results suggest that partial liver resection is efficient in patients with PKLD and massive and symtomatic enlargement of the liver without end-stage renal failure. In patients with chronic hemodialysis combined liver and kidney transplantations might offer better results.

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A CASE OF HEPATOCELLUAR CARCINOMA WITH LYMPH NODE METASTASIS OF THE MEDIASTINUM

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We report a successful surgical case of hepatocellular carcinoma (HCC) with lymph node metastasis of the mediastinum. A 56-year-old man, who underwent left lateral segmentectomy for HCC with lymph node metastasis of the hepatoduodenal ligament (No 8a,12p2) in our department 30 months ago. Histopathological finding of the tumor was Edmondson III of HCC. He complained of fever unknown origin 26 months after surgery. Chest X-ray film showed a mass shadow in the right superior mediastinum. The mass was considered to be swollen mediastinal lymph node by CT scan and MRI. We diagnosed a solitary metastasis to the mediastinum from HCC of the liver. Right posterolateral thoracotomy was done and the mediastinal tumor about 5 cm in diameter was resected. Histopathological findings revealed that the tumor was a metastatic lymph node of HCC. The patient is still alive without recurrence 11 months after reoperation.

Lymphatic metastasis of HCC is uncommon, and mediastinal metastasis of HCC is exceedingly rare. From 1985 to 1995, 120 cases with HCC were operated in our department. Lymph node metastasis of HCC was observed in 5 cases (4.2%). This case was considered that mediastinal lymph node would be metastasized via lymphatic pathway from the liver to the mediastinum. Only 6 case reports have been found concerning HCC with a solitary metastasis to the mediastinum in Japanese literature.

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ADJUVANT CHEMOTHERAPY AFTER CURATIVE RESECTION IN STAGE II (UICC) HEPATOCELLULAR CARCINOMA PATIENTS.

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Adjuvant oral chemotherapy relevant to frequent recurrence was studied in 67 patients with Stage II hepatocellular carcinoma between May 1988 and December 1990. Patients underwent complete excision of the tumor in 26 institutions, composing the Adjuvant Chemotherapy Study Group for Liver Cancer in Japan. They were stratified into 2 groups according to preoperative liver dysfunction: 55 in Clinical Stage (CS) I, mild dysfunction, and 12 in CS II, moderate dysfunction. Then, a randomized controlled study of postoperative oral administration of 1-Hexylcarbamoyl-5-Fluorouracil (HCFU) was conducted in each group. As of Oct. 1994, recurrence in CS I patients was observed in 20 (17 of local recurrence and 3 of distant metastasis) of 27 (74%) in the control group and 15 (12 and 3, respectively) of 28 (54%) in the treatment group and in CS II patients, 3 of 5 in the control group and 7 of 7 in the treatment group. Twenty five patients (83%) died after recurrence, while 5 patients died without recurrence. The cumulative survival and recurrence-free survival rates of CS I patients in the treatment group were higher (P=0.076, P=0.040, respectively) than those in the control group. However, in CS II patients, No significant difference was observed (P=0.774, P=1.000, respectively). HCFU intake was suspended due to side effects in 9 of 21 (40%) CS I and 3 of 6 (50%) CS II patients. Main side effects were neuropathy in 5 and liver dysfunction in 5, although these symptoms resolved within 2 months of suspension of HCFU. The present study suggests that the potential benefits of HCFU on tumor recurrence, either metachronous multicentric occurrence or metastasis, should be weighed against the risks of adverse reactions in patients with mild liver dysfunction.

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SURGICAL TREATMENT FOR CHOLANGIOCELLULAR CARCINOMA

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We divided cholangiocellular carcinoma (CCC) into three types, nodular, periductal, intraductal type, according to the gross appearance and relation to the major intrahepatic bile duct. Seventy-four resected cases of CCC were classified into three types. This study did not include the hilar type of CCC. Nodular-type tumor (n=32) clinically showed no symptoms (44%), or were associated with chronic hepatitis (41%). Concerning the tumor spread pattern, intrahepatic metastasis (34%) and portal vein tumor thrombus (34%) were characteristic. Periductal-type tumor (n=32) showed jaundice (53%), hepatolithiasis(16%), and lymph node metastasis (50%). Intraductal-type tumor (n=10) showed abdominal pain (50%) and fever (60%). The histopathological feature of this type was papillary adenocarcinoma (100%). The incidence of intrahepatic metastasis (10%) and lymph node metastasis (20%) was lower than that of other tumor types.

Intraductal type had a good outcome, with a 5-year survival rate of 68% in 10 cases. In contrast, the survival rate of the nodular type was 27% in 32 cases, and for the periductal type was 3% in 32 cases.

This classification is of considerable value in understanding the clinicopathological features and in surgical decision planning in CCC.

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CLINICOPATHOLOGICAL FEATURES AND TREATMENTS OF INTRAHEPATIC CHOLANGIOCELLULAR CARCINOMA

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The reliable treatment of intrahepatic cholangiocellular carcinoma (CCC) has not yet been established. The previous papers have reported that its outcome is overwhelmingly poor. In this study, we reviewed the clinicopathological features of the CCC patients, and discussed the surgical procedures leading to more favorable outcome. Thirty-two CCC patients were enrolled in this study, who had been treated at our institute over the last 21 years. The patients were composed of 27 males and 5 females with a mean age of 59.4 years. Fourteen of the 32 patients underwent hepatectomy (group H), and the other 18 palliative therapies (group P). According to Couinaud's classification, hepatectomy, 2 segments or more, was performed in 10 patients and one-segment resection in the other 4 in group H; however, 4 of them did not receive complete removal of the lesion (group H-I). The mortality rate related to surgery was 14.3 % (2/14) and the other 12 survived surgery. In group P, chemotherapy, irradiation, or non treatment was selected for the patients. The postoperative mean survival period (MSP) was 22.3 months (mos) in the 8 patients with complete removal of the lesion, and 4 of them are now still alive with the longest living period of 34.5 mos. In contrast, the MSP in groups H-I and P was 8.0 and 7.7 mos, respectively. Histology of the resected specimens revealed that the tumor frequently involved the portal and hepatic veins (vascular invasion) and to the intra- and/or extra-hepatic bile ducts (biliary invasion) even in group H. The incidence of these invasions was 38.5 % and 76.9 %, respectively. Lymph node metastasis was also microscopically frequent: its rate was 28.6 % (nodal invasion). The above three histologic findings presumably reflect a part of biological features of the disease. The present results also indicate that complete resection of the tumor should result in better outcome. The extended resection of intra- and/or extra-hepatic bile ducts with combined dissection of lymph nodes is also required for improving the prognosis of selected CCC patients, since the cancer cells are likely to involve these tissues.

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HEPATOCELLULAR CARCINOMA WITH EXTENSION INTO THE RIGHT ATRIUM:

report of a successful liver resection by hepatic vascular exclusion using cardiopulmonary bypass

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We report a successful liver resection using cardiopulmonary bypass with total hepatic vascular exclusion (THVE) for hepatocellular carcinoma (HCC) with extension into the right atrium. A 61-year-old man with a cirrhotic liver was referred to our department with HCC in the medial segment of the left lobe of the liver and tumor thrombus extending into the right atrium. Liver resection was performed as follows: (1) a left and caudate lobectomy was performed leaving the left lobe of the liver connected by only the left and middle hepatic trunks; (2) the intracaval tumor thrombus and the left lobe of the liver were removed *en bloc*; (3) cardiac arrest was not performed during THVE. The patient had an uneventful postoperative course except for slight renal dysfunction and was discharged from the hospital 2 months following surgery. He continued to do well until 15 months postoperatively when multiple pulmonary metastases were discovered.

In conclusion, by performing dissection of the hepatic parenchyma to the hepatic vein prior to removal of tumor thrombus, the period of extracorporeal circulation, duration of warm ischemic time to the liver and intraoperative blood loss were all reduced and a radical operation could be performed without scattering tumor cells during extirpation of the tumor.

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DIAGNOSIS AND TREATMENT OF HEPATIE CAVERNOUS HEMANGIOMA

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Hepatic cavernous hemangioma is the most frequently occurring benign tumur of liver. Altogether, 61 cases of cavernous hemangioma of liver confirmed by surgical operation were treated in our department from 1990 through Feburary of 1994. The average diabeter of thses hemangiomas was 9.7cm, with the maximal one 40cm. Nine cases located at or involved section VIII, and 2 cases at caudate lobe. The surgical resection rate was 98.5%, There was neither death due to operation nor severe complications. The diagnosis of hepatic cavernous hemangioma and its differential diagnosis from hepatic carcinoma, operation indications, selection of operation method, intervention therapy, and other problems are discussed in the paper.

P195

USEFULNESS OF Ki-67 AND P-53 PROTEINS AS FACTORS FOR PREDICTING PROGNOSIS OF HEPATOCELLULAR CARCINOMA

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[Purpose] Possibility of assigning Ki-67 and P-53 proteins as factors for predicting prognosis was investigated. **[Test subjects and Methods]** Fifty-six cancer tissues and 56 non-cancer tissues obtained by hepatectomy, and 16 liver cirrhosis tissues taken by liver biopsy were fixed in formalin, embedded in paraffin, and after heating with microwave, using MIB-1 (Immunotech S.A.) and DO-7(DAKO) as primary antibodies, immunohistochemical staining was conducted by ABC method. **[Results]** The Ki-67 labeling rate was an average of 8.1%, showing a significantly high value compared with that of the non-cancer region ($p<0.05$). The average of the liver biopsy tissue in the liver cirrhosis cases was 0.2%. Regarding the comparison of the AFP value and the rate of Ki-67, cases of more than 20ng/ml of AFP value showed significantly high values compared with cases less than 20ng/ml($p<0.05$). In histopathological factors and Ki-67 labeling rate, the intrahepatic metastatic cases were significantly higher than those of negative cases ($p<0.05$). Further, in cases of involvement to portal vessels, infiltration to the fibrous capsule and aneuploid cases and in cases of low differentiation, a trend of high value was observed. When the Ki-67 labeling rate was compared between those of the presence and absence of preoperative aortic injection therapy, the cases received aortic injection therapy showed a significantly low value compared with those of non-treated cases ($p<0.05$). In comparison of the period between hepatectomy and recurrence and the Ki-67 labeling rate, those recurred within a short time less than 12 months showed a significantly high value compared with those recurred after 12 months and later ($p<0.05$). The P-53 protein positive cases were observed in 19(36.5%) of 52 cases. The Ki-67 labeling rate in the P-53 protein positive cases was significantly higher than that of the negative cases ($p<0.05$). In the comparison of histological differentiation degree and P-53 protein staining positivity, the positivity of the low differentiated type was high compared with those of the high and middle differentiated types. **[Conclusion]** (1) it was found that for the evaluation of malignancy of hepatocellular carcinoma, a possibility that the Ki-67 labeling rate is a useful indicater. (2) In cases that abnormal appearance of P-53 protein cancer region, the proliferating activity is augmented and the mutation of P-53 gene is related to the dedifferentiation of hepatocellular carcinoma was suggested.

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ENDOSCOPIC TREATMENT OF BLEEDING OESOPHAGEAL VARICES (BEV): BAND LIGATION (EBL) Vs SCLEROTHERAPY (ES) IN RELATION TO THE TRAINING OF OPERATORS.

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Since the end of 70' ES of BEV achieved large diffusion, due to effectiveness in control of both acute bleeding and recurrence. EBL produces varices obliteration with less tissue damage. A smaller number of complications is reported, in comparison with ES, mostly concerning recurrence of bleeding from mucosal sloughs; final results will be available only at the end of several present studies in the world.MATERIALS: we report our experience concerning the first 30 patients who underwent respectively ES and EBL. Both groups of PTS were homogeneous for aetiology and Child-Pugh's risk score.

	SCLEROTHERAPY	BAND LIGATION	p
Prophylaxis	7(24%)	12 (41%)	-
Eradication	18(60%)	8 (27%)	n.s.
Not Valuable	2(6%)	8 (27%)	n.s.
Sessions for eradic.	3.4+/-1.5	2+/-1.2	n.s.
Recurr. bleed.	14 (47%)	13 (44%)	n.s.
< 30 days	3 (21%)	6 (46%)	n.s.
> 30 days	11(79%)	7 (54%)	n.s.
Recurr. varices (in eradicated)	7(39%)	4 (50%)	n.s.
Death for bleeding	3(10%)	5 (16%)	n.s.

All rebleedings were treated by ES, in both groups.

P197

UKRAIN THERAPY OF HEPATIC METASTASES AGAINST A BACKGROUND OF MAGNETOTHERMIA.

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The method of combined therapy with preparation Ukrain and magnetothermia was offered in order to improve the poor condition of the patients with colorectal cancer metastases into liver. Ukrain (NSC 63 1570) – a semisynthetic derivative of thiophosphoric acid and alkaloids extracted from Chelidonium majus L. – is both immunomodulant and cancerostatic, especially in case of colon adenocarcinoma. Magnetothermia (USSR patent N4874617/14–02797.1990 year) – a UHF magnetic field (27– 40 MHz) with prolonged electric component – was conducted by means of apparatus "Magniterm" (firm "Medilak", Kiev,Ukraine). There were 30 patients with dissiminated colorectal cancer treated with Ukrain against a background of magnetothermia in main group and 25 patients with the same diagnosis treated with 5–FU (NSC 19893) against a background of magnetothermia in control group. Magnetothermia caused increase of sensitivity of metastatic cells to antiblastic preparations, especially Ukrain, proved by growth of patients' survival rate. Also important is achievement of 1–year social rehabilitation of almost 50% of main group patients.

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SURGICAL TREATMENT OF HEPATOCELLULAR CARCINOMA: PERSONAL EXPERIENCE

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Up to December 1995, 70 patients with hepatocellular carcinoma (HCC) have been observed at our Department: 31 of them (44.3%) did not receive any treatment, because of poor liver function (Child class C) or wide extension of the tumour (multicentric liver disease, portal or hepatic vein thrombosis, extra-hepatic metastasis). Among the 39 patients treated (55.7%), 6 received a chemoembolization (15.4%), 1 had his lesions alcoolized (2.6%) and 32 were surgically treated (82%, operability 45.7%). This last group included 24 males and 8 females, with a mean age of 48 years (range 6-67); all patients carried a liver cirrhosis: criptogenetic in 9 (28%), post-hepatitic in 23 (HBsAg+ in 9, 28%, HCV+ in 14, 44%). 25 patients belonged to Child class A (78%) and 7 to Child class B (22%). At surgical operation, 4 patients didn't satisfied the operability criteria, because of wider extension of the tumour or its multicentric behaviour. So only 28 patients have been resected (resectability 40%). We performed 17 major hepatic resections (60.7%) and 11 atypical resections (39.3%), with an hospital mortality rate of 17% and 9% respectively. At the follow up (mean 52 months, range 4-129), 8/24 patients (33.3%) presented with a recurrent or a new HCC (mean disease free time 13 months, range 7-62). One and 3 year actuarial survival rate is 68% and 60%. Only one patient received a liver transplantation after the surgical resection. We believe that liver resection (wedge or atypical in particular) should represent the treatment of choice in Child A and B patients, when HCC doesn't show a multicentric behaviour or an extrahepatic involvment. Chemoembolization or alcoolization should be reserved for patients with poor liver function or for treating a relapsing disease.

POSTER PRESENTATIONS

Topic: PANCREAS

P199

ENDOSCOPIC CYTOTECHNIQUES IN DIAGNOSIS OF HEPATOBILIARY AND PANCREATIC MALIGNANCY

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Malignant strictures of the extrahepatic bile ducts are difficult to distinguish from benign strictures, particularly in patients with primary sclerosing cholangitis. Because attempts at diagnosing small cancers with fine-needle aspiration biopsy are not possible in the absence of an associated mass lesion, endoscopic cytotechniques including the brush cytology and exfoliative bile/or pancreatic juice cytology, have been used as a potential means of establishing a specific diagnosis of hepatiobioliary and pancreatic malignancies. Her we report our experience with endoscopic cytotechniques performed on 30 patients. Twelve patients were diagnosed as bile duct carcinoma, 9 patients as pancreatic carcinoma, 4 patients as papillary carcinoma and 5 patients were diagnosed as hepatocellular carcinoma. Fine-needle aspiration biopsy was positive in eleven out of thirty patients with no false positive results; its sensitivity was 37.7% and specificity was 100%. Brush cytology was positive in 13 out of the thirty patients with no false positive results; its sensitivity was 43.3% and specificity was 100%. Exfoliative bile and/ or pancreatic juice cytology was positive in six out of the thirty patients with no false positive results; its sensitivity was 20% and specificity was 100%. Endoscopic cytotechniques are complementary techniques of high specificity for diagnosis of biliary and pancreatic malignancies. They are recommended to be done in any suspicious case since they add to the diagnostic yield of conventional ERCP.

P200

APACHE III AND CRP AS EARLY PREDICTIVE INDEXES IN ACUTE PANCREATITIS.

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The aim of this study is to investigate APACHE III system and c-reactive protein (CRP) as early predictive indexes in acute pancreatitis (AP) and to compaire them. APACHE III system concludes many variables but it may be calculated at first day of patient's admission. In contrast CRP is one biochemical exam but it is not emergent and the result of this exam is not ready at admission.We studied 53 patients (29 males and 24 females) with AP last four years. Patients with (AP) are divided in two groups: group A concluded mild pancreatitis and group B complicated and /or lethal pacreatitis. As complicated (AP) were (AP) with intraabolominal collections, respiratory infections, ARDS, acute renal foulure.In all patients we calculated APACHE III system and we measured CRP in their seroum by mephelometry at admission. We used Mann - Whitney test,sensitivity (se),specificity (sp) and Accuracy (Ac) for statistical analysis and we compaired APACHE III, CRP and Ranson system as early predictive indexes. The mean age of patients was 62±13 years (31-89). Actiology of (AP) was: 33 lithiasic, 4 alcoholic,14 idiopathic, 1 lipidemic and 1 vasulitic pancreatitis. There were 5 lethal and 11 complicated (AP) and 37 mild (AP). Complications were 7 intraabdolominal collections, 6 respiratory infections, 2 ARDS and 1 acute renal failure. The mean value of APACHE III in group A was 22±11 and 41,9±13,5 in group B (p=0,0000) and mean value of CRP 64±51 and 220 ±23 mgr/dl respectively(p=0,0000).If cut off sign of APACHE III was≥ 31 then Se= 87,5%, Sp=81%, and Ac= 83% and if cut off sign of CRP was≥120 mgr/dl then Se=81,2%, Sp=83,7% and Ac= 83%. If Ranson system≥3 then Se=50%, Sp=89% and Ac=78%.
In conclussion APACHE III and CRP have the same Se, Sp and Ac in early prognosis of (AP). Their results are better than Ranson system. APACHE III is more complex than CRP ,but CRP is not available at first day of admission in many hospitals.

P201

ACUTE EMPYEMA AND GAGRENE GALL-BLADDER CHOLECYSTITIS. THEIR TREATMENT BY THE OPEN METHOD OR LAPARASCOPIC

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The aim of this study is to show in cases of empyema and gagrenous cholecystitis, which of the two is the best method, the laparoscopic one or the open surgical method. During the last 17 years we operated at our Institution 4.200 cases with benign deseases of the biliary tract. The 900 cases were acute cholecystitis and among these the 450 cases were empyema or gagreneus cholecystits, rupture of the gall-bladder and choloperitoneum. With increasing experience the successful treatment of patients with acute cholecystitis by laparoscopic cholecystomy was reported in the international bibliography, as also our very limited personal experience is similar. In the international bibliography the conversion rate of lapascopic cholecystectomy to the open method, for the treatment of empyema or gagrenous cholecystitis was 81, 3%. The minimal time for laparoscopic cholecystectomy in acute cholecystitis is 105 minutes. If we add the 60 to 90 minutes which are required after the conversion for the open method and if we think that this happens so often (81, 3%), then we can understand the advantages of the open surgical method for the treatment of empyema and gagrenous cholecystitis. Also as we can see from the international bibliography, most of the iatrogenic injuries are done during the laparoscopic treatment of these deseases of the gall-bladder and bile ducts.
Conclusions: Today with the help of CT scan and ultrasound scan, we are able to diagnose exactly preoperatively the degree of seriousness of acute cholecystits and it is empyematous, gagrenous, perforated and when there is free choloperitoneum. In these cases mostly it is impossible to perform cholecystectomy laparoscopicaly and the conversion to the open surgical method it can be avoided if the open method is used from the beginning.

P202

COMPLICATIONS OF BILIARY PANCREATITIS IN THE LATE OPERATED PATIENTS

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It is well known that a biliary cause for the preceeding acute pancreatitis was found in 50 %. Recurrences may occur at 30-60 % of late operated patients. In this study, 27 complicated patients who had biliary pancreatitis were retrospectively reviewed during the January 1988 - May 1995. Although planned elective operations, these patients had recurrences or complications . There were 16 (59 %) female and 11(41 %) male, median age was 47.3. They had recurrences at 30-60th days after the first pancreatic attack. Seventeen had less than 3 Ranson criteria, 10 had more. By using ultrasonoghraphic and tomoghraphic analysis, 6 patients were accepted as hemorrhaged pancreatitis, 3 had peripancreatic collection and abscess and the other 3 had pancreatic pseudocyst. Twenty three patients underwent surgery and 9 of them were lost. One of the 4 patients who medically treated were lost. Wound infection and acute respiratory distress syndrome were the most frequent complications. It is concluded that in the late operated group, recurrences were high and complications could effect the mortality rate.

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CELLULAR MODEL FOR PANCREATIC CARBONIC ANHYDRASE ACTIVITY AND BICARBONATE SECRETION

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We are seeking to develop an *in vitro* model of pancreatic bicarbonate secretion using nontransformed dog pancreatic ductal epithelial (DPDE) cells. These cells are vimentin negative, keratin positive, fail to grow in soft agar, and are nontumorigenic in athymic mice. Cells have been grown using 3 different culture techniques: (1) as monolayers in petri dishes with a 1:1 dilution of MEM and human gallbladder myofibroblast (HGMF)-conditioned media, (2) in Transwells™ using HGMF cells as the nutrient layer, and (3) as organotypic cell cultures (floating monolayers attached to collagen rafts). Cells have been successfully cultured over 15 passages. Electrical resistance was measured with an epithelial voltohmmeter and reached 1900±357 ohms/cm^2 in Transwell™ cell cultures. Carbonic anhydrase activity was measured using an Imidazole-tris micromethod (Brion et al., 1988), expressing activity as enzyme units per mg protein, as listed below:

Human RBCs	24.6±2.4	DPDE cells:	
Dog pancreas, whole	4.3±0.5	nonpolarized (petri dish)	0.4±0.2
		Transwell, polarized	5.0±1.2
		organotypic, polarized	5.7±2.9

Cells were also placed in Ussing chambers to assess bicarbonate secretion. Buffered and unbuffered (bicarbonate-free) chloride salt solutions bathed the basal and apical surfaces, respectively (pH 7.4). Apical pH was measured over time using a pH meter in the apical solution; the average rate of apical pH change was +0.01 units/min.

In summary, polarized DPDE cells maintain growth, carbonic anhydrase activity, and ability to secrete bicarbonate after numerous passages. These cells will facilitate study of cellular mechanisms involved in regulation of bicarbonate secretion.

P204

LONG-TERM RESULTS AFTER SEVERE ACUTE PANCREATITIS

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Severe acute pancreatitis is still associated with a high incidence of septic complications and mortality associated with multiple organ failure. The experience of long-term results after severe acute pancreatitis is, however, limited. During the period 1981-1990, 519 patients were treated due to pancreatitis at the department of Surgery in Lund. 94 patients (18%) had severe pancreatitis (necrotising pancreatitis, organ failure, treatment at the ICU). The mean age was 57 (19-101) years. 67 patients were men and 27 women. Etiological factors included alcohol in 29, biliary tract disease in 33, trauma in 3 and endoscopic interventions in 2 patients, while the cause was unknown in 27 patients. 80 patients (85%) had no previous history of acute pancreatitis. Hospital mortality was 15% (14/94) occurring in median 22 (2-72) days after admission and related to multiple organ failure. The 80 patients surviving their acute pancreatitis were followed up till September 1995.
In 37%, in median 2 (1-8) new attacks of pancreatitis occurred. 26 patients died after in median 5 years, most frequently due to cardiovascular disease. Median follow-up for the 54 long-term survivors was 6 years and 10 months. Both pain (56%) and signs of exocrine pancreatic dysfunction (41%) were frequent during the first year after the severe acute pancreatitis, though the patients gradually improved and only 20% experienced pain and 17% had symptoms of exocrine dysfunction at the latest follow-up. 17 % developed chronic pancreatitis and 33% became diabetic. Despite the quite frequent pain and exocrine dysfunction initially after the severe acute pancreatitis, most patients considered their general condition as quite good, gradually improving and their working capacity was not substantially affected. Thus, in most cases long-term results after severe acute pancreatitis seem quite encouraging.

P205

INJURY IN PANCREATIC ACINAR CELLS AFTER UNILATERAL PULMONARY ISCHEMIA - REPERFUSION : PROTECTION WITH TRIMETAZIDINE.

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The aim of the present study was to investigate the beneficial effects of Trimetazidine (is an O.F.Rs.) in the pancreatic acinar cells injured after experimental unilateral pulmonary ischemia with perfusion in dogs. Eighteen dogs were submited to the ischemia - reperfusion of the left lung. The dogs were divided into following groups : Group A (6 dogs - control) and Group B (12 dogs) treated with Trimetazidine IV. Superoxide dismutase (SOD) levels were evaluated in the portal vein blood before, during the ischemia and 10min, 30min, 60min after the restoration of the lung perfusion. The specimens of pancreatic tissue were taken for electronic microscopy study at the end of the experiment. In Trimetazidine treated group, a decrease of SOD values has been observed in correlation to the initial values in the different stages of the experiment ($p<0,01$) Also, in group B in the ultrastructural appearence of the pancreatic acinar cells no remarkable deviation from the normal pattern was noticed. In conclusion Trimetazidine seems to play beneficial role in the injured pancreas after pulmonary ischemia with short-term reperfusion in dogs.

P206

PANCREATIC COMPLICATIONS AFTER PANCREATODUODENECTOMY FOR RADICAL TREATMENT OF ADENOCARCINOMA OF THE PAPILLA OF VATER

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Pancreatic complications (PC) are the most important determinants of early morbidity and mortality after pancreatoduodenectomy (PDT) for radical treatment of adenocarcinoma of the papilla of Vater (adenoca pV).
CASE MATERIAL: Fifty-six consecutive patients with adenoca pV were treated with PDT and digestive tract reconstruction with two isolated jejunal loops. There were 64.3% males and 35.7% females with a mean age of 55.9±1.5 years (range 30 to 75 years).
RESULTS: Major surgical complications occurred in 58.9% of the patients and were diagnosed as PC in 53.6% of them (Table1).

PANCREATIC COMPLICATIONS	N°	%
ACUTE PANCREATITIS	22	39.3
PANCREATIC FISTULA	14	25.0
BILIARY AND PANCREATIC FISTULAS	5	8.9

Table1

PC provoked intra-abdominal bleeding in 10.7% of the patients, peritoneal abscesses in 8.9%, and GI bleeding in 5.4%. These complications caused reoperations in 12.5% of the patients during the early postoperative period.
The operative mortality rate was 8.9% and all deaths were linked to PC ($p<0.05$).
The median survival time was 27 months (range 20 days to 129 months). Tumor metastases occurred in 43.1% of the patients and were the main cause of late death in this series. Actuarial survival rates of patients who survived PDT were: 1-year, 91.5%; 3-years, 61.8%; and 5-years, 49.9%.
CONCLUSIONS: PDT is the preferred operation for radical treatment of patients with adenoca pV however usual PC induce major morbidity and mortality in the early postoperative period.

P207

THREE CASES OF CYSTIC TUMOURS IN THE PANCREAS DIAGNOSED BY CYSTIC LIQUID INVESTIGATION.

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Preoperative diagnoses of cystic pancreatic tumours can be difficult. Clinical and radiologic symptoms are often inadequate to discriminate reliably among the different possibilities. Cystic fluid can be obtained preoperatively by fine needle aspiration (FNA) guided by US or CT scan. The investigation of cystic liquid for tumour markers, amylase content and cytology can be used as preoperative diagnosis criteria. Three cases of cystic tumours of the pancreas surgically treated in whom cyst fluid analysis was performed are presented.

Case 1: A 62 year-old woman presented with an asymptomatic cystic mass in the tail of the pancreas detected by US performed for an unrelated disease. Fluid analysis (CEA, CA 125, CA 19.9, amylase content and cytology) suggested serous cystadenoma, that was confirmed at operation.
Case 2: A 54 year-old woman was admitted for left back pain. US and CT scan showed a cystic tumour of 90 mm located in the tail of the pancreas. Cystic fluid investigation showed high levels of CEA, CA 125 and CA 19.9, low amylase content and epithelial cells at cytology. The diagnosis of mucinous cystic neoplasm was confirmed at surgery.
Case 3: A 59 year-old man presented with epigastric pain and obstructive jaundice. US and CT scan showed a large multiloculated mass in the head of the pancreas with obstruction of distal common bile duct. Plasma tumour markers were negative. Fluid analysis showed very high levels of CEA, CA 125 and CA 19.9, low amylase content and suspicious epithelial cells at cytology. A probable diagnosis of adenocarcinoma of the pancreas was made. The biopsy of the cystic wall at surgery confirmed a ductal carcinoma with cystic degeneration that was considered unresectable.

Comments: The preoperative analysis of the cystic fluid, obtained by FNA, can provide useful information for the diagnosis of pancreatic cystic tumours. At the time of operation, biopsy of the cyst wall and frozen section study are fundamental to confirm the diagnosis and to a decision whether resection or drainage is the treatment of choice.

P208

PANCREATIC CANCER RESECTION IN THE ELDERLY

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The purpose of the study was to investigate the rationale of a potentially curative resection for pancreatic cancer in the elderly. From 1989 to March 1995, 97 patients had a pancreatic resection for ductal adenocarcinoma at our Institution. Among them, 30 (31%) were 70 years or older (mean: 73.6, range 70-82; male/female ratio: 0.9); the remaining 67 patients (69%) were younger than 70 (mean 57.9, range 31-69, male/female ratio: 2.1). We compared retrospectively the operative outcome and the postoperative survival of the two groups of patients.
Mortality was 6.6% (2 patients) in patients aged more than 70 and 1.5% (1 patient) in the younger group (p=not significant (ns)); major complications (requiring relaparotomy) were 20% and 8.9% respectively (ns); minor complications were 16.6% and 26.8% respectively (ns). The distribution acccording to UICC stages of patients aged more than 70 and of younger patients was: stage I: 16.6% and 31.3% (ns); stage II: 0% and 3% (ns); stage III: 80% and 58.2% (p<0.1); stage IV: 3.3% and 6% (ns), respectively. The rate of non radical resections was similar in the two groups (40% and 43.2%). The incidence of poorly differentiated tumours (G3) was slightly higher in the patients aged more than 70 (40% vs 26.8%; ns). Median postoperative survival was 13 months for patients aged 70 years or older and 16 months for the younger group; the difference between the survival curves was close to significance (p=0.08). A multivariate analysis (Cox method) with tumour stage, radicality and grading did not show an independent effect of age on postoperative survival.
In conclusion, an accurate selection is needed to perform a potentially curative resection in the patients with pancreatic cancer aged more than 70. The mortality and morbidity rates are acceptable; however, they are higher than in younger patients. Furthermore, postoperative survival is slightly shorter in patients who are 70 years of age or older: a possible cause could be a more aggressive tumour behaviour in the elderly, as showed by tumour stage and grading.

P209

EPIDERMAL GROWTH FACTOR RECEPTOR CONTENT IN HUMAN DIGESTIVE SYSTEM AND HEPATO-BILIARY PANCREATIC NEOPLASIAS

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Epidermal growth factor receptors (EGF-R) have been identified in many tumor cell lines and in human primary tumors and it has been suggested that increased level of this receptor may represent an important event in neoplastic transformation. However, so far there are only a few reports concerning EGF-R content in digestive system neoplasias and whether the measurement of EGF-R may provide useful information on the malignancy of these tumors still has not been established. In the present paper the binding of 125-I-EGF to the plasma membranes of 100 samples of human digestive system tumors was determined. These included 65 large bowel adenocarcinomas, 1 duodenum adenocarcinoma, 2 anus spino-cellular carcinomas, 13 gastric carcinomas, 2 pancreatic carcinomas, 4 gallbladder cancer, 4 primary hepatomas and 9 liver metastases. Ninety eight samples of histologically normal tissue excised surgically along with the tumors were used as controls. All plasma membranes studied showed specific EGF binding. However, only in a few cases tumor plasma membranes showed an EGF receptor level higher than that of normal. The binding of 125 I-EGF was compared with clinical stages and grades of differentiation. No correlation between tumoral stage and 125 I-EGF binding was observed. The results obtained suggest that the level of EGF-R may not be used as a biological indicator for a bad prognosis or for anticipating a relapse of the tumor in human digestive system neoplasias.

P210

CLINICAL APPROACH TO ACUTEPANCREATITIS

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From 1990 to 1995, was arrived our obsrvation 58 cases of Acute Pancreatitis, with average of 63 years old (20 DS). The 58% suffering from gallstone disease, interestng in 13% of patients the main biliary tract:these every to was operated a distance of 10 days (7 DS) from acute episode, whether with laparotomy or videolaparoscopy associated with ERCP.Left patients, the 27% interesting of alcolic and the 15% mixed disease (viral infectious and malformative).
In according to Ranson: 13 patients was on the first stage,12 on second, 14 on the third, 9 on fourth, 4 on the fifth and sixth, at last, 2 on the seventh.
The surgery indication, with necrosectomy, draining and washing the peritoneal cavity, was putting only in 2.5% of patients with mortality altoghether of 8% for MOF and morbility of16%: this, in our opinion, could suggest that surgery is little necessary and the survival and to be dependent on standardization of the intensive care, with a commom index of reference that furthermore permitting an histories case very homogeneous between several centres.

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LONG-TERM RESULTS OF SURGICAL DRAINAGE OF PANCREATIC PSEUDOCYSTS

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In the past few years, invasive but non-operative methods have challenged surgical internal drainage as the standard therapy of chronic pancreatic pseudocysts. Techniques as percutaneous drainage under radiological guidance, endoscopic cystoenterostomy and endoscopic transpapillary stenting have gained ground. In this report we evaluate the long-term results of surgical, internal drainage of pancreatic pseudocysts in 43 patients with chronic pancreatitis (CP) (m:f = 32:11, mean age 45 yrs, range 24-76 yrs), operated upon between 1984 and 1994. *Previous history:* 15 pats (35%) had previously undergone invasive therapy for a pseudocyst (7x cystoenterostomy, 3x transpapillary stenting, 3x percutaneous drainage and 2 endoscopic drainage). 25 pats (81%) had a single pseudocyst and 8 pats had two or more. Median size of the pseudocysts was 6.7 cm. (range 2-30 cm.). *Surgery:* cystogastrostomy was performed in 28 pats, cystoduodenostomy in 8 pats and cystojejunostomy in 7 pats. The indication for operation was abdominal pain in 32 pats, biliary obstruction in 2 pats, infection of the pseudocyst in 2 pats and suspicion of malignancy, hemorrhage in the pseudocyst and intestinal obstruction, each in 1 pat. Postoperative complications occurred in 6 pats (14%): 1 ARDS, 1 ileus, 1 fever, 1 wound-infection, 2 sepsis. Mortality was zero. *Follow-up* was available in 38 pats with a mean follow-up time of 7.3 yrs. 3 pats (8%) developed a recurrent pseudocyst (one was drained endoscopically, the other two were observed). 4 pats developed a pseudocyst located elsewhere in the pancreas (1 underwent cystoenterostomy, no intervention was required in the remaining three). 15 pats presented with recurrent pain after a mean period of 4.4 yrs due to progression of CP. Other complications of CP were: 3x CBD stricture, 1 pancreatic abscess and 1 pancreatic carcinoma. 19 pats (50%) were pain-free after a mean follow-up time of 7.0 yrs (range 1.7-10.7 yrs). *Conclusion:* Surgical internal drainage is a safe and efficient procedure with in this study, a success rate of 92%. Recurrent complaints in this group were believed to be due to progression of CP, or to other complications of CP. Until the results of non-surgical methods have been conclusively evaluated, classical surgical internal drainage remains standard therapy for chronic pancreatic pseudocysts.

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DOES SEPSIS INFLUENCE THE OUTCOME OF PATIENTS WITH SEVERE NECROTIZING PANCREATITIS?

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It is generally believed that sepsis is the most important factor causing deterioration in necrotizing pancreatitis. To test this view this study was undertaken to determine the incidence of sepsis, and to compare the outcome between sterile and infected necrosis in deteriorating patients undergoing surgery. Forty two consecutive patients admitted to ICU with severe pancreatitis over a 3 year period (1992-95) were reviewed (33 males, 9 females; age 20-76 ; mean 44 years). Causes included: alcohol 27, gallstones 4, hyperlipidaemia, idiopathic 5, ERCP induced 1, organophosphate 1. The severity of the disease was classified according to the APACHE II score and extent of the pancreatic necrosis was assessed by CT scan or during laparotomy. Surgery was performed only in patients who deteriorated in spite of intensive supportive therapy. The diagnosis of sepsis was established by US or CT guided aspiration or at laparotomy. Twenty one patients (50%) underwent laparotomy (necrosectomy 19, decompression 2). Overall 18 patients (42%) died; 4 of 21 (19%) who were treated conservatively and 14 of 21(66%) who had surgery. Seventeen of the 19 positive cultures grew gram negative aerobes. In the conservative group (21 patients) sepsis could not be documented in the 4 deaths while all 7 patients in whom sepsis was confirmed, survived. Three of the 9 patients operated on within the 1st week and 8 of 12 patients operated after 1 week had documented sepsis. The surgical mortality was 6 of 11 (APACHE score: mean 15; range 8-27) and 8 out of 10 (APACHE score: mean 16; range 11-25) with and without sepsis respectively. Sepsis does not appear to be the principal factor causing deterioration in necrotizing pancreatitis nor is it associated with a worse prognosis than sterile necrosis when surgery is performed in this situation.

P213

OCCLUSIVE METHOD IN PANCREATIC SURGERY.

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An experience of 207 occlusions of pancreatic duct,cysts,fistulae and parapancreatic collections in 116 patients with inflammatory and 91 with tumorouse diseases of pancreas is presented. For occlusion, in 47 patients a non-absorbabel silicon material "Elastocil" was used and in 160 absorbabel "RABROM". Both are radiocontrast media with antibacterial additions. For 95 patients with pancreatic fistulae and collections occlusion was perfomed through the drainage tube without laparotomy,no complications or deaths were observed.11 patient had recurrence and cure wos aghieved in 77,9% of cases.For 11 patients with pancreatic cyst percutaneous needle aspiration and occlusion were performed without mortality: cure in 81,1% of cases,recurrence in 1 patient.During proximal pancreatectomy occlusion was used at the reconstructive stage in 101 patients to occlude the ducts of the pancreatic stump(52) or "occlusive pancreatojejenostomy" (49).This way,the incidence of complications reduced to 27,7%.Mortality rate was 11,8%.Postoperatively "Sandostatin" was used. Analysis of long-term results on follow-up for up to 5 years showed that,following occlusion patients did not develop functional disorders.Also progression or development of diabetis melitus were not observed.

Occlusive method is effective for the treatment of fistulae, cysts (<5 cm) with formed walls. The use of occlusion during partial pancreatectomy reduces the risk of leakage.

P214

PYLORUS PRESERVING PANCREATODUODENECTOMY FOR MALIGNANT DISEASE OF THE PANCREAS

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According to recent surveys pancreatic carcinoma (P.C.) is the 4th. leading cause of death for malignant tumours. Whipple procedure includes a gastric resection, more to avoid anastomotic ulcer than to obtain a more complete radicality. However it is responsible for some digestive problems. Pylorus preserving pancreato-duodenectomy (P.P.P.D.) has been originally introduced for chronic pancreatitis. (1) Preservation of approximately 1 cm of the duodenum allows a physiologic regulation of gastric acidity. (2) Preservation of pyloric funcion grants: normal gastric acid secretion, normal gastric reservoir function, regular gastric emptying, reduction of alkaline biliary reflux, reduction of operative time. Since January 1993 we have performed 8 P.P.P.D. (7 for adenocarcinoma and 1 for cysto-adenoma borderline). We have reported no mortality; a pancreatic fistula has resolved spontaneously on the 20th. P.O. day. Nasogastric tube has been left for a mean time of 7,8 days (range: 4-12). In our experience, gastric emptying has proven to be effective, without the need to associate a pyloroplasty to standard P.P.P.D. Four patients have subsequently died for progressive disease (mean survival time : 8 months). Follow-up in the remaining 4 patients ranges between 6-17 months. Endoscopy performed at 6 months has revealed no anastomotic recurrences and 1 benign jejunal ulcer. Accordingly, we believe that P.P.P.D. is an effective procedure to lower the sequelae of gastric resection in the surgical treatment of P.C. It improves the quality of life, which is essential for patiens with such a poor expectancy.

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P215

EXTRINSIC COAGULATION PATHWAY ACTIVATION AND EXCESS THROMBIN GENERATION IN PANCREATIC CANCER

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Ductal carcinoma of the pancreas is one of the most aggressive solid tumours and is associated with a strong tendency to thromboembolic complications. We have studied circulating levels of five coagulation factors in 14 patients with pancreatic carcinoma and 14 age matched control subjects without cancer. Plasma levels of tissue factor (TF), factor VIIa (FVIIa), factor XIIa (FXIIa), thrombin-antithrombin complex (TAT) and prothrombin fragment 1+2 (PF1+2) were measured using ELISA techniques. TF was three times higher in pancreatic cancer patients (median 788 vs 204 pg/ml, p= 0.04), FVIIa was 56% higher (97.5 vs 62.5 mu/ml, p= 0.01), TAT was seven times higher (14.1 vs 1.7 μg/l, p= 0.0001) and PF1+2 was 68% higher (3.7 vs 2.2 nmol/l, p= 0.01). This indicates an activation of the extrinsic pathway and excess thrombin generation in pancreatic cancer and suggests that this procoagulant may play a pivotal role in the thromboembolic complications associated with this disease.

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SYNTHESIS AND SECRETION OF ATRIAL NATRIURETIC PEPTIDE IN HUMAN PANCREAS

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The natriuretic peptides system is involved in control of body fluid volume and smooth muscle contraction as endocine and paracrine manner. We have reported the presence of atrial natriuretic peptide (ANP) in gall bladder and bile in several species animal including human. To elucidate whether human pancreatic juice has ANP, the juice samples were collected from the pancreaticoduodenectomized patients via polyethylene tube. The tubes were inserted into the main pancreatic duct through percutaneous transjejunal route during reconstruction procedure. The presence and characterization of ANP in human pancreatic juice were screened using radioimmuno-assay with ANP specific polyclonal antibidy and high performance liquid chromatography. Serial dilution curves of extracts of pancreatic juice were paralleled to the standard curve of atriopeptin III. The concentration of ANP was 4.46+1.48 pg/ml in pancreatic juice (n=6) (20-40 pg/ml in human blood). The total amount of ANP in pancreatic juice for 24 hrs was 604.5+192.7 pg/24 hrs (n=6). The gel filtration and HPLC profile of ANP showed major peak corresponding to low molecular weight of ANP that indicate the ANP is active form. Reverse transcriptase-polymerase chain reaction (RT-PCR) was employed for detection of ANP mRNA from pancreatic tissue. Predicted size and sequence of RT-PCR products revealed that there was a ANP synthesis in pancrease. To localize which cell synthesize ANP, immunohistochemistry for the detection of ANP granules is under study. These results suggest that human pancrease synthesize and secrete the ANP via exocrine system and this ANP may act on digestive system as a paracrine manner.

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IS PROPHYLACTIC GASTROENTEROSTOMY A SAFE AND EFFECTIVE PROCEDURE IN ADDITION TO BILIARY BYPASS IN UNRESECTABLE PANCREATIC HEAD CARCINOMA?

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Recent studies suggest that a prophylactic gastroenterostomy in addition to palliative biliary bypass for unresectable pancreatic carcinoma increases morbidity and mortality without offering any long term benefit. In this study the efficacy of an additional gastroenterostomy was evaluated in 120 consecutive patients with incurable pancreatic head carcinoma (male/female ratio 1.07, mean age 63 years, range 39-90 years), performed in combination with a biliary bypass in 118 patients. Indication for surgical palliation was local unresectabilty in 83, liver metastases in 30, and peritonitis carcinomatosa in 7 patients. Gastroenterostomy was performed prophylactically in 92 patients (PGE,) or for symptoms in 28 patients (SGE). There was no difference in tumor size or dissemination in patients with PGE and SGE.
Results: Overall postoperative morbidity was 28% (operation related complications 18% and general complications 10%). Delayed gastric emptying (DGE, defined as nasogastric intubation >7days) occurred in 18 patients (15%). Incidence of DGE was comparable among patients after PGE and SGE (12% vs 18%, resp., ns). 30-day mortality was 0.8%, hospital mortality was 2.5%. Median hospital stay was 17.5 days. Overall postoperative median survival was 28 weeks (32 weeks for locally unresectable tumors vs 14 weeks for metastasized tumors, p<0.05). Survival was significantly longer in patients after PGE (28.5 weeks) compared to SGE (19 weeks, p<0.05).
Late gastric outlet obstruction (GOO) developed in 12 patients (10%) after a median interval of 26 weeks. 7 patients had a previous PGE (8% of all PGE) and 5 patients previous SGE (18% of all SGE). Onset of late GOO was 27weeks (median) and 11weeks in the patients with previous PGE and SGE, resp. There was no relation with tumor size or tumor dissemination. Of the 12 patients with late GOO, 5 patients had diffuse intra-abdominal tumor spread with segmental bowel obstruction found at re-operation (postoperative survival mdn 3 weeks), whereas 7 patients were considered preterminal and were not operated.
Conclusion: Prophylactic gastroenterostomy in addition to biliary bypass is associated with low morbidity and mortality, and proved effective in preventing gastric outlet obstruction. The occurrence of late obstructive symptoms after gastroenterostomy was found to be a terminal event.

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PANCREATODUODENAL RESECTION AS A SECONDARY RECONSTRUCTIVE OPERATION

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Between 1975 and 1995, 232 patients were subjected to pancreatoduodenal resection (PDR) on for pancreatic and periampullary tumors (204) and chronic pancreatitis (28). Previously 131 of these patients have had surgical interventions including percutaneous (57) and transpapillary (8) biliary decompression, biliodigestive bypass or external drainage of common bile duct (53); 5 operations have been previously performed on stomach and 8 on pancreas. During PDR the most favorable conditions for bile tract management were seen after transhepatic cholangiostomy, in papillary tumors - also after endoscopic papillosphincterotomy. The optimal method of biliodigestive bypass before PDR was considered the terminolateral hepaticojejunostomy. If PDR was performed after gastroenterostomy or Bilroth-II distal gastrectomy, earlier created anastomoses were preserved usually with supplement of truncal vagotomy. In patients with chronic pancreatitis who have been previously undergone the longitudinal pancreatojejunostomy its preservation was the best solution during the PDR.

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"VENTRAL OPEN PACKING" IN TREATMENT OF INFECTED PANCREATIC NECROSIS

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In a period from 1991 to 1995 166 patients with acute necrotising pancreatitis (ANP) were observed. Infected pancreatic necrosis was seen in 55 patients in terms of 3-20 days from the onset of the disease. The general signs of this complication were palpable mass in the upper abdomen (in 69,1% pts), fever (in all) and presence of intra- and/or peripancreatic cavities and fluid collections in US and CT examinations (in all). The diagnosis of infectious complications of pancreatitis was considered as the strict indication to surgery. In 24 patients with acute infected pancreatic pseudocysts and abscesses transcutaneous drainage was applicated in 8 (failured in 2); open external drainage of suppurative cavity with subsequent lavage was performed in 16 (4 died). In 31 patients with the wide-spread infected pancreatic and peripancreatic tissues necrosis ventral open packing was used. Abdominal cavity was opened by wide bilateral subcostal incision, the gastrocolicum ligament was cut and right and left colonic flexures were fallen down, and the posterior surface of the pancreas was mobilised. Thereby removing of pus and debridement of non-fixing devitalised tissues was easy achieved. The closely fixed necroses were never removed because of bleeding hazard. The peripancreatic and retrocolic spaces were packed with wads of gauze, abdominal wall was closed by temporary sutures. The wads replacements were performed every two days amounting from 3 to 18 times. The overall mortality rate was 35,8% (11 patients) including 8 with alcohol-induced ANP and 3 with biliary ANP, the cause of death in all cases was due to sepsis. In conclusion, we believe that the ventral open packing appears to be the operation of choice in treatment of wide-spread infected pancreatic and peripancreatic necrosis.

P220

MANAGEMENT OF PANCREATIC TRAUMA

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The aim of this study is to present the problems in diagnosis and management of pancreatic trauma. During the last decade (1985-1995), 7 patients with pancreatic trauma (4 males, 3 females) were treated in the 3rd Surgical Department of "EVANGELISMOS" Hospital. The causes of pancreatic trauma were: traffic accident in 4, gun shot in 2 and stub wound in 1 patient.
All patients with pancreatic trauma, had multiple injuries in other intraabdominal organs, or/and in the chest, or/and in the bones. All patients submitted surgery.
During operation, all the injuries of intraabdominal organs were managed at the same time. Especially, pancreatic trauma was managed as follow: suture of the wound of the pancreas and drainage in 1, distal pancreatectomy in 1, anastomosis of the distal pancreas using Roux-en-Y jejunal loop in 2 and drainage of the pancreatic area in 3 patients.
Three patients reoperated on 3, 2 and 1 times each after the initial operation because of complications. Early postoperative complications were presented in 6 patients: one intraabdominal abscess, 3 pancreatic abscesses, 2 post-traumatic necrotizing pancreatitis and 4 pancreatic fistulas. Pancreatic fistulas were managed conservatively and the other complications by surgery. There were no perioperative deaths in this series.
In conclusion, the pancreatic trauma has a high gravity especially if associated with multiple intraabdominal injuries. The final diagnosis is established intraoperatively. The surgical interventions must be adapted to the associated visceral injuries. The best results in treatment are obtained when the correct and definitive treatment is carried out at the first possible opportunity.

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ACUTE PANCREATITIS. TREATMENT WITH 5 FLOURACIL.

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Acute pancreatitis (AP) sometimes turns to severe forms with a high mortality rate.
It has been reported that 5 flouracil (5 FL) blocks the synthesis of the pancreatic enzymes avoiding the progression of the illness. This was the reason of this study.
In our Hospital were admited 27 patients during 9 months with the diagnosis of .PA that was confirmed with a compatible history and physical examination data, indicators of a nonspecific inflammatory response, laboratory finding of elevated serum amylase or serum lipase level and an enlarged pancreas with or without peripancreatic fluid collection documented by computed tomography (CT) or ultrasonography (US).
The patients were classified in two groups according to the Ranson's prognostic indicator and Balthazar's CT grades: "High risk" group and "Low risk" group.
The treatment was 5 FL in an IV bolus of 250 mgs a day during 1 to 3 days.
In all patients with 5 FL treatment the abdominal pain was noticed to disappear sudenly and the time of recovery was the same for the high risk group and the low risk group. Only one patient died and was a non 5 FL treated because of an early surgical operation.
In conclusion the 5 FL is one more weapon in the AP treatment.

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DELAYED GASTRIC EMPTYING OF SOLID FOOD IN PANCREATIC CANCER

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The study was designed to monitor gastric emptying as related to operation on patients with pancreatic cancer, with comparison of delayed gastric emptying (DGE) before and after operation to define its incidence and whether it was caused by the tumor or by operation. Gastric emptying studies (GES), usually on the fifth postoperative day, were performed in 32 patients with cancer of the exocrine pancreas (group A) using technetium ^{99m}Tc sulphur colloid mixed with scrambled eggs. Postoperative gastric emptying was prolonged in 64%, compared to 33% before operation. Eleven patients underwent resection and 17 were explored but not resected. Resection of the pancreatic head was performed in 10 patients. In the unresected group gastric bypass, with or without biliary bypass, was performed in 11. Postoperative DGE occurred in 40% after resection in contrast to 73% undergoing gastric bypass. Patients with advanced disease had an overall incidence of postoperative DGE of 77% compared to 40% with resection. Intraoperative radiotherapy did not contribute to DGE; postoperative DGE resulting in 40% compared to 38% without therapy. Control groups included (B) patients with other malignancies in the area of the pancreatic head, (C) patients with benign abdominal diseases, (D) a normal population (literature). In group B postoperative DGE occurred in 46%; preoperatively 38%. The overall incidence of DGE in Group B was 25% with resectable cancers in contrast to 60% in advanced disease. In group C postoperative DGE was 20%; 10% preoperatively. We conclude that DGE is a frequent complication in patients with pancreatic cancer; more frequent with advanced disease including patients undergoing gastric bypass. DGE was more frequent following procedures that left the cancer unresected, even though the operative time and trauma were reduced. This suggests that DGE may be, in part, a biological result of the pancreatic cancer, per se. Prophylactic gastric bypass may be inadvisable.

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PANCREATIC DISEASES AND SPan-1 SERUM TUMOR MARKER

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The antigenic determinant recognized by monoclonal antibody SPan-1 is greatly elevated in sera of patients with exocrine pancreatic cancer but not in sera of normal individuals. A soluble form of SPan-1 is shed into the blood of inflammatory disorders of the pancreas. Experimental studies demonstrate that in malignant tumors of stomach and colon the blood level of SPan-1 correlates closely with disease progression. This suggest that SPan-1 could be an important tumor marker clinically. As preliminary studies showed soluble SPan-1 to be increased in the blood of patients with pancreatic cancer, we tried to answer the question whether SPan-1 could be a useful tumor marker in exocrine pancreatic carcinoma.
Between October 1994 and September 1995 we determined the levels of SPan-1 in sera of 30 patients with ductal carcinoma of the pancreas, 15 patients with chronic pancreatitis and 20 healthy controls. The test for SPan 1 consisted of a SPan-1-Riabead research kit (Dainabot Co., Tokyo, Japan) with a cutoff level of 30 U/ml.
The results were as follows:

	Mean Value (U/ml)	Standard Deviation
HEALTHY CONTROL GROUP	8.5	2.7
CHRONIC PANCREATITIS	**22.0**	7.9
PANCREATIC CANCER	**216.9**	298.1

There is a significant difference in SPan-1 blood plasma level between patients with chronic pancreatitis and patients with pancreatic carcinoma in comparison with the control group (p=0.001). Sensitivity and specificity of SPan-1 for pancreatic cancer in this population are 60.2% and 65.0% respectively (64.8% and 52.5% for an established marker as CA 19.9). SPan-1 can be another useful serum marker in detecting pancreatic cancer.

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EARLY SURGICAL TREATMENT OF PANCREATIC TRAUMA

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The frequency of pancreatic traumas is increasing costantly: they account for 4-9% of abdominal traumas undergoing surgery. These traumas are frequently very difficult to early diagnose.
Our experience is based on 21 pancreatic traumas, observed between 1984-1994 (4,7% of the abdominal traumas undergoing surgery). Pancreatic organ injury is divided into five grades on the basis of the AAST 1990 Classification.

GRADE	I	II	III	IV	V
N. of pts.	10	3	4	3	1
%	47,6	14,3	19,0	14,3	4,8

The diagnostic accuracy of our clinical, biochemical and radiological investigations in pancreatic traumas are summarised below:

	ERCP	CTscan	AMYLASE	X-rays	US
Pts.	2	12	21	7	11
Pts.POSITIVE	2	9	12	3	4
%	100	75	57	43	36

The results of operative management were as follows:

Grade	Pts	Associat. Injuries	Died	Surgical treatment	Complications due to late treatment
I	10	7	7	hemostasis, drainage	1 pseudocyst
II	3	1	-	hemost., drain., debridem.	1 acute pancreatitis
III	4	3	2	distal pancreatectomy	-
IV	3	2	1	pancreatoduodenectomy	-
V	1	1	-	pancreatoduodenectomy	-

The main problem with posttraumatic pancreatic lesions is linked to early diagnosis. The consequences of intraoperative diagnostic errors may lead to serious complications (chemical peritonitis from pancreatic juices, external pancreatic fistula, acute necrotizing pancreatitis), almost always with an unfavorable prognosis. The difficulties involved in diagnosing these lesions can be attributed to three eszsenzial factors: 1. the frequent occurrence of multiple lesions; 2. the need for a second operation, due to lesions that were missed during the first operation or to surgical measures that were inadequate for the lesions encountered; 3. the considerable time that in many cases elapses between the first observation and diagnosis.

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LAPAROSCOPIC AND RETROPERITONEOSCOPIC NECROSECTOMY FOR INFECTED NECROTIZING PANCREATITIS.

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Over a 2 year period, 11 patients underwent laparoscopic or retroperitoneoscopic pancreatic necrosectomy for infected necrotizing pancreatitis. Three techniques have been employed: a retrogastric/retrocolic approach in 50% of the patients, a transgastric approach in 37% and a retroperitoneoscopic in 15%. Using 3 to 5 trocars of 10 mm, a window is created along the right pericolic gutter and a right angle instrument perforates the gutter to aspirate the pus and perform a debridement. Similarly, the gastrocolic gutter ligament is entered, debrieded and large axiom sump drains are positioned in the necrotic areas under laparoscopic guidance. The transgastric route is used with endoluminal trocars to perform a linear posterior gastrotomy. Through the gastrotomy the necrotic material is debrided, cleaned and aspirated in the body/tail of the pancreas. The retroperitoneoscopy is used in the flank, extraperitoneally under direct vision for trocar insertion. The debridement and necrosectomy are performed from the anterior surface of the psoas up to the body and tail of the pancreas. A drain is positioned also under laparoscopic guidance. The mean age was 54 (41-69) with a mean hospital stay of 51 days. Six patients had respiratory failure, 6 had gram negative septicemia and 2 had an open reintervention. There was 2 mortalities from multiple organ failure. These techniques achieve the same objective as an open procedure but may be less invasive and may result in a decreased stress response post operatively.

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PANCREATIC AND PERIPANCREATIC SUPPURATIONS

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Sixty-seventy percent of the severe forms of pancreatic necrosis have various complications. Suppuration is one of the most severe complication, due to its high incidence and mortality. The vast majority of the purulent complications occur in the third phase of the pancreatic necrosis (liquefaction and sequestration) and only a few of them occur in the second phase (necrosis). Suppurative complications of pancreatic necrosis can be classified into three different categories: focal, diffuse and remote suppurations. This classification is for medical decision's (diagnosis, treatement) great benefit. There have been 727 pacients with complicated pancreatitis kept under our observation. Among them, 270 had purulent complications: 13 with intraparenchymal abscesses, 163 with purulent necrotic peripancreatitis, 45 with purulent diffuse peritonitis, 30 with purulent necrotic omentitis and 19 with purulent lesser omental bursitis. Although only 39% of the pacients were over 60 years of age, half (48.9%) of the purulent complications have been found among them, which emphasizes the negative influence of immune and vascular factors in the pathogenesis of the suppurative complications of pancreatic necrosis. Besides, the necropsy revealed a lot of remote purulent complications: purulent pylephlebitis with multiple abscesses of the liver (8 cases), abscesses of the lungs (8 cases), purulent pleuritis (7 cases), purulent focal miocarditis (4 cases) and purulent nephritis and perinephritis (6 cases). Ten patients had lethal septicopyemia. In order to reduce the incidence of such complications, the surgical tratement of pancreatic and peripancreatic suppurations needs to be carefully selected, based on specific criteria, individualisated and back up by a complex drug terapy, including direct blood transfusions.

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LYMPH NODE METASTASES IN PANCREATIC DUCTAL ADENOCARCINOMAS: CORRELATION WITH TUMOUR SUPPRESSOR GENE P53 ALTERATIONS

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No definitive data between p53 over-expression and tumour grade, stage or patient survival status has been demonstrated so far in pancreatic adenocarcinoma.
Nodal metastases are correlated with a worst prognosis. Micrometastatic nodes may be sometimes overlooked and the real tumour stage underscored.
Aim of this study was to investigated the possible correlation between nodal involvement and p53 over-expression in pancreatic cancer.
We determined cellular expression of the p53 tumour suppressor gene and proliferating activity in 48 pancreatic adenocarcinomas collected from 1971 to 1993.
The study was carried out by immunocytochemistry after microwave irradiation of formalin-fixed, paraffin embedded tissue. Immunocytochemical analysis was done using D07 (Dako) and MIB1 (Immunotech) monoclonal antibodies with the biotin-avidin (ABC) method to asses p53 protein and proliferative activity, respectively.
The results were expressed in % value of labelled cells and correlated with pTN status and Klöppel grade of the tumours.
Twenty-five tumours (52%) had p53 over-expression; 14 (29%) showed high growth fraction; 9 (23%) were T1, 27 (69%) were T2, 3 (8%) were T3, 20 cases (48%) had positive nodes; 16 (33%) tumours were G1, 20 (42%) were G2 and 12 (25%) were G3.
The statistical analysis showed 16/22 (73%) N0 p53- tumours versus 14/20 (70%) N1 p53+ tumours demonstrating a positive correlation between the presence of lymph node metastases and p53 over expression (p=0.005).
In addition, according to the histological grade p53 immunoreactivity was present in 7/16 (44%) G1, 10/20 (50%) G2 and 8/12 (67%) G3 tumours. The statistical analysis did not demonstrate a significant correlation between tumour grade and p53 over expression although the p53 expression increases from G1 to G3.
No relation was present between clinical-pathological parameters, p53 expression and proliferating activity assessed by MIB 1 antibody.
In conclusion our preliminary results suggest that p53 over-expression in pancreatic cancer may have a prognostic value indicating the probability of nodal involvement.

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PANCREATIC CANCER RECURRENCE

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The aim of the study was to analyse the kind of pancreatic cancer recurrence in relation to the accuracy of diagnostic procedures (CT-scan, Tumour Markers [CA 19.9, CEA, CAR-3 and CA 195]), and to the clinical relapse of specific symptoms. We analysed 30 patients (19 male 11 female; mean age 64,2 ± 8,8 yr., range 50-86) with ductal adenocarcinoma of the pancreas which underwent a duodenopancreasectomy between 1988 and 1993. 2 cases were T1N0M0 (6,6%), 24 (80%) T2 (11 (36,6%) N0 and 13 (43,3%) N1), 4 (13,3%.) T3N0. 13 pt. were Stage I (43,3%), 4 Stage II (13,3%), 13 Stage III (43,3%). The complete follow-up related to clinical evidence of the disease was reviewed.

- during the I year US, CT-scan, EGDS and Tumour Markers were performed every three months;
- from II to III year US, CT-scan, EGDS and Tumour Markers were performed every six months;
- from IV year US, CT-scan, EGDS and Tumour Markers were performed every year.

Seven patients were excluded from the study for incomplete follow-up. CT scan were reviewed blindly by two different radiologists. Two patients died, disease free, for not neoplastic cause (survival 62,9 and 26,6 months) while one patients is still alive 86,4 month after the surgical resection without signs of recurrence. The real survival rate calculated with the Kaplan-Meier was 20,67 ± 2,7 months (range 3,9-86,4) with a median of 16,6 months. The free disease time was 11,38 ± 2,85 months with a median of 5,5. The type of recurrence was: diffuse (peritoneal carcinomatosis) in 4 pt. (20%), local (near the pancreatic stump) in 4 (20%), pure liver metastases in 7 (35%) and in 5 pt. (25%) a nodal recurrence was found. In 3 pt. (15%) the recurrence was detected by CT scan, in 7 cases (35%) we observed an increase of the tumour markers title, in 4 cases (20%) the patients showed specific symptoms (back-pain) with a low tumour markers title without any evidence of recurrence at CT-scan. These symptoms preceded the morphologic evidence of 3 months (2 cases CT-scan, 1 CT-scan + tumour markers, 1 laparotomy). In the other six cases were positive: tumour markers and specific symptoms (3 cases 15%), CT scan and tumour markers (1 pt. 5%) and CT scan and specific symptoms (2 pt. 10%). The tumour marker CA 19.9 was positive in 10 pt.(50%) with recurrence, CA 195 in 6(30%), CAR-3 in 5 (25%) and CEA in 3 (15%). The association tumour markers + specific symptoms was positive in 17/20 pt. (85%), tumour markers + CT scan in 16/20 (80%) and CT scan + symptoms in 13/20 (65%). The statistical analysis by χ^2 did not demonstrate any significance analysing the different associations (P=0,9). An aggressive follow-up seem not justifiable in pancreatic cancer owing to the lackness of effective adjuvant therapies. An early detection of recurrence however may allow differentiated therapeutic strategies. The association of clinical symptoms and serum markers assay seem to have a good sensibility and the most favourable cost / benefit ratio. CT-scan should be reserved to patients with high suspicion of recurrence , with the aim of better define it.

P229

ASSESSMENT OF DIFFERENT TYPES OF RECONSTRUCTION FOLLOWING PANCREATIC HEAD SURGERY

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Various reconstructions following pancreatic head surgery were evaluated for anastomotic complication, remnant pancreatic function and nutritional status. The pancreatic head surgery was performed for 10 lower billiary tract carcinomas, 6 duodenal carcinomas, 11 papilla Vater carcinomas, 18 pancreatic head tumors, 2 gastric carcinomas, 2 gall ladder carcinoma and 2 chronic pancreatitis. These include 40 pancreatoduodenectomies (PD), 8 pylorus-preserving pancreatoduodenectomies (PpPD) and 3 duodenum-preserving pancreas head resections (DpPHR). PD was performed for pancreatic head carcinomas, lower billiary tract carcinomas, gall bladder carcinomas, papilla Vater carcinomas and gastric carcinomas. PpPD was for part of papilla Vater carcinomas and mucin producing tumors of pancreas head. All cases of chronic pancreatitis were treated with DpPHR. In PD cases the reconstruction was done in conventional "Child reconstruction" with duct-mucosal pancreatojejunostomy (type IIA, 17 cases), with invaginated pancreatojejunostomy (type IIB, 19 cases) and end to end gastrojejunostomy with pancreatogastrostomy (type IVC, 4 cases). In PpPD cases end to end gastrojejunostomy with duct-mucosal pancreatojejunostomy (type IIIA, 3 cases) and IVC (5 cases) was performed. All DpPHR cases were reconstructed in type IVC. In 40 PD cases, 8 cases of leakage in pancreatojejunostomy was observed, 5 in IIA type (including 4 major leakage) and 3 in IIB type. All 4 major leakage and 3 of 4 minor leakage cases had non-dilated pancreatic duct. In 8 PpPD cases, no pancreatojejunostomy leakage was seen but one hepaticojejunostomy leakage. In DpPHR cases, minor leakage from the preserved duodenum was seen but no pancreatogastrostomy leakage was observed.
The leakage from panctreatojejunostomy was seem in high incidence with duct-mucosal anastomosis especially non-dilated pancreatic duct cases. On the contrary, the leakages were minor in invaginated pancreatojejunostomy or gastrostomy and all those complications were conservatively managed. No leakage from pancreatogastrostomy was seem and those finding suggested pancreatogastrostomy is a safe and reasonable anastomosis even in non-dilated duct pancreas.

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STUDY ON CANCER METASTASIS TO THE LYMPH NODES AROUND THE PANCREATIC HEAD AND INDICATIONS FOR PYLORUS-PRESERVING PANCREATODUODENECTOMY

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Purpose : The present study was designed to evaluate the lymph node metastasis, especially paragastric lymph node, in patients with cancer of the pancreatic head region and to clarify the indications for pylorus-preserving pancreatoduodenectomy (PpPD).
Materials and methods: Postoperative histopathological examination were adequately examined on the fifty-six patients (23 patients of pancreatic cancer, 21 patients of cancer in the papilla of Vater, 12 patients of distal bile duct cancer), who were surgically treated during the past 16 years in the department of surgery, Osaka Medical College.
Results: Lymph node metastasis was frequently observed in: 1) pancreatic head cancer showing the infiltrative type or duodenal infiltration, 2) cancer of the papilla of Vater showing the ulcerative tumor type or pancreatic infiltration, 3) distal bile duct cancer showing the infiltrative type or pancreatic infiltration, 4) moderately or poorly differentiated cancer.
Paragastric lymph node metastasis was observed in 3 patients with pancreatic head cancer, one with distal bile duct cancer, but none with cancer of the papilla of Vater. All the three patients of pancreatic head cancer with paragastric lymph node metastasis showed the infiltrative type and the infiltration to the second part of duodenum. The one of distal bile duct cancer with paragastric lymph node metastasis showed the nodular infiltrative type and was diagnosed as poorly differentiated adenocarcinoma. No direct invasion of cancer to the first part of duodenum or the stomach was observed in this series.
Conclusion: Indications of PpPD are pancreatic head cancer without duodenal infiltration, cancer of the papilla Vater, and distal bile duct cancer without pancreatic invasion.

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THE USEFULNESS OF HELICAL COMPUTED TOMOGRAPHY FOR THE DIAGNOSIS OF THE CYSTIC NEOPLASM OF THE PANCREAS.

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Helical (spiral) CT scanning, a volumetrical CT scan, has enable us to scan the entire pancreas during a single breath hold, so that even a small lesion of cystic neoplasm has been able to be demonstrated. Additionally, high quality images of multiple planner reconstruction (MPR) , or three-dimentional reconstruction (3-D) were able to be obtained due to continuous data acquisition, and early phase imagings of dynamic CT could be acquired because of high-speed rotation of the scanner. Helical CT was performed on 13 cases with cystic neoplasm of the pancreas. In the mucin hypersecreting tumors of the pancreas, septal formation , papillary rising in the cystic lesions showed distinctly. In the serous cyst adenoma of the pancreas, septal formation ,small caltifications, honey comb lesions were showed distinctly. In the solid cystic tumors of the pancreas, we could discriminated between solid lesion and cystic lesion by helical CT.
On the basis of our data ,it was conclueded that helical CT is superior to conventional CT in detecting cystic neoplasm of the pancreas.

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CARCINOID TUMORS OF THE PANCREAS. CRITICAL REVIEW BASED ON TWO PATIENTS AND 37 REPORTED CASES.

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The literature on carcinoid tumors of the pancreas is confusing as the term has erroneously included a broad spectrum of islet cell tumors.

The following criteria are proposed as a basis for diagnosis:

1. A demonstrable pancreatic neuro-endocrine tumor
2. The finding of at least one of the following without another dominant hormone being demonstrated:
   a) elevation of 5-Hydroxytryptamine (serotonin) in the serum or in tumor tissue
   b) elevation of 5-Hydroxy indole acetic acid (5-HIAA) in the urine
   c) positive argyrophilic or argen-taffin tumor stains.

Based on these criteria only 39 "true" carcinoids have been identified. The diagnosis has usually been missed, often confused with chronic pancreatitis. The tumors are therefore usually large, mean diameter 4.4 cm (0.5-12 cm), and have metastasized. Thirty-two (82%) have been malignant; thus often associated with a carcinoid syndrome. The prognosis for long term cure is currently not good; long term survival being low. Radiologically the tumor is usually oval, hypodense with hyperdense capsule on CT; often revealing increased vascularity and focal areas of calcification. When a diagnosis of chronic pancreatitis is made, measurement of urinary 5-HIAA should be considered.

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SAFE PANCREATOJEJUNOSTOMY AFTER WHIPPLE'S PROCEDURE BY DUCT-MUCOSA ANASTOMOSIS WITH TOTAL PANCREATIC DRAINAGE - THE PRELIMINARY EXPERIENCE

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In spite of improving surgical techniques, pancreaticojejunostomy (PJ) remains a decisive factor of the success of Whipple's pancreaticoduodenectomy. In the past, there were three categories of PJ: (1)invagination of pancreatic stump into the lumen of intestine (2)direct suture of pancreatic duct to jejunal mucosa (due-to-mucosa technique) (3)direct contact of pancreatic duct to jejunal mucosa with total pancreatic juice drainage and without suture. Based on the experience of past authors, we speculate that (1)healing of PJ is best facilitated by primary healing of pancreatic duct to jejunal mucosa. (2)contact of the pancreatic juice to intestinal content should be delayed until complete healing of PJ in order to prevent activation of pancreatic enzymes. Therefore, we devised a technique of PJ by simultaneous combination of duct-to-mucosa technique and total pancreatic juice drainage. After resection of pancreatic head and duodenum, two purse-string sutures using fine polyglycan material were applied to the margin of main pancreatic duct and a jejunal hole which was prepared for PJ, respectively. Both purse-string sutures were fastened until a stenting tube was inserted into the main pancreatic duct and the duct-to-mucosa sutures (non-absorbable Ticron material) were tied. The stenting tube was kept for 1 month. Within an 18-month period, we used this technique on 31 patients who underwent Whipple's procedures for periampullary lesions. Among them, five patients were pyloric-preserving resections and three patients received combined resection of portal vein. The mean(±SD) diameter of main pancreatic duct was 3.03(±2.01) mm and in 18 patients it was < 2mm. The pancreatic parenchyma was estimated as soft in 20 patients. The daily amount of total pancreatic drainage was greater in patients with soft pancreatic parenchyma than had parenchyma (205.9±89.6 vs. 89.2±95.9 ml, p<0.02). Seven patients had complications but none died of operation. There were two patients had dirty discharges from peripancreatic drain tubes which were removed on the 24th and 28th day after operation. Nevertheless, the amylase level of the discharge is low. The mean(±SD) postoperative hospital stay was 16.5(±7.6) days, range 10 to 34 days. Although oral pancreatic enzyme should be prescribed before removing of the stenting tube, none had long term pancreatic insufficiency. Based on our preliminary results, we may speculate that duct-to-mucosa anastomosis with total pancreatic drainage may be the most suitable method of PJ after Whipple's resection.

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EXTENDED PANCREATICODUODENECTOMY: A NON JAPANESE EXPERIENCE

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Extended pancreatico-duodenectomy (EPD) has been proposed by Japanese Authors in the attempt to improve the survival of pancreatic carcinoma (PC), in spite of this it has not aquired yet great diffusion in the Western countries.
The aim of this work is to report our experience in 24 EPDs performed from April 1993 to October 1995. Eighteen pts were male and 6 were female; mean age was 60 years (range 41-74). Sixteen pts had PCs, 1 had intraductal mucine producing tumor (IMPT) and 7 periampullary carcinomas (PAC). The operative risk was evaluated according to ASA Classification: 7 pts were ASA I, 14 pts were ASA II and 3 pts were ASA III. Seventeen EPDs were carried out with gastric resection and 7 with pylorus preserving techinique. Median operative time was 360 min. (Interquartile Range: IQR 80). The median volumes of transfused blood and plasma were 800 ml (IQR 750) and 800 ml (IQR 700) respectively. Operative mortality was nihil. Complications were present in 11 pts (45.8%); 9 pts (37.5%) had surgical complications. Median recovery time was 16 days (IQR 11.5). The mean number of removed lymph nodes of first and second level was 34 (range 16-61); the mean number of lymph nodes of first level was 18 (range 16-61) and of second level was 16 (range 8-31). Three pts out of 16 with PC had first and second level negative nodes, 5 pts had first level positive nodes and second level negative nodes, 2 pts had first level negative nodes and second level positive nodes and eventually 6 pts had first and second level positive nodes. The pt with IMPT had negative nodes. Two out of 7 pts with PAC had first level positive nodes. Eleven pts with PC, the pt with IMPT and the 7 pts with PAC are alive and without evidence of disease at mean follow up of 15 months (range 2-32); 1 pt with PC is alive at 9 months with local recurrence and another pt with PC at 6 months with local recurrence and liver metastases. Three pts with PC passed away at 15,16 and 28 months for metastases without local recurrence.
In conclusion EPD is a surgical procedure that is feasible even in Western pts, and it has a low operative risk similar to standard PD's one; it allows moreover a more correct staging and it reduces local recurrence. We cannot assume any conclusion about the survival because follow up time is too short however we think that adiuvant therapies are necessary to prevent and reduce distant metastases that this operation does not seem to decrease.

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ACCUTE NECROTIZING PANCREATITIS - STRATEGY AND TREATMENT

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Accute necrotizing pancreatitis is one of the principal problems of the acute abdomen. Nowadays this form reaches 35% of all cases of acute pancreatitis. Method of necrectomy followed by postoperative prolonged local lavage in the area of pancreatic couch was performed in a prospective study in cohort of 100 patients with acute necrotizing pancreatitis. The average number of Ranson's Prognostic Criteria was 4,5.

Of the patients, in 80% we observed subtotal to total necrosis of pancreatic parenchyma, in 75% - necrotizing parapancreatitis or retroperitoneal destruction with retroperitoneal phlegmon. The used method significantly reduced mortality (↓ 19%).

Necrectomy with prolonged postoperative lavage lead to increased postoperative survival in patients with necrotizing pancreatitis. By means of postoperative local lavage it is possible a prolonged evacuation of biologically active substances and devitalized tissues to be performed, evading destruction of vital exocrine and endocrine zones.

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EXOCRINE PANCREATIC ENZYMES-SUBSTITUTIONAL THERAPY IN PRACTICE

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Pharmacological effects of drugs can be expected only if certain conditions are met. One of them is taking recommendable doses. The research of outpatient utilization of all drugs which also includes pancreatic enzymes, in municipality Niš (241800 inhabitants) in the 1985-1989 period was based on all presribed drugs handed out in the Associated Pharmacies Niš (annualy on the average 3232002 prescriptions). The expenditures for all the drugs were covered by health insurance. Utilization is expressed as defined daily doses (DDD)/1000 inhabitants /day. The DDD is a chosen average daily quantity of the drug most frequently used in most frequent indications in adults. The utilization of pancreatic enzymes amounts to 0.93 DDD/1000 inhabitants /day in comparison to 309 DDD/1000 inhabitants/day for all drugs. It means that about 0.01% of the population of Niš take pancreatic enzymes every day. But, in reality, a far greater number of people take those drugs as shown by a study on the prescribed daily doses (PDD) of pancreatic enzymes in which 41 physicians were interviewed (gastroenterologists-7, internists-4, specialists in occupational medicine-5 and general practitioners-25). On average the PDDs are 36-75% of the DDDs. The smallest changes of the DDDs are made by gastroenterologists (the PDDs are 62.5-75% of the DDDs). The biggest differences are found in primary health care i.e. with general practitioners and specialists in occupational medicine (the PDDs are 36-48% of the DDDs). The expected optimal therapeutic effects of pancreatic enzymes cannot be gained by such dosage; in fact it leads to insufficient or, even to placebo effects. Besides that, it is evident that therapeutically educational influence of gastroenterologists on other physicians is unacceptably weak.

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PROBLEMS IN SURGICAL TREATMENT OF PANCREATOJEJUNOSTOMY DEHISCENCE

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Pancreatojejunostomy (PJA) is very delicate operative procedure, with high percent of anastomotic leakage and high mortality rate. The autors shows a serie of 55 PJA performed in the ten years period. Thirty-seven anastomoses were performed after cephalic duodenopancreatectomies, 14 after left pancreatectomies and 4 inside by-pass operations. Indications were as follows - malignant tumour of periampullary regions (37), malignancy of body and tail of pancreas (14) , chronic pancreatitis (3) and avulsion of papilla Vateri (1). Two-layers anastomotic technique was done, with telescopic anastomosis in selected cases. Anastomotic leakage occured in 12,46% (8 cases). Rate of this complications has been much higher at elderly patients with malignancy. Dehiscence of PJA was treated medicaly in 62,2% (5 cases), with parenteral hyperalimentation , and correction of fluid and acidobases balance). In 3 cases suppression of pancreas secretion with Stylamine were done. Reoperation was performed in 3 cases with one reanastomosis and 2 drainages and later reimplantation of fistulous chanel in the small bowel. The authors work out in detail criterias about the decision for reopoeration and due time for reintervention. Reanastomotic leakage occured in 1 case (early intervention). Mortality rate was 37,5% (40% conservative and 33,3% surgicaly treated). The best results have been achieved with the combination of carefully selection of patients and high surgical technique and experience. Estimate of gold moment for reintervention is essential in treatment of PJA dehiscence.

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THE CHOICE OF OPERATION METHOD IN CHRONIC PANCREATITIS COMPLICATED BY PSEUDOCYST LESIONS

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Pseudocyst lesions are complications arising from chronic pancreatitis or as the result of chronic changes following acute pancreatitis. The occurance of pseudocyst lesions increases and varies from 0,004% to 0,01% in hospitalised patients. The aim of the present study is to choose the method of treatment in accordance with: the location of pseudocyst lesions in pancreas, their quantity and spreading, their relation to pancreatic duct, and with the picture of pancreatic duct. Diagnoses were achieved by using USG, CT, ERCP examinations and intraoperative pancreatography. There were 148 patients operated on in the years 1975-1995. In 106 different kinds of pancreatic and pseudocyst lesions resections were applied. Various types of internal anastomoses were performed in 26 patients,and 16 patients underwent external drainage. Pseudocyst lesions situated at caput of pancreas pose special difficulties which require individual approach in each case. Internal drainage by endoscopy was not applied. No recurrence of pseudocysts appeared after resective operations. We observed: 3 recurrences of pseudocysts and chronic pancreatitis remaining in 2 cases after internal drainage, as well as one pancreatic fistula following external drainage. After resection operation diabetes was found out in 2 cases in distant postopera tive period. In our experience decision as to the operation method ought to be taken on the basis of the general condition of the patient and local technical possibilities.

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PALIATIVE TREATMENT FOR PANCREATIC MALIGNANCIES - ROLE OF THE OPERATIVE BY-PASS PROCEDURES

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INTRODUCTION : Aim of the study was to analyze the effects of biliodigestive (BD) by-pass procedures in management of inoperable pancreatic head cancer.

MATERIAL AND METHODS : A retrospective study was carried out for a thirteen year period ranging from 1982. to 1994. There were 371 pts. Sex ratio was M/F - 2/1 (248/123). Age ranged from 23 to 90 years, mean M-59,3 and F-62,8. Fifteen pts.(4%) were below forty years old, 158 pts. (42,6%) 40-60, while 198 pts. (53,4%) were over sixty. Mean symptom at the time of admission was jaundice in 326 pts.(87,9%) and pain in 304 pts.(81,9%). Cholangitis was present in 37pts.(10%). The onset of jaundice was painfree in almost three fourth of pts.-269 (72,5%). Duration of jaundice varied from 3 to 180 days prior to operation. Almost half of the patients, 147(45,1%) were jaundiced over three weeks at the time of admission. Bilirubin level varied from 16 to 939, mean 247,4. Twenty five patients already had a BD procedure, 15 of the pts. without an GEA (gastroenterostomy). Operative procedure was HJA (hepaticojejunostomy) in 284 pts.(76,5%) , without GEA 28 pts., HDA (hepaticoduodenostomy) in 36 pts. (9,7%), without GEA in 24 pts., and other forms of by-pass procedures in the rest of 45 pts. (12,1%). In six patients, (1,6%) no operative by-pass procedure was possible. Specific morbidity was low, biliary fistula occurred in 15 pts.(4,0%), followed with diffuse peritonitis in 6 pts., while ascending cholangitis was present in 7 pts.(1,8%). Upper GI hemorrhage occurred in 22 pts. (5,9%) and wound infection in 19 pts. (5,1%). Early postoperative mortality was 33 pts. (8,9%). In thirty patients (8,1%) hepatorenal syndrome had developed. All patients that died were jaundiced more than three weeks.

DISSCUSION : Most patients were treated in an advanced stage of the disease with increased intraoperative risk. Combined BD and digestive by-pass procedures are feasible in most patients. The preferred BD procedure is Roux-en-Y HJA with a jejunal loop no shorter than 60 cm. Gastric outlet obstruction was prevented by retrocolic GEA. Average life expectations are 12 months.

CONCLUSION : Properly done combined BD and digestive by-pass procedure could provide good palliation for the duration of life. Although the life expectancy of such patients is relatively short the quality of life is acceptable and these patients do not die due to bile duct obstruction.

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EFFICACY OF SOMATOSTATIN IN THE PREVENTION OF POSTOPERATIVE COMPLICATIONS FOLLOWING PANCREATIC SURGERY.

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The aim of this study was to determine whether prophylactic somatostatin infusion can prevent postoperative complications after pancreatic surgery.
PATIENTS: A randomized prospective study was undertaken using two groups of patients . Group A (n=20) received prophylactic somatostatin (250 µg/h in continous perfusion for 5 days after surgery). Group B (n= 22) which did not receive somatostatin. These patients had undergone pancreatic surgery (resections or drainages) between January 1993 and October 1995.
RESULTS: both groups were homogeneous regarding sex, age, and diameter of the duct. Type of surgery:

	Drainage	Distal	Res.	Pancreatoduo.
Group A	1	14		7
Group B	3	6		11

	Pancr. Fistula	Morb*.	Mort.	Reope.	Hospital stay
Group A	10%	35%	5%	10%	27d
Group B	22.7%	68.2%	13.6%	22.7%	24d

* p =0.03
CONCLUSION. In sumary the results of this trial show that somatostatin after pancreatic surgery reduces the morbidity, mortality, reoperations and incidence of pancreatic fistulas.

P241

SURGICAL TREATMENT OF CHRONIC PANCREATITIS.

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The aim of study is the analysis of 419 patients treated for chronic pancreatitis. The authors present diagnostic procedures and indications to surgical treatment of patients with chronic pancreatitis.
Material : Analyzed group included 99 females and 320 males. Diagnosis was on the clinical examinations and diagnostic procedure (ERCP, USG, CT, FNAB). Out of this group 93 were qualified to surgery. In 56 patients we performed resective procedure and in the remaining 37 surgical decompression. Non-surgical decompression was performed in other 152 cases (endoscopic papillotomy 56, percutaneous draining 96).
Results : Resective procedures are more effective than the decompression in the treatment of chronic pancreatitis. Alternative non-surgical decompression resulted in obtaining temporary effects which are however less satisfactory than after surgery.

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The Effect Of Nesidioblastosis In The Streptozotocin Induced Diabetes In Rats

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Forty rats with streptozotocin-induced diabetes were divided into four groups of ten animals. The first group had sham operation. In the second, third and fourth groups of animals, the head of pancreas were wrapped with polypropylen, chromic cat-gut, and polysulphon, respectively.

At the end of the third week 14 percent of first, 43 percent of second, 40 percent of third and 33 percent of fourth groups of animals recovered from diabetes both clinically and biochemically. Microscopic examination of rat pancreas was partly compatible with biochemical results because of light microscopic studies.

We concluded that, experimental nesidioblastosis was not specific to either animal pancreas or wrapping material; as well as hamster, rat and as well as celophan as material polypropylen or chromic cat-gut will cause nesidioblastosis.

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WIRSUNGO DUODENOSTOMIA AFTER PANCREATODUODENECTOMY FOR CANCER OF THE PAPILLA OF VATER.

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Between 1989 and 1993 cancer of the papilla of Vater was surgically treated in 20 out of 26 cases.18 patients underwent duodenopancreatectomy and two had a papillectomy.In the cases of early cancer we have developped a new procedure including a pylorus preserving pancreatectomy with the resection the only middle part of duodenum and an anastomosis between the Wirsung duct and the distal part of duodenum.There were no surgical or hospital deaths in these 20 patients. The most common postoperative problem was the delayed gastric emptying and four of them required reoperation There were only 1 leakage of Wirsung anastomosis. Three years after pancreatoduodenectomy fourteen patients have been alive with a satisfactory quality of life.Two patients with sever pancreatic invasion to the pancreatic parenchyma have survived only 18 and 22 months after pancreatoduodenectomy.
We believe that the minimal pancreatoduodenectomy seems to be preffered in the treatment of the early cancer of the papilla of Vater ,while in patients with advanced cancer an extended pancreatoduodenectomy needs to be done.

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A STUDY OF SURGICAL ANATOMY FOR DUODENUM-PRESERVING RESECTION OF THE HEAD OF THE PANCREAS AND A PROPOSITION OF A NEW PROCEDURE

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[Aim] To precisely examine the topography of the duodenum, pancreas, bile duct and supplying vessels, for duodenum-preserving resection of the head of the pancreas.
[Materials and Methods] Forty autopsied cases were studied, in which the head of the pancreas was well preserved and no pathological lesion was found. The local anatomy of this region was grossly examined.
[Results] 1. The connective tissue membrane of the posterior surface of the pancreas was found in all of the cases, and most of the pancreaticoduodenal arteries and veins are situated on this membrane. 2. The arcade formation between the ASPD and the AIPD was found in all of the cases. In 88% of the cases was the arcade demonstrated between the PSPD and PIPD. This arcade was always located dorsal to the common bile duct. Arterial branches to the common bile duct and the papilla of Vater were divided from PSPD. 3. After departing from the gastroduodenal artery, ASPD ran toward the point, 1.5 cm below the papilla of Vater, then turning around to the posterior aspect of the pancreas to join AIPD. Thus, to the contrary to the prevailing notion, AIPD was found on the "posterior" surface of the pancreas. 4. The artery toward the papilla of Vater ran along the right side of the common bile duct. No such big artery toward the papilla was found. 5. No case was found, in which ASPD, AIPD, PSPD, PIPD, and their branches to the duodenum, the bile duct and the papilla of Vater were completely buried in the pancreatic parenchyma.
[Conclusion] It may be possible to remove the head of the pancreas, while preserving the vascular arcades and their branches.
[A Proposition of A New Procedure] We proposed a new procedure of duodenum-preserving subtotal pancreatectomy of the pancreas. A reason why we leave the part of the pancreas between the duodenum and the ASPD and the common bile duct is that the artery toward the papilla of Vater ran along the right side of the common bile duct and would be difficult to be preserved with the removal of this part of the pancreas. The most important technique of this procedure is to keep the connective tissue membrane of the posterior surface of the pancreas intact, so as to preserve pancreaticoduodenal arteries, because all the pancreaticoduodenal arteries and veins are situated on this membrane.

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CYSTIC TUMORS OF THE PANCREAS

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Despite the recent increased attention to pancreatic cystic neoplasms, there have been inadequate appreciations of the different types of cystic tumors and of the diagnostic and therapeutic approaches. In evaluating our experience of cystic tumors, we will emphasize the difficulties in achieving a definite diagnosis without resection. From 1987 to 1995 we treated 26 patients (14 women, 12 men; mean age, 62 years) with cystic neoplasms of the pancreas including 1 serous cystic adenoma, 6 mucinous cystadenomas, 1 mucinous cyst adenocarcinoma, 6 mucinous ductal ectasias, 5 papillary adenocarcinomas, 2 solid and cystic tumors, 2 adenocarcinomas with cyst formation, and 3 malignant tumors with cystic pattern (1 sarcoma, 1 combined carcinoma, and 1 non-functioning endocrine tumor) . Mean tumor size was 4 cm (1.5 to 11.5) . Eight patients(30%) had no symptoms. Computed tomography was useful for detection of cystic lesion and for showing rim calcification, but was not reliable for distinguishing neoplasm. Arteriography showed hypervascularity in serous adenoma, solid and cystic tumor, and malignant tumors with cystic pattern. Endoscopic pancreatography showed no communication with the cyst cavity in 14 of 26 cases of cystic neoplasmas but presented the ectatic ducts in 10 cases of mucinous ductal ectasia and papillary adenocarcinoma. Stenosis or obstruction of the pancreatic duct suggested to be cancer. Cytological examinations including p53 staining was useful to distinguish benign from malignant tumor in some cases . The tumor was resected in 9 cases by distal panceatectomy, in 13 by proximal resection, in one by total pancreatectomy, in 3 by enucleation with no operative deaths. Twelve tumors(46%) were malignant. Seven cases (60%) resected for cure are alive without evident recurrence.Cystic tumors of the pancreas represent a spectrum of disease ranging from benign cystadenoma to adenocarcinoma. We recommend resection whenever possible, even if preoperative evaluation suggests benign disease.

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Stomach-Preserving Gastric Bypass for Unresectable Pancreatic Cancer

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We attempted stomach preserving gastric bypass (SPBG) for patients with unresectable pancreatic cancer. A stomach preserved as much as possible was bypassed to jejunum by end-to-side anastomosis. Twenty five patients were underwent SPGB from 1992 to 1995. In five patients, another bypass was carried out and 44 patients had no gastric bypass in same period. The mean operative time for SPGB was significantly longer than that for another bypass. However the mean intraoperative blood loss was almost same. The operative morbidity was 28% and there was no operative death. Although the high incidence of delayed gastric emptying was found (24%), the comfort index (ratio of duration of good palliation to duration of survival) of patients with SPGB exceeded 50% when cancer extension limited to regional or small amount of systemic metastases. That of patients with another bypass or without gastric bypass was less than 40%. Our results show that SPGB is a safe and effective gastric bypass in patients with regional or small amount of systemic metastases. In contrast, when large amount of systemic metastases presented, mean survival was less than 100 days and the comfort index was less than 30% in all groups. In such patients, non-surgical palliation should be performed if they did not have symptoms of gastric outlet obstruction.

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SURGICAL TACTICS IN CHRONIC PANCREATITIS COMPLICATED OBSTRUCTIVE JAUNDICE

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The results of various surgical tecniques for chronic pancreatitis(CP),complicated by obstructive jaundice,is presented based on the experience of the treatment of 53 pts. over 18 years.On investigation 20 of them had calculi(parenchymatous or ductal),19 had single or multiple cysts of the pancreatic head and 14 had extensive fibrosis of the pancreas. In all patients the diagnosis was verified intraoperatively by morphologic investigation.In the previous years, for surgical treatment,we most frequuently used combinations of internal drainage procedures(n=21). This operations provided quick disappearence of jaundice and pain,were associated with a minimal number of postoperative complications and operative mortality of 4.8% (1 pts.).On long term follow-up progression of the complications of CP was observed and this led to the death of 6 pts.For this reason,in recent years for CP we perform PPPDE (n=8) or less frequently the classic Whipple procedure(n=24).The early and long-term results of this operation are muchbetter.Postoperative complications are minimal and mortality of 6,3% (n=2) was observed.Factors in support of the use of the various forms of PDE for the treatment of CP include deep degeneration of the pancreas and frequent congenital anomalies, which are determinants of chronic inflammatory processes or tumorous metaplasia,and which we observed on morphologic examination of operative specimens following Whipple procedures.

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ACUTE NECROTIZING PANCREATITIS

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The purpose of the present study was to compare the outcome of the acute necrotizing pancreatitis (ANP) and the number and the nature of the operations. It was a prospective trial which lasted from 1992 to october 1995. Acute necrotizing pancreatitis was classified according to Atlanta consensus. 33 patients were included and were treated surgically and in intensive care unit (ICU) (20 male, 13 female, average 52.8, range 27-74). First operation was performed (average) 5 days after the onset of symptoms (range 3-11 days). 14 patients died (42.4%). Average hospital stay in survivals was 62 days (range 33-113) and average stay in ICU in survivals was 19 days (range 3-72). Average hospital stay in patients who died was 36 days and average stay in ICU was 32 days (range 1-80). The average number of reoperations in the survival group was 3 (range 1-5), the average number of reoperation in the second group 1.5 (range 1-3). The average APACHE-II score in the survival group was (after 48 hours) was 8 and in the second group 19. In the survival group the first operation performed was external drainage in two cases, necrosectomie with continuos local lavage in 9 cases and necrosectomie with open packing in 8 cases. In the group with fatal outcome the first operation performed was external drainage in 7 cases, necrosectomie with continuos local lavage in 3 cases and necrosectomie with open packing in 4 cases. The reasons for death was massive hemorrhage in two patients, in the rest of group multiorgan failure developed. In the conclusion we may state that the severe ANP is from the onset on very malignant disease, the disease with high mortality and in our study the mortality could not be decreased by different surgical approaches neither by any other form of contemporary medical treatment.

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INFLUENCE OF INTRAOPERATIVE ULTRASOUND ON SURGERY FOR CYSTIC LESIONS OF THE PANCREAS

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A retrospective study was carried out to investigate the influence of intraoperative ultrsound (IUS) on surgery for cystic lesions of the pancreas (CLPs). Twenty-one patients with CLPs, including five pseudocysts and 16 true cysts, were scanned using 5.0- or 7.5-MHz transducer intraoperatively. In 4 patients with pseudocysts, two with retention cysts and one with a serous cystadenoma, the operative procedures were performed under IUS guidance. In 2 with pseudocysts, the site and size of cyst-jejunostomy was decided using IUS, in one, IUS determined the puncture point for the external drainage and in the remaining one, distal pancreatectomy was performed under IUS guidance without damaging the major vessels. In 2 patients with retention cysts, IUS enabled us to leave no unpalpable of invisible small cysts behind. One patient with a serous cystadenoma underwent a laparoscopic-assisted procedure and IUS was useful for confirming the location of the pancreatic duct. In one with a pseudocyst, IUS showed that the cyst did not involve tha pancreas and subsequently, cystectomy without pancreatic resection was necessary. In one of the two with mucin-producing cystadenocarcinomas, IUS demonstrated a skip lesion in the duct of the pancreatic tail, which contributed to changing the operative procedure from pancreatoduodenectomy to total pancreatectomy and in the other, IUS showed that the lesion was localized in the body of the pancreas and subsequently, segmental pancreatectomy was carried out instead of scheduled pancreatoduodenectomy or distal pancreatectomy. Thus in the three patients, the operative procedures were changed in the light of the IUS findings. In the remaining 11 patients, although IUS visualized CLPs clearly, it added no new information relevant to the operations. In conclusion, IUS contributes to performing surgery for selected CLPs, such as pseudocysts with severe inflammation, retention cysts with unpalpable or invisible small cysts and mucin-producing cystadenocarcinomas with possible other lesions.

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THE SURGICAL TREATMENT OF CHRONIC PANCREATITIS

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The methods of treatment of chronic pancreatitis have been controversial for many years. Current trends in Europe are to perform more anastomoses and less resections that some years ago. Neither has been proved to be more efficient than the other.

Methods: from 1984 to 1995 we performed 119 operations in 105 patients (85 men and 20 women; mean age 50.5 yrs.) who had chronic pancreatitis. Of these operations, 48 (40,3%) were resections (31 distal pancreatectomies, 15 duodenopancreatectomies and 2 total pancreatectomies), 65 (54,6%) were diversion procedures (27 Partington-Rochelle operations and 38 internal drainage of cysts) and 6 (5,0%) were combined procedures (distal pancreatectomy and cystojejunostomy). The indication for surgery was abdominal pain in 74% of patients, biliary/duodenal obstruction in 14%, suspect of cancer in 12%. All patients had severe pancreatic disease: 42% had pseudocysts, 44% had severe duct dilatation with parenchymal atrophia and calcifications, 14% had inflammatory mass of the head of the pancreas; furthermore 9 patients had splenic vein thrombosis with left portal hypertension, 3 had hemosuccus pancreaticus, 3 had pancreatic ascites, 3 had pancreatic fistula.

Results: the postoperative mortality rate was 2.8% and morbidity occurred in 16%. The incidence of diabetes after surgery was high (28.5%) after resection, but is also occurred after diversion procedures (18.5%). The quality of life (pain relief and exocrine insufficiency) and lenght of survival was similar after resections and after diversions, althaught patients with alcoholic pancreatitis (35%) had the worst quality of life and long-term prognosis.

Conclusions: there no single ideal operation for chronic pancreatitis. Lasting pain relief occurred in 58.5% of our patients and was similar in resective or in drainage procedures. Long-term survival and functional results depend mainly on alcohol withdrawal. The outcome of surgery for chronic pancreatitis is not poor, but is poor the outcome of this disease.

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PANCREATICODUODENAL NECROSIS DUE TO CAUSTIC BURNS

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Fourteen patients having undergone extensive foregut excisions for chemical burns extending beyond the pylorus were included in a multicenter retrospective study. Injuries always resulted from massive ingestion of liquid caustics during attempted suicide. All patients underwent duodenectomy or pancreaticoduodenal resection and oesophagogastrectomy or total gastrectomy. Immediate biliopancreatic reconnection was performed in 10 patients,with no added morbidity. Operative mortality (50%) was due to uncontrollable septicemia and only 1 patient died as a result of surgical complications. A trend towards a more favorable outcome was noted in the group of patients operated within 12 hours of ingestion of caustics,those undergoing a formal pancreaticoduodenal resection (versus duodenectomy),and those having immediate biliopancreatic reconnection (versus delayed reconnection). A satisfactory quality of life as defined by the ability to feed orally and the preservation of voice function was obtained in 2 of 5 long term survivors. Functionnal recovery was unpredictable during the acute phase and depended on late scarring of the airway-alimentary tract junction.

* Chemical burns extending beyond the pylorus should not be considered as being beyond surgical recourse.
* Early radical debridement appears necessary to save these patients who otherwise face inevitable death.
* Duodenal necrosis should be managed by pancreaticoduodenectomy followed by immediate biliopancreatic reconnection.
* A satisfactory quality of life can sometimes be achieved but depends on late scarring of the airway-alimentary tract junction.

P252

IMPACT OF CONTINUING ALCOHOL ADDICTION ON THE RESULTS OF RESECTIVE SURGERY FOR CHRONIC PANCREATITIS

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Materials and methods : Between 1972 and 1991, 149 patients underwent resective surgery for chronic pancreatitis. Surgical procedures included 87 pancreaticoduodenectomies and 62 distal splenopancreatectomies. Excluded from the study were 5 patients lost to follow-up and 10 patients having died in the post-operative period.
Results : 46 patients had continuing alcohol addiction (OH+) and 88 patients had been weaned for alcohol (OH-). Post-operative comfort was poor in 3.5% of OH- versus 30.4% of OH + patients, medium in 26.7% of OH - patients versus 30.4% of OH + patients and good in 69.8% of OH - versus 39.2% of OH + patients. Pain was present in 8% of OH - versus 57% of OH + patients. Body weight was stable or increased in 100% of OH - versus 47% of OH + patients. 53% of OH+ patients experienced weight loss. Return to normal activity was 85% in OH - versus 50% in OH + patients. 5, 10 and 20 year survival for OH - and OH + patients was 90% vs 75%, 85% vs 60% and 70% vs 30% respectively. Following pancreaticoduodenectomy, 5, 10 and 20 year survival for OH - and OH + patients was 95% vs 70%, 90% vs 50% and 60% vs 50% respectively. Following distal splenopancreatectomy 5, 10 and 20 year survival for OH - and OH + patients was 90% vs 90%, 70% vs 70% and 70% vs 15% respectively. Late deaths occurred in 21 of 46 patients in the OH + group : 5 oropharyngeal / oesophageal tumors, 2 cardiovascular conditions, 9 acute alcohol realted complications, 5 "other" causes. Late deaths occurred in 17 OH - patients, 5 oropharyngeal / oesophageal tumors, 6 cardiovascular conditions, 9 acute alcohol related complications, 6 "other" causes.
Conclusions : The best results of pancreatic resection for chronic pancreatitis are obtained in those patients who can be weaned from alcohol. Comfort, return to normal activities and survival are improved.

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RESULTS AFTER 5 AND 10 YEARS FOLLOWING SURGERY FOR CHRONIC PANCREATITIS : LONG TERM SURVIVAL IS UNRELATED TO SURGICAL TECHNIQUE

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In papers published by LEGER (1) and MOREAUX (2) in 1974 and 1984 it was suggested that pancreaticoduodenectomy should be banned from the surgical arsenal of chronic pancreatitis because of the disappointing long-term results. The aim of the present study was to review long-term outcome of patients having undergone surgery in our Department.
Patients and methods : between 1972 and 1994, 381 patients underwent surgery for chronic pancreatitis at a referral centre. There were 322 males and 59 females with a mean age of 45 ± 12.3 years. Alcohol abuse was the prevailing etiological factor (89.7%). Surgical procedures included 153 resections (87 Whipple procedures, 62 distal pancreatectomies, 4 total pancreatectomies), 113 bypasses (40 pancreatic + biliary and / or digestive bypasses, 73 biliary and / or digestive bypasses) 89 cystoenteric anastomoses, 4 splenectomies and 22 exploratory laparotomies.
Results : Operative mortality was 7.8% for resections, 5% for pancreatic bypasses, cystoenteric anastomoses and exploratory laparotomies. Morbidity was 17% for resections and cystoenteric anastomoses and 7.5% for pancreatic bypasses, 5 and 10 years survival was 92% and 76% for resections, 79.7% and 53.8% for cystoenteric anastomoses, 85% and 66% for pancreatic bypasses. (n = N.S.). Diabetes mellitus developed in 39% of patients who underwent resections and 37.5% of patients having bypasses. Persistent pain was present in 24% of patients following resection and bypass.
Conclusion : the long-term outcome of patients with chronic pancreatitis is unrelated to the type of surgery.

(1) LEGER L. Ann.Surg. 1974 ; 180 : 185-191.
(2) MOREAUX J. World J.Surg. 1984 ; 8 : 346-350

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SURGICAL TREATMENT OF PANCREATIC ISLET CELL TUMOURS.

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The aim of the study is the analysis of surgical treatment results in patients with pancreatic islet cell tumours. **Material:** Between 1975-1995, 26 patients with pancreatic islet cell tumours were undergoing surgical treatment. There were 16 patients with insulinoma, 3 females with glucagonoma and 7 patients with Zollinger-Ellison syndrome (ZE). All insulinoma patients had clinical symptoms of Whipple's triad and diagnosis was based on the endocrinological criteria. Three patients with glucagonoma had previous diagnosis of pancreatic cancer and were qualified to surgery. All patients with ZE were undergoing previous surgical treatment and the final diagnosis in 6 of them was established in our Department basing on the gastrin level in fasting state, after meal and upon secretine test. **Results:** In 11 patients insulinoma was confirmed intraoperatively and excised . The results were satisfying in 9 patients with benign insulinoma followed-up for about 10 years. One patient died 1 month after operation for metabolic complications and another one with malignant insulinoma died 3 years after surgery. In the remaining 5 patients insulinoma was not confirmed intraoperatively and histopathological findings showed nesidioblastosis or β-cells hyperplasia. In the follow-up period in one case profound hypoglycaemia developed soon after the surgery, in other 4 patients mild temporary hypoglycaemia was corrected by diet only. In 3 patients with glucagonoma undergoing surgery immunohistological examination revealed α-cell pancreatic tumour. Re-examination of these 3 cases showed mild diabetes mellitus in 2 patients, and skin rash in one case. Out of 7 patients with ZE, gastrinoma was confirmed intraoperatively in 4 cases and excised. Four patients received 5-FU and streptozotocin. One patient with multiple liver metastases died one year after surgery, and 5 patients were followed-up for 4 to 13 years. **Conclusions: 1.** Surgical treatment is the method recommended in case of histopathologically confirmed insulinoma. Completeness of excision should be verified by monitoring blood glucose level or by using the Biostator Controller. In cases of nesidioblastosis or β-cells hyperplasia partial or total pancreatic resection is the only possible method of choice. **2.** Glucagonoma is the rare pancreatic islet-cells tumour. Blood glucagon estimations is the only method enabling preoperative diagnosis. **3.** Early diagnosis and appropriate treatment is essential in patients with Zollinger-Ellison syndrome. We recommend performing pentagastrin test in all patients with short history of disease and severe symptoms of gastric and duodenal ulcers.

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OUR EXPERIENCE IN THE MANAGEMENT OF HEPATIC ANGIOMAS. REPORT OF 45 CASES IN THE LAST 7 YEARS.

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The hepatic angiomas (HA) are the most frequent bening hepatic tumours. The surgical indication and evolution of non resected cases still controversial.
We present a retrospective trial of 45 patients with HA since 1986. Thirty-three patients were females and 12 males. The median age was: 50.3 (Range 32-82 years). Clinical picture: pain (23 patients), hepatomegaly (5 patients), other digestive symptoms (18 patients) and fortuitous finding (8 patients). Nien patients had hepatic biochemostry disturbances. There were thrombocytopenya. The diagnosis was established by: ultrasonography in 33 cases (all informed as hepatic mass), CT 36 cases (9 mass effect and 27 angioma), gammagraphy 19 cases (16 angioma diagnosed and 3 mass effect), arteriography in 19 cases (14 diagnosed and 5 not diagnosed) and RM 2 cases with HA positive diagnosis. In 37/45 (82.2%) the diagnosis of HA was achieved preoperatively. Four patients were operated on: 2 difffuse HA, 2 <3 cm and 1 medical contraindication. Within the 41 patients operated on, in 39 the incision was subcostal and SUML in 1. HA localization: 21 cases was located in the right hepatic lobe, 10 cases in left hepatic lobe and 14 cases in both lobes. The surgical treatment was: tumorectomy (T) of HA 10, typical hepatic resection (THR) 9, T+THR 4 and atypical hepatic resection (AHR) 12. In 6 cases the HA were not treated: 2 angiomatosis, 2 associated to carcinoma, 1 for observation and in 1 case the left hepatic artery was embolized due to the large size of the HA. The median loss of blood was 463,6 cc (0-3.000 c). There was no mortality and the morbidity consisted of 3 right subphrenic colections and 1 pleural effusion. After a median follow-up of 2,6 years (6 months-7 years) recurrence have been not detected in the resected cases.
Conclusions:
Except in small size angiomas and diffused angiomas, the remaining cases of symptomatology appears must be operated on. At the present the HA could be resected without loss of blood. We recommend T as first choice procedure, if possible, or failing that the economical AHR.

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NECROHEMORRHAGIC ACUTE PANCREATITIS (NHAP)
A SUNJECT TO BE RETAKEN

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The treatment of NHAP is still being in controversy, since the mortality was not improved in the last few years. We present 39 patients with this disease treated in our Institution.

Between 1973 and 1994, 39 patients with NHAP were operated on. Twenty-one patients were males and 18 females, with a median age of 54 years (range 20-84). Of these, 26 patients (66.6%) were lithiasic, 12 (30.7%) alcoholic and 1 traumatic. Twenty-three patients had infection and abscess formation. Six patients underwent partial pancreatic resection. In the remaining: debridgement and abdominal cavity lavage, leaving in 28 patients a tube for abdominal lavage. In 5 patients laparostomy was left; 7 patients required reoperation.

The overall mortality was 41% (16 patients) with a median age of 60 years.
Of 16 death patients, 9 patients died because of persistent sepsis; 3 died due to multiorganic failure, 2 because of respiratory distress, 1 sudden death and 1 ACVA (Strok).
Pancreatectomy: 1 death, 4 pancreatic fistula of a long evolution.
Laparostomy: 1 death. Prolonged postoperative Hospital stay.
Abdominal lavage and closure: 28 patients, 14 patients died.

There has been found no ideal surgical treatment for the management of NHAP.
The pancreatic resections and laparostomies present a very high mortality; although in our serie the mortality is lower. The surgical treatment must be individualized depending on intraoperative findings and must be directed to the control of the sepsis, which is the main cause of death in patients with NHAP.

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TIMING OF SURGICAL TREATMENT FOR ACUTE BILIARY PANCREATITIS

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The intraoperative morphological changes and immediate postoperative outcome in 47 patients were retrospectively studied. Patients age ranged from 22 to 89 yers, most were females (80,9%). Surgical treatment included cholecystectomy, corrective biliary surgery and debridement of pancreatic or retroperitoneal necrosis/abscesses. The eveluation of morphological changes and mortality rate was performed in correlation with duration of onset of pancreatitis. Patients were assigned to one of 4 groups: I (n=10/21,3%) underwent immediate surgery within 48 hours of disease; II (21/44,7%) - early operations within 3-10 days; III (12/25,5%) - delayed surgery on 11-15 days after partly recovery from the acute attact; IV (4/8,5%) - elective operations about 3-4 weeks after pancreatitis had subsided. The most aggressive lesions were in the patients of Group-I: local/diffuse fat necrosis of pancreatic tissue in 70% cases, oedema of retroperitoneal area (50%), destructive cholecystitis (50%), while only one patient had impacted ampullary stone. Furthermore, the decreasing morbidity of necrotizing pancreatitis with no stones impaction in Group II-III was noted. The highest mortality rates were in Group I (40%) due to MOF in patients aged 67-89 years and in Group III (16,7%) in consequence of complications of necrotizing pancreatitis (duodenal fistula - 1, arrosive intraabdominal bleeding - 1). Overall postoperative mortality was 14,9%. We concluded that the optimal surgical strategy acute biliary pancreatitis must include initial intensive medical therapy, exposure treatment and elective biliary surgery after the pancreatitis has subsided.

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CYSTIC AND PAPILLARY EPITHELIAL NEOPLASM OF THE PANCREAS: A STUDY OF 5 CASES

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Since the first description by Frantz in 1959, there are few reports about this pancreatic tumor. They constitute rare tumors with prevalence in young women and, although malignant, they have good prognosis with benign evolution despite the fact that they present histologically features of aggressive tumor. This is an important fact due to the possibility of cure if completely resected.

We present our findings in five patients with Frantz tumor. Four patients were women ad one was man (range, 10 to 39 years). All patients underwent complete resection of the tumor. In three patients, invasion of the portal vein was present and segmentary resection of this vessel was performed. The outcome was favorable in four cases. One patient is alive five years after the pancreatic resection. One patient was operated on 15 years before with the initial diagnosis of unresectable cancer underwent resection but died two years later with hepatic metastases.

The majority of patients described in the international literature comes from Japan. There are only seven cases of Frantz tumor occurring in males, including one of this series. The jaundice is rare even with large tumors. Ultrasonography and computerized tomography demonstrate encapsulated, spherical, hypervascularized and solid-cystic tumors.

The importance of this rare tumor stays in the fact that it can be cured, if correctly recognized, with total resection even in the presence of invasion of vascular structures.

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DIAGNOSIS AND SURGICAL TREATMENT OF INSULINOMA STUDY OF 57 CASES.

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BACKGROUNDS: Despite its low incidence insulinoma is the most frequent endocrinal tumors of the pancreas. Once the diagnosis has been stablished by demonstrating hypoglycaemia with inappropriate hyperinsulinemia during prolonged fasting the problem is correct localization of the lesion. The aim of this study is to present our experience with the treatment of 57 consecutive cases of insulinoma.
PATIENTS AND METHODS: 57 patients were referred with clinical diagnosis of insulinoma. There were 36 women and 21 men (average age 36,7 years). All the patients had neurological symptoms.The percentage of tumors preoperatively identified was 27% by CT, 30% by U.S. 54,1% by arteriography and 94% by portography and venous sampling.
RESULTS: All patients were succesfully treated by operations. In only one patient there was a negative primary exploration following by positive reexploration with intraoperative US. In 9 cases there were multiple tumors (2-10). We found 53 benign lesions and 4 malignant tumors. MEN were found in 5 cases. The operative procedures were enucleation in 29 tumors, distal pancreatectomy with splenectomy in 28 tumors, 4 distal pancreatectomies with spleen preservation; pylorus preserving pancreactectomy in 3 cases (1 benign). There was no operative death.Two patients with malignant diseases died before 2 years with recurrence.
CONCLUSIONS: Preoperative localization of insulinoma is not essential for the surgical treatment. Intraoperative US is useful in dificult cases. Enucleation is the treatment of choice when possible. Distal resections should be performed with spleen preservation.

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CYSTIC TUMORS OF THE PANCREAS MISTAKEN FOR PANCREATIC PSEUDOCYSTS: STUDY OF SEVEN CASES.

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The majority of cystic lesions of the pancreas are pseudocysts. A small fraction of pancreatic cysts are neoplastic rather than inflammatory in origin. Nine to thirteen per cent of pancreatic cysts are neoplastic, benign or malignant. Failure to recognize the neoplastic origin of a neoplastic cyst will lead to an improper management.

The authors present 7 cases of cystic tumors mistaken for pancreatic pseudocysts, including 3 mucinous cystadenoma and 4 mucinous cystadenocarcinoma. There were 5 women and 2 men with mean age of 46 years (range : 21-71). Four were drained by cystjejunostomy and three by cystgastrostomy. Two patients with no metastases at first operation had metastatic spread at reoperation. One patient underwent resection but presented peritoneal recurrence few months after surgery. In the other four cases, subsequent resection was possible and probably curative. Four patients, 3 with mucinous cystadenoma and 1 with cystadenocarcinoma, are still alive without evidence of disease with follow- up from 3 to 6 years.

Pancreatic pseudocysts present clinical, radiological and surgical characteristics that may help differentiate them from cystic neoplasms. Beware of intraoperative biopsy that shows no epithelial lining and attention to recurrent pseudocyst. All pancreatic cyst that do not disappear after intervention should be considered as a cystic tumor. They should be treated by « en bloc » resection, including cystoenteric drainage if present. Confusion of these entities should not occur, but errors can often be corrected.

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SURGICAL TREATMENT OF PANCREATIC TRAUMA

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With the aim of aiding the accurate diagnosis and treatment of patients with pancreatic injuries, we reviewed the medical records of sixty-five patients, treated for traumatic pancreatic lesions in the 5-year period from 1989 through 1993.

Records, including operative and pathology reports, were reviewed to study the location of the pancreatic injury, associated intra-abdominal injuries, type of injury, trauma scores, treatment, complications and mortality rates.

There were 58 male and seven female patients with a mean age of 28.3 years (range, 2-77 years). Of the 65 pancreatic injuries, 45 (69.2%) were caused by penetrating wounds and twenty by blunt trauma. The most frequent site of lesion was the head of the pancreas (38.5%). Associated injuries were found in all but five of the patients. In the 65 patients, 170 intra-abdominal injuries were found or 2.6 per patient. Twenty-eight of the 65 patients (43.1%) had liver lacerations. Lacerations of major abdominal vessels (27 patients), gastric lacerations (25 patients) and colorectal lacerations (17 patients) were the next most commonly seen injuries. Fifteen of the twenty deceased patients died within two days after the accident of severe concomitant injuries. Simple drainage were performed in 33 patients, distal pancreatectomy in 17 and duodeno-pancreatectomy in six patients. Pancreas-related complications occurred in 20 (30.7%) of 57 patients who survived the initial operation.

We concluded that the type of repair employed in our series was related to the class of injury and clinical conditions (based on trauma scores). Therefore, whenever possible, conservative management (no pancreatic resection) was employed in patients sustained class I and II injuries and pancreatic resection in class III and IV injuries.

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SEQUENTIAL ENDOLAPAROSCOPIC APPROACH OR TRADITIONAL CHOLECYSTECTOMY FOR ACUTE PANCREATITIS

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Only few studies show the efficacy of sequential endolaparoscopic (SEL) approach in the treatment of mild/moderate acute biliary pancreatitis (ABP).
The aim of this study was to compare the results with SEL or laparotomic approach of mild/moderate ABP.

METHODS

The last 24 consecutive patients hospitalized for mild/moderate ABP and treated with endoscopic sphyncterotomy (ES) within 48 hours from the admission, were considered in the study. Twelve of them, 5 males and 7 females (mean age of 52.7±4.1 years) were operated on laparoscopic cholecystectomy (LC) and 12 (5 males and 7 females, mean age of 42.8±2.4 years) underwent traditional cholecystectomy (TC). The incidence of complications and the mean postoperative hospitalization time were compared with the chi-square and the t-test respectively.

RESULTS

No mortality was observed. ES was successfully completed in all patients of each Group without complications. LC or TC were performed 6.5±0.6 and 7.2±0.7 days respectively after ES. In the TC Group there were 2/12 (16.6%) gastrointestinal bleedings, who requires blood transfusion. No major complications were observed in the LC Group (p=NS). The incidence of parietal complications was 2/12 (16.6%) in the LC Group and 3/12 (24.9%) patients in the TC Group (p=NS). Postoperative stay was of 4.1±0.3 days in LC and 8.9±0.7 days in the TC Group (p<0.001).

CONCLUSIONS

SEL approach is safe, effective and less expensive than traditional approach to remove gallbladder lithiasis after mild/moderate ABP which requires a lesser hospitalization time.

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FACTORS INFLUENCING SURVIVAL AFTER PANCREATODUODENECTOMY FOR PANCREATIC CANCER. OUR EXPERIENCE WITH 50 CASES.

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According to literature review index of resecability of pancreatic cancer is very low (5-37%); five-year survival after pancreatic resection of pancreatic carcinoma is 5 to 20%. In our experience five-year survival is 16% with a median survival of 22 months. A retrospective study of 50 cases of pancreatic carcinoma underwent to radical pancreatoduodenectomy (R0)(11 with pylorus preservation) was performed to verify the existence of factors influencing the prognosis. Following factors were considered: age (>65, <65 yrs), sex, type of resection (with or without pylorus preservation), tumour size (>3 cm. o <3 cm.), grade of differentiation (poor, moderate, well), invasion of peripancreatic structures (nerve, duodenum, choledocus) and, finally, lymph node involvement. Patient survival (in day) was considered and all parameters were studied with statistical tests (chi square). Age, sex, type of resection aren't factors influencing survival in anyway; tumor size isn't statistically significant but for T < 3 cm. median survival is higher than T > 3 cm. (636 vs 359 days); grade of differentiation shows a median survival higher for well and moderate differentiated cancer with respect on poor (514 e 436 vs 394 days); also invasion of peripancreatic structures, particularly duodenum, isn't statistically significant but if there isn't invasion median survival is better (605 vs 365 days) Finally the only parameters that is able to improve prognosis is lymph nodes involvement: infact if there isn't lymph nodes involvement (N0) median survival is 603 days and five-year survival is 22.5% while with lymph nodes involvement (N1) median survival is 278 days and five-year is 0% (P < 0.05). In conclusion the only factor that could improve survival after pancreatoduodenectomy for pancreatic cancer is lymph nodes involvement (P<0.05). Tumor size, differentiation and no invasion of peripancreatic structures could determine a better median survival but aren't statistically significant.

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WHEN THE COLECTOMY IS NECESSARY IN THE SEVERE ACUTE PANCREATITIS ?

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It has been estimated that 1 percent of patients with acute pancreatitis develop some kind of colonic complication. The colonic involvement includes mechanical obstruction from either extrinsic compression, fistula formation, colonic necrosis, colonic perfuration and fistulization of the pseudocyst into the colon. This paper reports 5 cases of the severe acute pancreatitis in which cases the colectomy was done because of the involvement of the colon in the inflammatory mass.

PATIENTS AND METHODS

High alcohol intake was thought to be the cause of pancreatitis in 3 patients (all men) and the gallstones were the aetiological factor in two patients (all women). The overall median age was 40 years. All patients were treated in the intensive care unit for 9,5 days in median. The colectomy was perfomed due to a ischaemic perfuration the colon (2 cases), blockaded perfuration the colon (1 case), fistulization to the wound (1 case) and the necessity of the debridment (1 case). The subtotal colectomy with primary ileotransversostomy was performed in 1 case and in 4 patients the ileostomy and the mucosal fistula of the sigmoid were done. The median length of hospital was 48,5 days. One patient died in the 26 postoperative day due a cerebrovascular accident. Four patients survives, one with endocrin and exocrin pancreatic insufficiency.

DISCUSSION

Colonic involvement in the acute pancreatitis aggravate the abdominal and sistemic situation. The colonic disorder seems to be due a direct action of the pancreatic enzymes in the serosa of the colon and fat mesocolon. Secondly, thrombosis of mesenteric and submucosal vessels may lead to infarction of the mucosa and deeper layers and the possibility of associated fat infarction and necrosis. The surgical management of patients with colonic involvement in severe acute pancreatitis remains difficult. The perfuration and the necrosis, obviously, demand the colonic ressection. However, sometimes the decision about the colectomy is subjective, and based on surgical experience, mainly in cases where there is no evidence of necrosis, but with severe inflammatory disorder of the colon and mesocolon. In conclusion, the surgeon may be prepared for resection colonic in severe acute pancreatitis.

P265

CLINICAL ROLE OF COLOR DOPPLER ULTRASOUND IN DIAGNOSING PANCREATIC ENDOCRINE TUMORS

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We evaluated the diagnostic significance of blood flow pattern in pancreatic endocrine tumors detected by color Doppler ultrasonography.

Four patients with pancreatic endocrine tumors were studied with ultrasonographic apparatus equipped with color Doppler system (Toshiba SSA-270A, 3.75MHz sector or convex scanner). One patient with gastrinoma , 1 patient with non-functioning islet cell tumor, and 2 patients with insulinoma metastasis to the liver were studied. We obtained color expression in the tumors and pulsatile or continuous waves in the FFT analysis. These results were compared with those on conventional x-ray angiograms and CT scans. Operation were performed in two patients with gastrinoma and non-functioning islet cell tumor. Two

patients with metastatic insulinoma were studied repeatedly after chemotherapy

Ultrasonography was able to detect all cases, but could not sufficiently evaluate the internal echo. Color Doppler ultrasonography was able to reveal a significant amount of the internal blood flow in all cases ,and to reveal anatomical relations between the major vessels and tumors. Color Doppler ultrasonography was reflected in hypervascular findings on angiogram and CT scan, and proliferating vascular findings on histology.

In conclusion, color Doppler ultrasonography is a useful for not only diagnosing the location of the pancreatic endocrine tumors, but also evaluating the blood flow within the tumors.

Therefore, we expect that color Doppler will be useful in clinical application for diagnosing pancreatic tumors.

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INDICATION TO SURGERY IN ACUTE PANCREATITIS

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During the last fifteen years we observed 73 cases of acute pancreatitis; in accordance with the classification of Atlanta (1992) 31 were mild acute pancreatitis (MAP) and 42 were severe acute pancreatitis (SAP). We observed the following complications of SAP: 14 fluid pancreatic collection (FPC), 5 pancreatic necrosis (PN), 12 pseudocysts, 6 pancreatic abscesses (PA) and 5 different complications (haemorrhage, MOF, etc.) The overall mortality of SAP was 12% and in particular it was: 7% in FPC, 60% in PN, 0% in PC, 40% in PA. Concerning therapy, the approach was the subsequent: - among the 14 FPC, 7 were submitted to surgical drainage (1 pt died: p.o. mortality 14%), 2 to percutaneous CT-guided aspiration and 5 to pharmacologic therapy; - all 5 PN underwent surgery, with 60% of p.o. mortality; - among 12 Pc, 6 were drained by surgery, 1 was submitted to a percutaneous aspiration and 5 spontaneously regressed;- finally, among 6 PA, 5 underwent surgery (p.o. mortality 40%) and 1 was submitted to percutaneous aspiration. SAP complications require a rational therapeutic approach: - aseptic complications need only a careful observation and the indications for surgery are represented by the risk of infection, increasing size and haemodinamic failure; - pseudocysts need surgery only if voluminous, progressively growing, filled up by Wirsung duct, or if complicated, while percutaneous aspiration is suitable only for unloculated, stable and easily accessible Pc or in low compliance pts; finally, small and stable PC need no treatment; - infective complications always require urgent surgical management, only selected pts (with a high operative risk) may be submitted to a temporary percutaneous CT-guided aspiration.

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FAT MALABSORPTION FOLLOWING PYLORUS-PRESERVING PANCREATODUODENECTOMY

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The pylorus-preserving pancreatoduodenectomy (PPPD) affords excellent nutritional health in comparison with the standard Whipple procedure (SPD). But, maldigestion and malnutrition are observed in some of patients who underwent PPPD. The superiority of PPPD should be demonstrated between the patients with the same pancreatic exocrine function. We suposed that the pancreatic exocrine function following operation is provided for the fibrosis of the pancreatic remnant, and studied the fat malabsorption following operation using ^{13}C- trioctanoin breath test between the groups classified by the fibrosis of the pancreatic remnant. We presumed the area of fibrosis in the pancreatic remnant by measuring fibrosis of the resected caudate wege histologically. We tested to 11 SPD cases and 25 PPPD cases. The ^{13}C excretion rates and the cumulative value following PPPD were significantly better than those following SPD. The ^{13}C excretion rates and the cumulative value in the patients with more than 30 % pancreatic fibrosis were significantly lower than those in the patients with less than 30 % pancreatic fibrosis, regardless of the surgical procedures. But, the cumulative values following SPD group was significantly lower than that following PPPD or DPPHR in the patients with less than 30% pancreatic fibrosis. The results suggested that fat absorption following PPPD is superior to that following SPD in the patients with the same fibrotic area of the pancreatic remnant, and is provided for the fibrotic area of the pancreatic remnant.

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OMEPRAZOLE PRE ADMINISTRATION TO RATS DECREASES HISTOPATHOLOGYCAL ALTERATIONS OF CERULEIN INDUCED PANCREATITIS

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Pancreatic content of digestive enzymes play an important whole on the intensity of acute pancreatitis (AP). We have recently shown that omeprazole (OMPZ) administration to rats lowers the amount of trypsin on pancreatic tissue and decreases tissue water content and serum amylase after induction of AP. This study was carried out to determine if OMPZ administration have any influence on cerulein induced AP hystological findings . Twenty five male Wistar rats were divided in four groups: G I - Control- received saline solution and no cerulein, G II OMPZ Control - received OMPZ (5 µmol/ Kg for 3 days) and no cerulein, G III Acute Pancreatitis - saline solution pre treatment and cerulein (40 µg/ Kg), and G IV OMPZ/ AP - OMPZ pre treatment and cerulein. Four hours after AP induction all animals were killed and pancreas removed for histologycal examination. Results:

	EDEMA	ACINAR NECROSIS	INFLAMMAT. INFILTRATE	HEMORRHAGE
G I	0,8	0	1,5	0
G II	1,1	0	0,4	0
G III	2,8*	1,0*	2,8*	0,1
G IV	2,0*	0,2*	1,2*	0,1

*p< 0,05

Conclusion: Omeprazole treated group presented less intense pancreatic histologycal findings. We believe that this effect is mediated by changes in pancreatic enzyme contents induced by omeprazole administration.

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INFLUENCE OF CIRCULATING PHOSPHOLIPASE A2 ON ARACHIDONIC ACID CASCADE

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In order to clarify the role of phospholipase A2 in the pathogenesis of multiple organ failure in severe acute pancreatitis, we investigated about the influence of circulating phospholipase A2 on arachidonic acid cascade. Guinea pigs weighing 600-800 g were anesthetized by pentobarbital 35mg/kg i.p., and jugular vein and carotid artery were cannulated. After 12 hours for recovery from preparation, guinea pigs were divided into 3 groups, and phospholipase A2 extracted and purified from porcine pancreas was injected at 0, 20, and 50U/kg/min respectively with normal saline 0.1ml/kg/min for 30min. Then blood was sampled and serum phospholipase A2 activity, serum phospholipid concentration and composition, plasma arachidonic acid concentration and distribution, and plasma eicosanoids concentration were determined. As a result, intravenous infusion of phospholipase A2 decreased serum phosphatidylcholine and phosphatidylethanolamine concentration, increased serum lysophosphatidylcholine and non-esterized fatty acid concentration, decreased plasma phospholipid-bound arachidonic acid concentration, increased plasma free arachidonic acid concentration, decreased total plasma arachidonic acid concentration, and increased plasma concentration of prostaglandin E2, prostaglandin F1α, thromboxane B2, and leukotriene B4. The result suggests that phospholipase A2 in circulating blood degradates phospholipid in plasma lipoprotein to liberate arachidonic acid into plasma, which is uptaken intracellulary and converted to eicosanoids. Excessively produced eicosanoids may cause systemic microcirculation disorder, which may contribute to development of multiple organ failure.

P270

ALTERNATIVE APPROACH TO MANAGEMENT OF THE PANCREATIC STUMP AFTER PANCREATODUODENAL RESECTION

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Our experience in pancreatoduodenal resection (PDR) comprises 232 operations. The main cause of postoperative morbidity and mortality has been the complicated cource of the pancreatic stump. We believe that the source to success in PDR is an alternative approach to pancreatic stump treatment based on following criteria: morphological changes in the remaining pancreatic parenchima and diameter of the main pancreatic duct (MPD). For this aim we have distinguished 3 types of pancreatic stump. Type 1 is characterised by hard, fibrous-changing pancreatic parenchima and dilatation of the MPD of more than 6 mm in diameter; type 2 is defined in cases of rather firm-parenchima and moderate MPD extention (3-6 mm). In patients with these two types of pancreatic remnant the most favourable results were obtained after longitudinal pancreatojejunostomy (PJS) used in 21 cases: anastomotic leakage was not seen; the same but somewhat worse ones were noted after terminolateral PJS (used in 59): 6 (10,3%) anastomotic leakages were seen without mortality. Finally, type 3 is determinated in patients with smooth, non-altering parenchima and with diameter of the MPD less than 3 mm; in 38 patients with such an adversible pancreatic remnant the content was attained when the "occlusive" PJS, wich combined pancreatic duct occlusion with terminolateral PJS, was performed: morbidity rate - 19%, mortality rate 6,1%. The considerably worse results were received when other methods of pancreatic stump management have been used (such as simple occlusion, external drainage or ligation of the MPD) or these three above-mentioned ways - but without concordance with pancreatic stump morphology.

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SURGICAL MANAGEMENT OF MUCIN-PRODUCING PANCREAS TUMORS AND A NEW APPROACH: RESECTION OF THE INFERIOR HEAD OF THE PANCREAS

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Surgical results of 24 cosecutive cases of mucin-producing pancreas tumors were studied. And we present a new approach for the partial resection of the inferior head of the pancreas.

Patients

24 cases of mucin-producing pancreas tumors have been surgically treated in Chiba University hospital since 1979. They were classified into three groups, mucinous cystic tumors (ductectatic type), mucinous cystic tumors (megacystic type), and intraductal papillary tumors, according to the continuity between the cyst and the pancreatic duct and the location of the papillary tumors. There were 16 patients with ductectatic type, 4 patients with megacystic type, and 4 patients with intraductal type.

Results

The mean age of patients with ductectatic type, megacystic type,intraductal type were 61, 54, 62 respectively. 15 lesions (62.5%) were located in the head of the pancreas, 9 lesions (37.5%) were in the body and tail of the pancreas. 13 lesions (81.3%) of the ductectatic type were located in the head of the pancreas, meanwhile 4 lesions (100%) of the intrductal type were located in the body of the pancreas. The mean size of ductectatic tumors, megacystic tumors and intraductal tumors were 2.6 cm, 8.9 cm, 1.4 cm respectively. As for 15 patients with tumors in the head of the pancreas , 7 patients underwent Whipples PD, four patients underwent PPPD, one patient received duodenum-preserving resection of the head of the pancreas. For the rest three patients with ductectatic cystic tumors, we performed resections of the inferior head of the pancreas. This procedure preserved the duodenum, the common bile duct and the upper part of the head of the pancreas around the duct of Santorini. Distal pancreatectomies were performed in 7 cases with the lesions in the body and tail of the pancreas. Two patients underwent segmental resections of the body of the pancreas. Histological examination revealed that 5 tumors (well differentiated papillary adenocarcinomas) invaded into the pancreas parenchyma, and only one of them invaded into the adjacent organs. Lymph node in volvement was not observed in our 24 cases. Only one patient died of recurrent disease ten months after the operation.

Conclusion

Mucin-producing pancreas tumors have good prognosis after surgical treatment. We believe resection of the inferior head of the pancreas has a significant role to play in the management of patients with mucin- producing pancreas tumors

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Near-infrared spectrometry for fecal fat analysis in patients with pancreatic steatorrhea

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This study was aimed at comparing a new method for measuring fecal fat excretion, assayed by near-infrared spectrometry (NIRS), with Van de Kamer and gas-chromatographic (GLC) method.
We used an Infra Alyzer450 (Bran-Luebbe, K.K. Japan). Near-infrared analysis of fecal fat was assayed on the three-day stool collection from 70 patients (40 chronic pancreatitis, 20 gastrointestinal disorders, and 10 diabetes mellitus) .
Hepatadecanoic acid and 23-nordeoxycholic acid were added to freeze-dried feces as an internal standard , and the sample was hydrolysed in an autoclave. The mixture was then butyrated , acetylated and analized by gas liquid chromatography. The fatty acid and neutral sterols were eluted and bile acids were then separated.
A close linear correlation was found between NIPS and both Van de Kamer ($p<0.01$) and GLC ($P<0.01$) methods on the fecal fat.
But A weak correlation was found between NIRS and GLC method on the fecal bile acid.
The measurement of fecal fat excretion by the near-infrared spectrometry is a rapid , simple and useful method for measuring and monitoring steatrrhea (especially pancreatic steatorrhea) .

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A SCORING SYSTEM BASED ON NEW HISTOLOGIC PARAMETERS FOR PREDICTING OUTCOME IN CASES OF DUCTAL ADENOCARCINOMA OF THE PANCREATIC HEAD

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Although many reports have described prognostic factors in pancreatic ductal adenocarcinoma, the best parameters for predicting treatment results have not been established. Many surgically resected cases are UICC Stage III, a poor prognostic category, but some patients survive for a long time. To define caracteristic of cases with good clinical outcome, we investigated which histologic parameters are best for predicting survival in patients with ductal adenocarcinoma of the pancreatic head. Materials and Methods: Twenty five cases of curatively resected Stage III carcinoma of the pancreatic head were examined. In addition to parameters previously recognized for ductal adenocarcinoma of the pancreas, three additional histologic parameters were investigated: 1) fibrotic focus (FF), 2) direct invasion of the tumor into the resional lymph nodes (DILNT), and 3) tumor necrosis (TN). Results: Tumor recurrence and tumor death were more frequent in patients having adenocarcinoma with FF, DILNT, TN, or lymphatic permeation (ly). Of the three parameters investigated in this study, FF was significantly associated with tumor recurrence and tumor death. A scoring system was devised on the basis of the three factors and ly. The absence or presence of FF, DILNT, TN or ly was given a score of 0 or 1, and a total score was calculated. The total score was linearly correlated with survival. Patients with a score of 4 survived for a significantly shorter time than other patients. Conclusion: The results show a clear prognostic significance of the presence of FF, DILNT, and TN in ductal adenocarcinoma of the pancreatic head and suggest the scoring system is useful for classification of Stage III ductal adenocarcinoma of the pancreatic head.

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ULTRASOUND GUIDED TREATMENT OF HEPATIC AND PERIHEPATIC ABSCESSES

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The ultrasound guided puncture and drainage of hepatic and perihepatic abscesses became to be a routine procedure at the last decade.. Since 1989 we performed 49 such interventions. The risk of that type of intervention is significantly lower hence the lethality is much lower and the effectiveness is the same compared to the surgical intervention. This treatment should be especially chosen if the patients are at high risk. Part of our patients had biliary obstruction caused by pancreatic malignancy, others had postoperative liver or perihepatic abscess. Criteria for ultrasound guided puncture were: good visibility of the abscess, no intersection of gut or other organ, good cooperation of the patients.
A Picker LS 5000 and a HITACHI EUB 565A ultrasound apparatus was used with 3,5 MHz biopsy transducer type. The puncture was performed with a 20-22 Gauge disposable Chiba needle. If the puncture was successful a bacteriologic sample was withdrawn. And a 7-12 Fr trocar drain was introduced. The controlled suction was applied using a vacuum bottle. The drain was irrigated twice a day. The clinical status and the ultrasound picture were controlled every day.
RESULTS: 39 of 49 patients were free of any symptoms after an average drainage time of days. 16 patients needed repeated drainage as the drain slide out incidentally. 2 patients died because of the underlying malignant disease but without symptoms of the hepatic abscess. 3 patients needed 2 simultaneous drains for a single abscess, at 5 patients the treatment was unsuccessful, and the patients underwent an operation. According to our experience the percutaneous ultrasound guided drainage of the intra-abdominal abscesses is a useful, low risk method in the treatment of patients with no other indication for surgical intervention.

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THE LONGTERM BENEFIT OF LAPAROSCOPIC STAGING FOR PATIENTS WITH HEPATOPANCREATOBILIARY MALIGNANCIES.

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Diagnostic laparoscopy combined with laparoscopic ultrasonography is increasingly used for staging hepatopancreatobiliary (HPB)-malignancies.
The effect of laparoscopic staging can be expressed in change of tumorstage and number of directly prevented laparotomies. However, not only early prevention of laparotomies but in particular adequate longterm prevention of laparotomies must be an important effect of laparoscopic staging. Therefore the number of late laparotomies was assessed in this retrospective study.
Patients and Methods: Between January 1992 and July 1995, 171 patients with assumed resectable HPB-tumors after conventional preoperative staging, underwent diagnostic laparoscopy and laparoscopic ultrasonography. Included were patients with distal (pancreatic head n=100/papillary n=14)and proximal bile duct tumors(n=26), livertumors(n=24) and pancreatic body/tail tumors(n=7). The records of all patients were analysed for surgical/non-surgical treatment.
Results: Six patients (1 proximal tumor/3 distal tumors/2 livertumors) were lost from follow up, 165 patients could be evaluated. Explorative laparotomy was performed in 122 patients (76%) and laparotomy was prevented in 43 patients (26%); 17 patients with distal and 13 patients with proximal bile duct tumors, 10 patients with livertumors and 3 patients with pancreatic corpus/tail tumors. During follow up 5/17 patients (29%) with distal and 2/13 patients (15%) with proximal bile duct tumors needed a late laparotomy because of duodenal obstruction, after a median time interval of 7 months (range 3-12 months).
The effect of staging GI-tumors with diagnostic laparoscopy can be expressed by the number of directly prevented laparotomies, 43/165 (26%), however late laparotomies were necessary in 7/43 patients (16%). Laparotomies are avoided, as shown by longterm follow up, in 11/25 patients (44%) with proximal bile duct tumors, 10/22 patients (45%) with livertumors and 3/7 patients (43%) with pancreatic corpus/tail tumors. In only 12/111 patients (11%) with distal bile duct tumors a laparotomy was really avoided compaired to the initial 17/111 patients (15%); 5 patients developed duodenal obstruction, which is as yet not treatable without surgery.
Conclusion: The benefit of laparoscopic staging was obvious for patients with proximal bile duct tumors, liver tumors and pancreatic corpus/tail tumors, but for patients with distal bile duct tumors,late laparotomies have to be taken into account.

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ACUTE PANCREATITIS (AP) TREATMENT & SEPTIC COMPLICATION (SC).

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The development of septic complications (SC) in patients with acute pancreatitis (AP) essentially worsens the prediction of the sickness. Among 127 patients we found a severe form of AP, according to J.H.C.Ranson, parameters, in 27 (21.2%) patients. The treatment tactics involved intensive conservative therapy: antibiotics, intravenous fluid, fresh frozen plasma transfusion, diuretics, anticholinergics, H_2-receptor blockers, gastric intubation suction, low-fat elemental diet. Patients with high enzymenia underwent treatment by intravenous injection of 5-fluoracyl. In case of peritonits, laparoscopy with effusion evacution and drainage or laparotomy was done. Surgical procedures were performed on 14 (11.0%) patients. They involved billary pathology removal, necrectomy, omentopancreatoplexy, omentum sac and abdominal cavity drainage. Antibiotics were injected into the liver round ligament, the abdominal cavity was irrigated by 0.02% solution of chlorhexidine bigluconate. UV autoblood irradiation was administered. Parapancreatitis epigastrium mass was irradiated by local antiflammatory X-ray therapy with an accumated absorbed dose of 1.2-1.5 Gr. SC which required furher operations developed in 3 (11.1%) patients with severe AP form. One patient died. Besides two more patients, who were delivered from other hospitals with already developed SC, also died. In 19 patients with severe form of AP dynamics of natural killer cells (NKC) and lymphocyte adherence inhibition test (LAIT) was studied. The decrease in NKC level (4.1±1.1% against control indicator 7.4±0.7% $p<0.01$) and increase in LAIT level (39.4±5.1% against the control value 23.0±3.2% $p<0.05$) was found at the beginning of the illness. If the AP course was favourable the above mentioned indicators tended to stabilize: 6.7±0.9% and 27.3±4.7% respectively, $p>0.05$. In patients with SC they were on the previous levels. Thus, NKC level and LAIT level definition may be helpful in SC prediction in patients with AP.

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PERCUTANEOUS PANCREATIC CYSTOGASTROSTOMY GUIDED BY ULTRASOUND SCANNING AND GASTROSCOPY

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During the years 1985-1995, 16 patients of mean age 45 (range 9-68) years with pancreatic pseudocyst were treated by percutaneous cystogastrostomy, guided by ultrasound scanning and gastroscopy. They comprised 8 men and 8 women. In 2 of the patients a recurrent cyst occurred 1 and 4 years after primary intervention.
A diagnosis of chronic pancreatitis was verified in 12 patients (75 per cent).
A double pigtail catheter (Ultrasound Pancreatic Cyst Drainage Set - Cook) was successfully placed in 17 cysts (94 per cent).
No complications or death has occurred.
The median time to radiological resolution was 5 days (range 1-60 days), and the median follow up after successful treatment was 36 months (range 1-120 months).
The method described is less traumatic than operation, and mortality and complication rates compare favourably with those seen after surgery and the results are at least as good.

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IS A FINE-NEEDLE ASPIRATION BIOPSY NECESSARY IN DECISION-MAKING PROCESS BEFORE PANCREATODUODENECTOMY FOR PANCREATIC HEAD TUMOR ?

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A retrospective study was carried out to assess the value of fine needle aspiration biopsy (FNA) in preoperative qualification for pancreatoduodenectomy in patients with pancreatic head tumor, diagnosed by imaging techniques (sonography, CT-scan, ERCP, endosonography). Among 411 patients treated in our department for pancreatic pathology between 1992 and 1995, almost half presented with pancreatic head tumor (137- neoplasmatic, 60- chronic pancreatitis). Sixty pancreatoduodenectomies were performed based on preoperative diagnosis of cancer in 53 patients and of chronic pancreatitis in the remaining 7. In the former group FNA was performed in 23 cases, giving cytological diagnosis of cancer in 14 of them. Histological examination of the oprative specimen confirmed the diagnosis of cancer in all but 2 patients, in whom FNA revvealed malignancy. In the remaining patients all operative specimens confirmed cancerous process. In 7 patients with preoperative diagnosis of non-neoplasmatic tumor FNA was performed in 2, and was negative. In all of them final histological examination did not demonstrate cancer in the excised specimen.
Our results, as well as other pancreatic surgery centers', drew us to the conclusion that FNA should be reserved for patients in whom the operative treatment is not planned for various reasons. In those who are candidates for surgery (of any kind), the decision should rather be based on intraoperative histological examination.

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ROLE OF MAGNETIC RESONANCE IMAGING IN ACUTE PANCREATITIS DIAGNOSIS AND STAGING

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Aim of this study was to compare Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) diagnostic reliability in acute pancreatitis (AP). During a 44 months period 21 patients with AP underwent both CT (5 scans without contrast medium) and MRI (T1 sequences) at the beginning of the symptoms. The scans were evaluated according to: pancreatitis degree and presence and rate of necrosis. Pancreatitis degree was assessed using Balthazar's grading for CT and a similar classification for MRI. Thirteen patients (61.9%) had oedematous pancreatitis and 8 (38.1%) necrotizing pancreatitis. Necrosis was diagnosed intraoperatively or with CT scan. MRI staging was identic to CT ones in all but 2 patients (90.5% diagnostic accuracy) who resulted to be grade E at CT and grade D at MRI. Pancreatic necrosis was properly identified on MRI in all the 8 patients (100%) with necrotizing AP, whereas CT resulted diagnostic only in 5 patients (62.5%), since 3 scans were performed without contrast medium infusion bacause of acute renal failure. MRI was proved to be an effective alternative in AP diagnosis, since it provides the same diagnostic and prognostic information as CT and it does not need contrast infusion, which makes it preferable to CT in the follow up of severe AP evolution.

P280

OCTREOTIDE SCINTIGRAPHY. ROLE IN DETECTION AND STAGING OF PANCREATIC AND LIVER APUDOMAS.

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From October 1992 to November 1995, 27 patients with proven diagnosis of pancreatic apudoma and/or hepatic or nodes metastases from abdominal apudoma, and 8 patients suspected to have an abdominal endocrine tumor, underwent Octreotide scintigraphy. Among the 27 patients, 11 had a ZES (4 with MEN 1), 6 insulinomas, 8 Carcinoids (3 foregut and 1 hindgut), 2 "non-functioning"tumors (1 PPoma, 1 Somatostatinoma). Fourteen/27 had liver metastases at time of investigation; in 3 cases were not previously suspected. Liver metastases were detected in 13/14 cases and in 5 cases the hepatic mass was single. In 1 case a multiple liver mass (octreoscan negative) was found to be a HCC in a ZES patient. Unexpected distant sites of uptake outside the abdomen were detected in 3 patients with liver metastases and in 1 patient with localized disease. The Octreotide scintigraphy was negative in 6/27 patients (5/6 insulinomas and 1 carcinoid). In 3 cases without metastases, the primary was detected because of a positive octreoscan. Seven cases had the octreoscan before and after treatment; in 5 a consistent uptake reduction was shown after palliative treatment and 1 was completely negative after excision of a metastatic node. A single false positive occurred in the 8 suspected cases of apudoma.
Octreotide scintigraphy is able both to detect the primary tumor and unsuspected metastases in patients with abdominal apudomas, excluding those with insulin secretion.

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TREATMENT OF ZOLLINGER-ELLISON SYNDROME.

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From 1970 to 1995, 53 patients with Zollinger-Ellison syndrome (ZES) were observed. MEN type 1 syndrome was found in 24.5 % of the patients. Only 28% of the patients had no gastric surgery before the diagnosis of ZES. Seven cases (13 %) had distant metastases at time of diagnosis and 3 more cases developed liver metastases during the follow up (9,15 and 21 years later). Thirtytwo patients (60%) underwent surgery; 11 had only a "palliative" gastrectomy and 21 had a laparotomy with resective purposes. A total of 11/32 surgically treated patients (34%) had a gastrin fall to normal after surgery (9 of them with a follow up of 5 -17 years), including one MEN 1 case and one with liver tumor. Two of these "cured" patients had a late recurrence 5 and 14 years later. Out of 32 patients who underwent surgery 22 % had an emergency gastrectomy (2 associated with tumor resection) for complication due to ulcer disease and 9 /21 of the patients who had resective surgery had also a gastrectomy associated. Morbidity was 34% and mortality 18% (3/6 in emergency ; 5 before 1979). Twenty-seven patients initially had antisecretory drugs therapy, but 3 escaped to H-2 blockers and needed emergency surgery (after 3 mo.-3 yrs.) while 9 required omeprazole for long term-failure (2-14 yrs.) of H-2 antagonist. Four medically treated patients had their primary tumor detected 3, 7, 9 and 14 year after the diagnosis; only one had than the tumor resected and became normogastrinemic. Five out of ten patients with liver metastases survived more of 5 years after detection of the secondary.
Long-term palliation or "cure" may be achieved by tumor resection in ZES (34 % in our series) ; however life-long follow-up is mandatory for late recurrencies (> 5 yrs.). Re-evaluation of patients without positive imaging is mandatory for possible reversion from medical therapy to resective surgery .

P282

MANAGEMENT TACTICS OF SEVERE NECROTIZING PANCREATITIS

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146 patients with necrotizing pancreatitis were treated, 48 (32,9%) of them were operated. Biochemical and immunological investigations were determined in all patients. Hyperbilirubinemia, long-term hyperglycemia, which accompanied by the decrease of insulin and C-peptide blood level, hypoproteinemia, amynotranspheras and alkaline phosphatase activity increasing were noted in most patients. In the 62,3% of patients increase of T-lymphocytes-supressors activity and the separation of cells in the immune response were marked. The antibacterial, desintoxicative, including the methods of extracorporal desintoxication, immunoregulatory therapy were performed in all patients. Operations, which were performed in the early stages of necrotizing pancreatitis development (12 patients), were accompanied by the big quantity of complications (41,7%) and high (50%) mortality. The decrease of IgA, IgG and IgM concentration, cortisol blood level and T-lymphocytes in the postoperative period were marked. If these changes were taking place on the background of immunoregulatory cells' disbalance, in 29,5% of patients the different purulent-septic complications were noted. Complex evaluation of clinical-laboratory and ultrasonographic results allowed to approach more strictly to term determination and surgery indications and avoid groundless operations. Abscesses, retroperitoneal phlegmon signs and free located sequester presence were indications to postponed operation performance. Operations performed 5-9 days after admission, occurred in the period when relative stabilization of organ and system functions ensued. Performance of operations in fixed terms allowed to decrease complications' number to 8,3% and postoperative mortality to 16,7%.

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ANASTOMOSIS PANCRETOJEJUNAL WITH PANCREATIC DUCTUS TO THE JEJUNAL MUCOSA`S SUTURE VERSUS OPEN JEJUNAL DUCTUS EXPERIMENTAL RESEARCH.

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Since 1898 Alesandro de Codeville carried out in Bolognia the first pancreatic resection,suturing the pancreatic duct,to the pancreatic surgery`s modern age that began with Whipple(1935),one of the main problems today still unsolved has been how to trat the pancreatic remanent.
The common denominator to all these tecniques is the high incidence of pancreatic fistulas,that reach a high mortality rate.
We present the experimental survey carried out in 12 adult dogs weighing between 15 and 25 kg.,realizing the following surgical tecnique:
Group A : Pancreatic ductus to jejunal mucosa`s suture (6dogs)
Group B :Open ductus pancreatic (6 dogs).
Factors of tissue harm through a blood test of:glucose,insulin,amylase,lipase,elastase,c.r.protein were analysed.
Research of chemotripsine in the stools.
Moreover,a pancreatic morphologic research is made through pathologic anatomy of the necropsy`s pieces.
Existing in the final analysis a clear advantage of the group A over the B.
As conclusion,we think that this tecnique of pacreatic ductus to jejunal mucosa`s suture reduces the incidence of pancreatic fistulas,and keeps the pancreatic endochrine and exochrine functions.

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NECROTIC PANCREATITIS: CHOICE OF SURGERY

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The purpose of work: to compare survival of patients ill with pancreonecrosis (after Atlanta's classification) due to different methods of surgery.
Results: 57 patients (20 female and 37 male) ill with pancreonecrosis were operated during the period of 1992-1995. The average age was 37 for male patients and 53 for female patients. Biliary ethiology was observed in 15 patients (26,3%), other causes in 43 (75,4%) cases. Mortality was 36,8%. The average stay in hospital in case of survival was 58 days, in case of death - 19 days. All patients were given antibiotics, intravenous infussions, spasmolythics, local cold application, nasogastric tube prior to operation. In 3 cases (5,2%) only laparoscopic drainage of abdominal cavity was needed. In 6 cases (10,5%) only laparoscopic drainage and percutaneous transhepatic cholecystostomy was performed. In 13 patients (22,8%) laparoscopy was not sufficient and was followed with laparotomy in several days. In case of biliary ethiology 15 patients(26,3%) underwent laparotomy, cholecystectomy, drainage of common bile duct, drainage and setonage of bursa omentalis 7 (46,6%) of them died. In non-biliary pancreonecrosis laparotomy, cholecystostomy, drainage and setonage of bursa omentalis was performed in 27 cases - in 14 cases (51,8%) patients have died, in 6 cases was performed only laparotomy, drainage and setonage of bursa omentalis. Relaparotomy and necrectomy of pancreas was performed in 14 cases (24,6%). Due to septic complications died 18 patients: 11 patients due to pancreas abscess, 7 - due to the progressing retroperitoneal phlegmone. 3 patients died due to bleeding.
Conclusion: there is no significant difference in survival of patients ill with pancreonecrosis due to different tactics of surgery.

P285

LONG-TERM RESULTS OF PANCREATIC AND PERIAMPULLARY CANCER SURGERY

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The aim of the study is the analysis of long-term results of pancreatic and periampullary cancer surgery.
Material : The authors analyze 450 cases treated for pancreatic and periampullary cancer using own diagnostic model based on USG, ERCP, and FNAB. In this group of patients there were performed 144 resection procedures (Whipple 79, Traverso 29, total resections 17 , subtotal 17, segmental 2). The presentation compares own modified techniques of duodenopancreatectomy (Whipple vs. Traverso) assessing long-term survival following the procedures and complication rates.
Results : The rate of perioperative mortality was 8.2% and long-term survival in pancreatic cancer was 3.4% while in the periampullary cancer 65.2%. Obtained results confirmed high efficiency of ERCP and FNAB in pancreatic cancer diagnostics. It was also observed that life comfort in patients undergoing duodenopancreatectomy modo Traverso was better as compared to Whipple procedures at the similar percentage of perioperative complications.

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CARCINOMA OF THE PANCREAS.
MODERN DIAGNOSIS AND SURGICAL TREATMENT

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The aim of the study was the presentation of our experiences in modern diagnosis and surgical treatment of pancreatic carcinoma.
Between 1984 and 1995 in our Department was treated 226 patients with carcinoma of the exocrine portion of the pancreas. There were 146 males and 80 females with a mean age of 57.4 years. In 157 cases (69.5%) the primary seat of tumor was located in the head and in 69 cases (30.5%) in the body or tail of pancreas. The diagnosis was determined on the basis of clinical manifestations and laboratory studies. Very useful in the diagnosis were tumor markers (CEA, CA 19-9). Imaging studies included an upper gastro-intestinal series, ultrasonography (US), color Doppler sonography, CT, enhanced CT, MRI, and US and CT guided biopsy.
Of 226 patients, 215 underwent surgery. Pancreaticoduodenectomy (PD) i.e. Whipple,s, Child,s etc with N2 resection of the lymph nodes and pylorus-preserving PD were standard operations for pancreatic head carcinoma. Total pancreatectomy (TP) was, performed in advanced cases of pancreatic head carcinoma, those with intrapancreatic metastasis, and in cases in which the function of the remnant pancreas was severely impaired. Five-year survival rates after resection of pancreatic cancer was about 10%.
The study shows that although there has been improvement in diagnostic methods survival rates after resection of pancreatic carcinoma are still lowest among gastrointestinal tumors. Of relevance is the non-characteristic picture of disease in its early stages.

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ROLE OF URGENT ENDOSCOPIC PANCREATIC DUCT DECOMPRESSION IN ACUTE BILIARY PANCREATITIS

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Urgent endoscopic sphinctrotomy (UES) was performed in 38 patients(22F,16M) with a mean age of 48 years presented with acute biliary pancreatitis. Using Atlanta classification 22 were mild(GI) and 16 were severe(GII). GI patients were refered within 48 hours after the onset of severe abdominal pain, while GII patients were delayed beyond 72 hours. UES was done as early as possible within 8 hours. All patients in GI recovered with no complications. In GII there were 3 deaths(pulmonary embolism), one case of recurrent gastrointestinal bleeding,pancreatic pseudocyst in 2 and pancreatic abscess in one. Retrograde cholangiography(ERCP) showed sizeable stone(s) in 10,gravel(seen endoscopically) in 13,sludge in 5,and only inflammed papilla with no stones or gravel in 7. In 3 patients biliary parasites(fasciola in 2, ascaris in 1) were retreived.Gallstones were found in 22,suspected gravel in 5 while 11 were cholecystectomised.All patients but 2 were jaundiced.Fistulosphinctrotomy was resorted to in 7. In the 2 patients without jaundice small stone was found lodged in the pancreatic duct orifice rather than the biliary orifice.This study shows that UES halts the process of pancreatitis in mild and severe cases.It allows safe and effective decompression of both biliary and pancreatic ducts.It is a safe alternative to surgery.

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IMMUNOHISTOCHEMICAL ANALYSIS OF CATHEPSIN B AND LAMININ IN INVASIVE PANCREATIC DUCTAL ADENOCARCINOMA

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Purpose: Cathepsin B is a cysteine lysosomal proteinase. It is known that it degrades the component of extracellular basement membrane as laminin. High levels of cathepsin B have been reported to be associated with tumor malignancy in many human tumors, but only a few report can be seen in the field of pancreatic carcinoma. So we evaluated the correlation between the expression of cathepsin B, laminin and prognostic significance in invasive pancreatic ductal adenocarcinoma.

Material and Method: Tumor specimens from 42 patients of invasive pancreatic ductal adenocarcinoma resected surgically from 1986 to 1994 at Tokyo Medical College Hospital. Ages ranged from 44 to 80 years (mean, 61.0 years). And they were 31 male and 11 female (=2.8:1). Formalin-fixed and paraffin-embedded sections were stained with hematoxylin and eosin, and were used to classify the tumors according to the classification of the Japan Pancreas Society. Adjacent sections were stained for cathepsin B and laminin using the streptavidin-biotin technique. Cathepsin B immunoreactivity was evaluated as "positive" when more than 50% of the carcinoma cells were positive, as "negative" when less than 50% of the carcinoma cells were positive. Laminin immunoreactivity was evaluated as "positive" when there was unequivocal immunostaining of the extracellular basement membrane, and which was more than 50% of carcinoma nests were positive, as "negative" when less than 50% of carcinoma nests were positive. Statistical analysis was performed usinig the chi-square test with Yates correction.

Results: 30 (71.4%) of the 42 cases were "positive" for cathepsin B and 17 (40.5%) of the 42 cases were "positive" for laminin. Correlation was found between cathepsin B expression and laminin expression ($p<0.001$). And correlation was found between cathepsin B expression and some prognostic significance (pathological stage, tumor size, nodal metastasis, venous invasion, perineural invasion, etc.). In invasive pancreatic ductal adenocarcinoma, these results suggest that cathepsin B have an important role in tumor invasion and metastasis.

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ACUTE PANCREATITIS DURING PREGNANCY

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Women suffering from hypertriglyceridemia are prone to develop acute pancreatitis during pregnancy. Pancreatitis during pregnancy may be due to any other known reasons as it happens to non pregnant women.

The relation between hypertriglyceridemia and pancreatitis is well documented. Pregnancy as well as the use of contraceptive pills which contain estrogenes increase the triglyceridia levels rapidly. This increase is higher in familial hyperlipidemia which raises the risk of acute pancreatitis.

The mortality of acute pancreatitis during pregnancy indipendently on the reason is higher compared to non pregnant women and it is estimated to 30% approximately.

We present three cases of pregnant women with pancreatitis who were treated in our department. The first patient suffered from familial hyperlipidaemia, the second from cholelithiasis and the third one had no apparent reason. We emphasize the meaning of the early diagnosis in the succesful treatment of the disease and we make a brief review of the whole issue.

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UPPER GASTO-INTESTINAL TRACT BLEEDING DUE TO ARTERIO-VENOUS MALFORMATION (AVM) OF THE HEAD OF THE PANCREAS.

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Pancreatic AVM is a rare condition that may cause gastro-intestinal bleeding. A 45-year old man with an AVM of the head of the pancreas is described. He presented with frequent haematemesis. He had been extensively investigated and angiogram revealed an AVM. An exploratory laparotomy was performed after his latest haematemesis and Whipple procedure carried out to resect the AVM. He had a Bilroth ll gastrectomy 10 years earlier for a bleeding duodenal ulcer. AVM pancreas is a very rare condition and few had been reported in world-wide literature. Most are congenital but post-operative or traumatic causes should be considered.

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EFFECTS OF PANCREATIC DUCT LIGATION AND AGING ON ACUTE TAUROCHOLATE-INDUCED PANCREATITIS IN RATS

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[Aim] We sought to determine the effects of ligation of the pancreatic duct and aging on acute pancreatitis caused by taurocholate.
[Methods] Young adult and old male Wister rats were used. Six hours after ligation of the common bile duct in both the duodenum and liver hilus, rats were harvested and the pancreata were perfused. Taurocholate or normal saline was injected retrogradely into the common bile duct. The levels of amylase and lipase in the portal venous effluence were determined as markers of damage to the pancreas. The pancreas was also histologically examined after the perfusion experiments using an Image Analysis System.
[Rersults] 1. A nonsignificant elevation of pancreatic enzymes in was found in portal venos effluence by the retrograde injection of saline into the common bile duct. Injectioin of taurocholate caused amarked elevation of enzymes in the effluence for the first 30 min. after injection, which then gradually decreased. 2. Basal levels of pancreatic enzymes were significantly higher in the ligation group than in the non-ligation group. Injection of saline into the common bile duct had no apparent effect on enzymes in the effluence. In contrast, taurocholate injection into the common bile duct produced a marked increase in enzymes in the portal venous effluence. However, no significant difference was found between the ligation group and the non-ligation group. 3. Similar findings were obtained when old rats were used. 4. Although basal levels of enzymes were almost the same in non-ligated old and young adult rats, taurocholate injection into the pancreatic duct in old rats resulted in a significant depression of enzymes compared to that in young adult rats. In the ligation group, pancreatic enzymes in the portal venous effluence following taurocholate injection tended to be lower in old rats than in young adult rats. The results were histologically supported in that various degrees of fibrosis were found in the pancreata of old rats.
[Conclusion] When taurocholate was injected into the common bile duct, 1. high ductal pressuredue to ligation of the pancreatic duct did not produce any additional damage to the pancreas in either young adult or old rats, and 2. levels of pancreatic enzymes in portal venous effluence were lower in old rats than in younger rats.

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DOWN REGULATION OF PANCREATIC INFLAMMATION WITH A POTENT PLATELET ACTIVATING FACTOR ANTAGONIST REDUCES THE INCIDENCE OF PANCREATIC INFECTION.

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Bacterial infection of the pancreas, occurring as a late sequel of severe acute pancreatitis on a background of necrosis, is a serious state claiming a high mortality. Previous attempts with antibiotic prophylaxis have proven disappointing, while antibiotic treatment of established pancreatic infection has made no impact on survival. Translocation of bacteria from the gut to an area of intra-abdominal inflammation is the proposed route of infection, and is proportional to the level of the inflammatory process.
Using a microvascular ischaemia model of acute pancreatitis in the rat, known to induce panceatic sepsis in 100% of subjects, a potent platelet - activating factor (PAF) antagonist, BB882, shown to ameliorate local inflammatory changes in acute pancreatitis was administered as a single intraperitoneal dose 30 minutes after induction. Control animals had an equivalent dose of 0.9% saline injected. Sham-operated animals always
exhibited sterile pancreata;treated animals demonstrated a reduction in the incidence of pancreatic infection (8/12) compared with the control group (14/14), while quantitatively showing a reduction in bacterial count compared with controls. All bacteria isolated from the pancreas were enterobacteria present in the gut of that animal. Histological analysis revealed a marked improvement in the treated group (median score 5.0, range 3-10) compared with the control group (median score 17, range 8-18) ($p=<0.005$)
In conclusion, amelioration of the inflammatory process has been shown to reduce the incidence and microbial pancreatic concentration in acute pancreatitis.

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BACTERIAL TRANSLOCATIONS IN ACUTE PANCREATITIS IN RATS

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BACKGROUND: Infection of necrotic tissue and abscess formations are the most serious complications in acute pancreatitis (AP). the present study was undertaken to clarify the role of the intestinal tract as a source of infections in AP.
MATERIAL AND METHODS: Ninety Wistar rats were divided in eight groups. AP was induced by infusions of 2.5% Na+ taurocholate into the pancreatic duct. The control groups had sham operation. Culture of blood, pancreas, mesenteric lymphonodes and peritoneal cavity and cecum were performed at 6,24,48 and 96h after AP and at the same periods in the control groups.
RESULTS: Bacterial growing was present in mesenteric lymphonods in AP in 60% (6h), 90% (24h), 70% (48h) and 40% (96h) ($p< 0.05$ when compared to control groups) Bacteria were recovered from pancreatic tissue in 67% (6h), 90% (24h), 50% (48h) and 40% (96h) of the rats with AP. ($p<0.05$). No overgrowth of cecal gram negative bacterias was observed in AP rats. Pancreatic inflammation was more intense at 24h after AP.
CONCLUSIONS: Bacterial translocation is an early phenomenun already present at 6h after AP., being higher at 24h and decreasing after this time iniatilly caused by gram positive and lately by gram negative bacteria and associated with the severity of pancreatic lesion.

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RARE NEOPLASMS OF THE PANCREAS.

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From 1970 to 1995 we observed in our Department 613 patients with solid exocrine neoplasms and 94 pancreatic apudomas. Excluding ductal adenocarcinomas, insulinomas and gastrinomas, 38 (5.4%) patients had a rare type of pancreatic malignancy, commonly referred or suspected to be of ductal origin. These included 13 acinar cell carcinomas, 14 clinically silent endocrine tumors, 4 secondary neoplasms, 3 pleiomorphic (giant cell) carcinomas, 1 sarcoma, 1 leiomyosarcoma, 1 schwannoma, 1 lymphoma. Among 13 acinar cell carcinomas, 4 had liver spread and 7 local invasion; 3 underwent resection. Eight /14 apudomas had liver metastases and 9/14 underwent resection of gross tumor. Two/3 pleiomorphic carcinomas underwent resection. The patient with sarcoma had surgical exploration and radiotherapy. The patient with leiomyosarcoma underwent gastric and biliary by-pass, followed by radio- and chemotherapy. The malignant schwannoma was resected despite extensive local involvement to surrounding organs. The patient with lymphoma had radio- and chemotherapy. All 4 secondary tumors were resected. Median survival time in these 38 rare pancreatic neoplasms was 18 months (range 1 - 120).
In 5.4% of cases with solid pancreatic tumor, supposed to be of ductal origin at admission, was shown a different histology and behaviour. In 51% of these cases a resection was possible and long-term survival was not uncommon despite extensive disease was found at surgery.

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RECURRENCE AFTER RESECTION FOR DUCTAL ADENOCARCINOMA OF THE PANCREAS.

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Long-term survival for patients with carcinoma of the pancreas is poor, even after resection. Most patients who undergo curative resection develop recurrence usually at the same site of resection or in the liver, but there are only a few reports on the incidence and pattern of tumor relapse Detailed knowledge of the sites of recurrence of carcinoma of the pancreas and the study of the factors influencing disease-free survival, is important in developing surgical and adjuvant treatment.We analyzed the pattern of failure and clinico-pathologic factors influencing the disease-free survival of 78 patients who died after macroscopic curative resection for pancreatic cancer performed in our Department from 1970 to 1992. Local recurrence was a component of failure in 56 patients (71.8%), hepatic recurrence in 48 (61.5%), both accounting for 97 % of total recurrence rate. Ninety-five per cent of recurrences occurred by 24 months after operation. Median disease-free survival time was 8 months, and cumulative 1, 3 and 5-year actuarial disease-free survival rates were 66 %, 7% and 3% respectively. Multivariate analysis showed that tumor grade (P=0.04), microscopic radicality of resection (P= 0.04), lymph node status (P=0.01) and size of the tumor (P=0.005) were indipendent predictors of disease-free survival. Patterns of failure and disease-free survival were not statistically influenced by the type of surgical procedure performed. Median survival time from the detection of recurrence until death was 7 months for local recurrence vs. 3 months for hepatic or local plus hepatic recurrence (P<0.05). From our experience it appears that surgery alone is an inadequate treatment for cure in patients with pancreatic carcinoma. Effective adjuvant therapies are needed to improve loco-regional control of pancreatic cancer after surgical resection.

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SURVIVAL AFTER RESECTION FOR DUCTAL ADENOCARCINOMA OF THE PANCREAS.

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Resection is the only chance of cure for pancreatic cancer, but the problems related to resectional surgery of pancreatic carcinoma still remain the following: 1) the high operative risk; 2) the choice of surgical procedure; and 3) the poor 5-year survival rate. However, a significant decrease in mortality and morbidity has been reported recently by several specialised centers together with an encouraging 5-year actuarial survival rate: 21-24%. Patients with no residual tumour after resection had 5-year survival rate of 36% and patients without lymph node metastases had a 57% five-year survival rate. A retrospective study of 113 patients (20% out of 549 patients with pancreatic adenocarcinoma) who underwent pancreatic resection in our Department from 1970 to 1992, was performed to evaluate early and late results and the eventual progress of this surgery in the recent years. We also analyzed the clinico-pathologic factors related to prognosis. Surgical resection was performed whenever it was technically possible and when no distant metastases were detect. Limited invasion of portal and/or mesenteric vein were not considered a contraindication for pancreatic resection. The post-operative hospital mortality rate was 15% (4.7% in the last 11 years). Actuarial 5-year survival rate was 12%. Survival was significantly influenced by age (P = 0.03), vascular resection (P = 0.02), radicality of operation (P = 0.01), number of transfused blood units (P = 0.01), tumor's grade (P = 0.002), lymph node status (P = 0.001), perineural invasion (P = 0.01), tumor's size (P = 0.008), preoperative diabetes (P = 0.001), and pTNM stage (P = 0.0001). Multivariate analysis showed that stage, diabetes, age, and grade were independent predictors of long-term survival. The type of pancreatic resection (Whipple, subtotal, total, or distal pancreatectomy) did not influence prognosis. Five-year survival was 14% in the period 1970-1981, and 11% in the period 1982-1992, without statistical difference. These results suggest that patients' characteristics and tumor's findings rather than operative procedures affect long-term survival after resection for pancreatic carcinoma.

Study supported by Italian National Research Council (CNR), project nr. 94.01179.PF39

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LONG-TERM RESULTS OF SURGICAL TREATMENT OF PANCREATIC PSEUDOCYSTS: STUDY OF 103 PATIENTS

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During the period May 1972-December 1994, 111 patients underwent surgical treatment of pancreatic pseudocysts, following acute (14 cases) or chronic pancreatitis (97). Of these, 103 patients underwent operation other than resection. There were 82 men and 21 women. The mean age of patients was 44.4 ± 12.4 years. Alcohol abuse account for 81.5% (84 patients) of cases of pancreatic pseudocysts.

The main indication was persistent pain (62%), pain and compression (13%), palpable mass (6%) and pancreatic fistula (6%).

Nineteen patients underwent percutaneous drainage before the surgical procedure. Cystgastrostomy was performed in 39 patients, cystejunostomy in 34 patients, cystduodenostomy in 6 patients. External drainage of pseudocyst was performed in 25 patients. The operative mortality was 5% with postoperative morbidity of 17%. The mean size of the cysts was 7.6 ± 3.4 cm. Fifty-eight pseudocysts were located in the body and tail (48%), and 45 in the head of the pancreas. The diagnosis was made in the preoperative period in 97 patients (94%).

The mean hospital stay was 15 ± 9 days. The five-year survival rate was 80% and ten-year survival rate was 50%. Sixty two patients are still alive. Among these patients, 19 (30.6%) present insulin-dependent diabetes and 13 (21%) presents persistent pain. Alcohol abstinence was obtained in 34.6% of alcohol dependent patients. A good quality of life was obtained in 80% of living patients in a long term follow-up (up to 20 years).

Long term results are correlated to the natural course of chronic pancreatitis. The surgical management of pancreatic pseudocysts still represents the best therapeutical option, with low mortality and morbidity rates.

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SURGICAL TREATMENT OF ACUTE PANCREATITIS : ANALYSIS OF 137 PATIENTS

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Controversy still surrounds the management of severe acute pancreatitis. Between January 1973 and December 1993, 137 patients with severe acute pancreatitis were operated on in our Surgical Department. The patients' age range from 22 to 80 years with a mean of 49.6. There were 92 men and 45 women. Alcohol abuse account for 28.5% (39 patients) of cases of acute pancreatitis. Biliary stones was the cause in 36 patients (26.3%). The surgical management was decided in presence of necrotic and/or septic complications of acute pancreatitis. There was no systematic or scheduled operations. The surgical approach was tailored to the operative findings and clinical course.

The majority of patients underwent necrosectomy and drainage with re-explorations only when necessary. Ten patients underwent pancreatic resection, with high mortality rate (60%). The overall mortality rate was 32.8%. The median hospital stay was 60 days. The morbidity rate was 52.8% and consisted on intra-abdominal collections, pancreatic fistula and intestinal complications. Thirty-four percent of the patients (46) required reoperation, usually because of persistent intra-abdominal sepsis. There was a significant ($p < 0.05$) lower survival rate in this group of patients.

There was correlation between the extension of necrosis and mortality rate ($p < 0.05$). Patients with infected pancreatic necrosis at the time of operation presented an increased mortality ($p<0.05$). However, in patients with sterile pancreatic necrosis that presented postoperative infection, there was no significant increase in mortality rate.

Two main factors should influence the outcome of severe acute pancreatitis, namely the extension pancreatic necrosis and the presence or absence of infection. Therefore, the management should be more aggressive in this group of patients.

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EARLY GRAFT LOSS AFTER PANCREAS TRANSPLANTATION: AN ANALYSIS OF RISK FACTORS

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Although the results of PTX continue to improve, early graft loss remains a problem. Over a 79 month period, we performed 195 PTXs in 185 recipients, including 133 combined pancreas-kidney (PKT), 17 sequential pancreas after kidney (PAK), 3 combined liver-pancreas (LP), and 42 solitary PTXs. We retrospectively analyzed causes and risk factors for pancreas allograft loss occurring in the first 4 months after PTX. All patients underwent whole organ PTX with bladder drainage and received triple or quadruple immunosuppression. Results: A total of 29 pancreas grafts (15%) were lost. Seven patients (4%) died with functioning grafts (2 myocardial infarction, 1 arrhythmia, 3 infection, 1 liver failure). Of the remaining 22 grafts lost, 11 were due to thrombosis, 3 rejection with thrombosis, 5 pancreatitis, 2 infection, and 1 hemorrhage. The incidence of early graft loss varied according to type of transplant: PKT (10%); PAK (41%); LP (67%); and solitary PTX (17%); $p<0.001$. In patients undergoing pancreas without kidney transplant, the risk of vascular thrombosis with graft loss was higher (8/62=13% vs 6/133=4.5% PKT, $p<0.05$). The 3 cases of early graft loss due to rejection were also in PTX recipients not receiving a PKT. An effect of donor age was noted in the PKT recipient group. In PKT recipients receiving organs from donors 48 years of age or older, the incidence of vascular thrombosis was higher (25% vs 4%, $p=0.03$) when compared to donors below 48 years. An effect of donor weight was noted in all PTX recipients. When a PTX recipient received an organ from a donor weighing 88 kg or greater, the risk of early graft loss was higher (50% vs 9%, $p<0.001$). In patients without early graft loss, patient survival is 96% and pancreas graft survival is 91% after a mean follow-up of 32 months. Conclusions: Early pancreas graft loss is an important source of morbidity after PTX and is most commonly due to vascular thrombosis. Specific donor (age and weight) and recipient (type of transplant) risk factors for early graft loss can be identified. The use of selective anti-coagulation or more stringent donor selection may minimize the risk of early graft loss, leading to reduced morbidity and improved long-term results.

P300

THE DUODENAL SEGMENT (DS) IN VASCULARIZED PANCREAS TRANSPLANTATION (PTX)

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Bladder drainage by the DS technique is currently the preferred method of PTx but is associated with unique complications. Over a 79 month period, we performed 195 PTxs (133 combined kidney-PTxs, 59 solitary PTxs, 3 combined liver-PTxs) in 185 diabetic patients. All patients underwent whole organ PTx with bladder drainage using a 6-8 cm length of DS as an exocrine conduit. Results: DS pathology or problems occurred in 47 cases (24%). Fourteen DS leaks were documented in 10 patients and required operative repair; 7 developed peri-pancreatic sepsis, with 6 requiring 2 re-operations. Thirteen DS leaks occured early, at a mean of 64 days after PTx. Six DS leaks occurred in 4 patients with cytomegalovirus (CMV) duodenitis. Twenty-four patients (13%) underwent enteric conversion for either refractory dehydration with metabolic acidosis (n=17), DS leak (n=2), severe dysuria with urethral disruption (n=2), or recurrent duodenitis with hematuria (n=3). Cystoscopy was performed in 16 patients for significant hematuria originating from the DS (3 CMV duodenitis, 5 anastomotic bleeding, 3 rejection, 5 nonspecific duodenitis). One patient developed stone formation from the DS staple line. Five patients experienced pancreatic ductal obstruction early after PTx (3 pancreatitis, 2 pancreatic fistula), and 3 were successfully managed non-operatively. DS histopathology after cystoscopic biopsy included acute rejection (n=8), focal erosion with villous atrophy (n=8), and chronic rejection (n=6). In patients with DS complications, patient survival is 95%, and pancreas graft survival is 84% after a mean follow-up of 32 months. Conclusions: Complications related to the DS remain an important source of morbidity but rare cause of mortality after PTx. In spite of unique side effects, transplantation of the DS as an exocrine conduit remains the method of choice for either bladder or enteric drainage after PTx.

P301

PROGNOSIS OF THE ADVANCED DUODENAL CANCER AFTER RESECTION - WITH A CASE REPORT

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We report a case of duodenal cancer located in a supraampullary part in a 48-years-old male whom pylorus preserving pancreatoduodenectomy (PPPD) was performed with lymph nodal dissection. The resected specimen had Borrmann 2 type cancer which was 4.5cm in diameter. Histopathological examination revealed moderately differentiated adenocarcinoma with subserosal layer invasion. Lymph nodal metastasis was observed in 1 node out of 48 dissected nodes.The postoperative course was uneventful. The patient has been healthy without evidence of recurrence 1 and half year after operation.

We also report Japanese review of 28 cases of advanced duodenal cancer reported between 1990 and 1995. The location of the lesion was bulbar in 7 cases (25%), supraampullary in 14 cases (50%), and infraampullary in 7cases (25%). Distal gastrectomy including the bulb was performed in 3 cases, pancreatoduodenectomy in 23 cases, and PPPD in 2 cases including our patient. Over all 5-year survival rate after resection was 25.1%. Lymph nodal metastasis was revealed in 16 cases. 5-year survival rate of the cases without lymph nodal metastasis (68.6%) was significantly better than those with metastasis (8.5%). Hepatic recurrence was occurred in 8 cases and lymph nodal recurrence especially in hepatoduodenal ligament was occurred in 4 cases.

We concluded that to perform curative resection with lymph nodal dissection especially in hepatoduodenal ligament and adjuvant chemotherapy are important to improve the outcome of advanced duodenal cancer.

P302

Adult onset of Nesidioblastosés: A surgical dilemma and the effect of a somatostatin analogue.

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The author experienced 2 cases of adult onset of nesidioblastoses,one in 38 year old male and another in 58 female.

For the first case, pancreaticoduodenectomy was done removing about 60% of the pancreatic tissue. But the result was not satisfactory with relapsing hypoglycemic bouts in the occasion of severe diarrhea or overexertion suggesting inadequet resection.

For the second case, 85% distal pancreatectomy was done with complete relieving of symptoms for the following 3 months but with recurring hypoglycemic episodes thereafter especially in fasting period, suggesting pancreatic islet cell regeneration or proliferation.

We treated these two cases of persisting and recurred hyperinsulinism with Somatostatin analogue 201-995 for four months for the first case and three months for the second case and acquired long term cures for two years and one and a half years up to now respectively

The blood insuline, C-peptide and PP remain in normal range and fasting blood glucose remain around 80 mg/dl and fasting I-G ratio below 0.4.

From these results, we inferred that Somatostatin analogue 201-995 not only has the suppressing effect on the islet cell's secreting function but also has suppressing and deterring effect on the cellular growth it self, suggesting some kind of antineoplastic activity.

We strongly think that further clinical and experimental study is necissary.

P303

IMPROVEMENTS AND PERSPECTIVES IN THE DIAGNOSIS AND TREATMENT OF PANCREATIC CARCINOMA

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A retrospective study was carried out to evaluate whether any improvements have been made for pancreatic cancer, the most fatal gastrointestinal malignancy, during the last two decades. From 1973 to 1994 1004 patients suffering from pancreatic adenocarcinoma were treated at the Department of Surgery of Münster University Hospitals. 578 were male and 426 female (sex-ratio: 1.4 : 1). 717 tumors were located in the pancreatic head. Over the years the rate of curative resections increased from 15.9% to 25.2%. Operative mortality for curative resections could be reduced from 12 to 2.4%. The crude 5-year-survival rate for patients treated until 1989 was 2.0% showing a minor improvement. With a palliative radiochemotherapy in 45 patients with irresectable tumors we observed a median survival of 15 months. Two patients are alive and free of tumor for more than 4 years, now. Overall, despite a significant reduction of perioperative mortality the general prognosis continues to be very poor. New treatment regimens have to be developed, taking into account that in tumors without distant spread a combination of postoperative radiation and chemotherapy was succesful in improving the prognosis.

P304

EVALUATION OF FUNCTIONAL ACTIVITY AND VIABILITY OF PANCREATIC TISSUE DURING COOL PRESERVATION IN KUSTADIOL SOLUTION.

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The viability of pancreatic tissue during preservation in Kustadiol solution /Dr.F.Kohler Chemic GMBH/ was stadied in experiments on dogs. RNA synthesis in pancreatic cells was stadied in 2,6,8 and 12 hours after cool preservation by means of light and electron microscopy radioautography.Desintegration of cell's organelles began from 8 hours of preservation. In 12 hours only 60% of cells incorporated 3H-Uridine to the nucleus in comparision with the first hour of preservation.
Qualitative evaluation of tissue viability and functional activity is important for prognosis of the results of organ transpantation.

P305

EFFECTS OF PROTON PUMP INHIBITOR ON EARLY GASTRIC STAGNATION AFTER PYLORUS-PRESERVING PANCREATICODUODENECTOMY; RESULTS OF A RANDOMIZED STUDY

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The suppressive effects of a Proton Pump Inhibitor in improving gastric stasis during early postoperative period after pylorus-preserving-pancreaticoduodenectomy (PPPD) was assessed. Thirteen PPPD patients were divided into two groups. Group 1 (n=7) served as controls and were given no medication. Group 2 (n=6) received Proton Pump Inhibitor through jejunal tube. The daily volume and total acidity of the gastric juice, aspirated via nasogastric tube, were measured on post-PPPD days 1-7. Two patients in group 1 were withdrawn from this study after 3 days due to a large amount of excreted gastric juice (exceeded 2,000 ml). The mean daily aspirated volume of gastric juice in group 1 was 1,200 ml on the 4th postoperative day, and it gradually fell after the 6th postoperative day. In contrast, in group 2, the gastric juice secretion was significantly lower ($p<0.05$), being 175 ml on the first postoperative day, than in group 1. The total acidity of the gastric juice in group 2 was significantly lower after the 3rd postoperative day than in group 1. These results indicate that the postoperative administration of Proton Pump Inhibitor via jejunal tube suppresses the volume and acidity of the gastric juice after a PPPD.

P306

LAPAROSCOPIC SPLENECTOMY. CLINICAL RESULTS IN A SERIES OF 34 CASES

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During last years it have been shown that laparoscopic splenectomy is a feasible and safe alternative to open surgery. Controversies exist about the preferred technique (anterior or lateral approach), or the eficacy on long term control of haematological diseases. **AIM:** To report the immediate results and early follow up of a consecutive series of 34 LS. **MATERIAL AND METHOD.** Between Jan 93- Dec 95 we have performed 34 LS. Diagnosis was thrombocytopenic purpura in 21 cases, spherocytosis in 6 cases, HIV-thrombocytopenia in 4 and haemolityc anemia in 4 cases. **RESULTS:** There were 12 women and 22 men. Mean age was 34 ± 12 y. Operative time was 180±60 min. 3 patients were converted (9%) and 9 patients required transfusion (26%). One patient was reoperated for hemmorrhage, other developed a postoperative pneumotorax and 4 patients had a febrile syndrom (Morbidity 7/34 (21%). In this series, 3 (9%) accessory spleens were identified. There were no postoperative deaths The length stay was 4.5 ± 3 d (3-14). Ten patients were operated with an anterior approach and 24 with lateral. There was a significative reduction of operative time, number of trocars used, transfusion rate and stay in the group operated with a lateral approach vs anterior. Mean follow was 13 ± 9 m. Five patients (14%) failed to LS (4 ITP and 1 HIV-thrombopenia). One patient needed to be reoperated for a trocar hole hernia. In the subset of patients with ITP, 4 of21 (19%) failed to respond to splenectomy. **CONCLUSION:** These results suggest that LS is a safe alternative approach to open surgery. Lateral approach facilitates LS, with a substantial diminution of the operative time and blood requirements. Although a shorter follow up, LS seems to offer a satisfactory long term results for treatment of autoinmunne or hemolytic diseases requiring splenectomy.

P307

THE CLINICOPATHOLOGICAL ASPECTS OF PANCREATIC CANCER WITH PORTAL VEIN RESECTION

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For the past 6 years we experienced 37 surgery of pancreas cancer where 16 cases were resected associated with portal vein and clinicopathologically evaluated. For the pathological stage (based on the Japanese Society of Biliary Surgery) there were 1 case of stage , 11 of stage a and 4 of stage b. For the resection of portal vein there were 3 of weadge resection and 13 of coronary resection. In 9 cases portal-IVC bypass was used. There were significant differences between portal vein invasion and tumor size, lymphatic infiltration, choledochal invasion, duodenal invasion and retropancreatic invasion. For the prognosis 2 of 16 cases are alive (within 1 year) and 14 were died (the longest case:550 days). The cause of death were 12 case of metastasis or recurrence and 2 cases died within one month after surgery. Although the resectability has been improved, their prognosis has not been improved. The multidisciplenary treatment included surgical therapy should be necessary for the improvement of QOL.

P308

SURGICAL TREATMENT OF PATIENTS WITH INSULINOMAS.

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This study is about the surgical treatment of 15 pts. with insulinomas. The age range was 21–71 years (mean – 41 yrs.). Women=7, men=8. Location of insulinomas: pancreatic head-5, body-4, tail-5, diffuse-1. Preoperative diagnosis involved US, CT, angiography. Efficiency – 35.6%. Intraoperative US (IOUS) was performed in 12 pts. Efficiency – 83.3%. Nine pts. were operated for the first time, 6 had repeated operations. Organ preserving operations were performed in 8 pts. – 53.3% (enucleation-6, minimal pancreatic resections-2); pancreatectomies – 7 pts. – 46.7% (distal resection with splenectomy – 6, total – 1). No postoperative mortality was observed. Eight pts. (53.3%) required additional surgical procedures including 3 relaparotomies. Success of surgical treatment of patients with insulinomas depends on the following conditions: determination of tumour location US, CT, angiography, palpation, IOUS; stabilization of glucaemic levels pre-, intra- & post- operatively – with the help of «Biostator»; verification of the fullness of tumour excision – IOUS, «Biostator»; prophylaxis of postoperative pancreatitis – Sandostatin, cytostatics.

P309

ANATOMICAL LOCATION AND HISTOLOGICAL DIFFERENCES IN VENTRAL AND DORSAL PANCREAS

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Based on the histological evidence that Langerhans islet is positively stained by anti-pancreatic polypeptide staining in the ventral pancreas and negatively in dorsal pancreas, we investigate anatomical location and histological differences of both of pancreatic anlagen. **【Material and Method】** 35 autopsy specimens with normal pancreas were subjected to this study. "Makrozerien" (Journal of Microscopy, Vol. 149, 175-183, 1988) method was used for three dimensional reconstruction. Further the sections were stained with hematoxylin-eosin, grimelius, aldehyde-fuchsin, lead-hematoxylin, anti-pancreatic polypeptide, anti-glucagon, anti-insulin, anti-somatostatin and anti-serotonin staining. **【Results】** (1) Ventral pancreas was found to be existed only in the backside of the head of pancreas. Dorsal pancreas was being anterior area of the head of pancreas. Body and tail of the pancreas were all dorsal pancreas. (2) In the ventral pancreas, many cells containing brown granules in the irregularly shaped islets were noted by the Grimelius method. These granules were positive for anti-pancreatic polypeptide and negative for anti-glucagon and anti-insulin. On the other hand in the dorsal pancreas, black granules in the uniformed islets were positive for anti-glucagon (A-cell) and anti-insulin (B-cell). **【Conclusion】** (1) The ventral pancreas located posterior area of the head of pancreas and the dorsal pancreas covered in front of it. (2) Differentiation of both anlagen was macroscopically and immunohistochemically clear.

P310

DELAYED GASTRIC EMPTYING AFTER PYLORUS PRESERVING PANCREATODUODENECTOMY AND STANDARD WHIPPLE PROCEDURE.

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The pylorus preserving pancreatoduodenectomy (PPPD) has been accepted as an alternative to the classic Whipple procedure (PD). It has been suggested however that this procedure is associated with delayed gastric emptying which is probably leading to a prolonged hospital stay.
Therefore the aim of this study was to evaluate whether the PPPD is associated with more complications, delayed gastric emptying and prolonged hospital stay compared with a classic PD.
During a 3 year period (1993-1995) 106 consecutive patients underwent a pancreatoduodenectomy. Seventy-five patients (mean age 63 y, range 37-78) underwent a PPPD and 31 patients (mean age 60 y, range 38-79) a PD. The overall hospital mortality was 1.9%.
Postoperative complications were not different between the PPPD and PD respectively 33% versus 29%. Delayed gastric emptying (defined as > 10 days gastric suction) occured after PPPD and PD in respectively 27% and 26% (NS).
Patients after PPPD had gastric suction for a median period of 7 days, significant longer compared with 2 days gastric suction after PD ($p < 0.05$). There was however no difference in the median period of enteral feeding by feeding jejunostomy respectively 11 and 8 days and median hospital stay respectively 20 and 22 days.
Patients with postoperative complications ($n = 33$) had a longer period of gastric suction: compared with patients without complications respectively 8 and 5 days ($p < 0.05$) and a prolonged hospital stay respectively 30 versus 18 days ($p < 0.05$).
It is concluded that PPPD is associated with prolonged p.o. gastric suction time but without prolonged enteral feeding and hospital stay. A prolonged gastric suction time and hospital stay seems to be associated with postoperative complications.

P311

LAPAROSCOPY IN ACUTE PANCREATITIS

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We have treated 815 patients with acute pancreatitis in 1980-1994. Seventy two (8.8%) were under surgery, 49 (6.0%) underwent closed treatment, 24 patients died. The total lethality made up 2.9 %; after surgery - 29.2%; after closed treatment - 6.1%.
For the diagnosing and treatment of acute pancreatitis we have used urgent and dynamic laparoscopy with the routine clinical examination. Two steps of laparoscopy were divided: diagnostic and curative. In the diagnostic step the form of pancreatitis , the grade and spreading of peritonitis, following and parallel pathologies were established.
When the diagnosis of enzymatic aseptic peritonitis was formed with the exclusion of parallel pathology, which needs urgent surgery, we passed to the endoscopic treatment procedures. From the 116 urgent laparoscopies 49(42.2%) were made due to the acute pancreatitis. For 38 patients with diagnosed aseptic enzymatic peritonitis beside the routine conservative treatment we have used laparoscopic drainage of peritoneal cavity (sub hepatic and right lateral spaces) and novocain blockades of round hepatic ligament. In the first days the common state of patients improved: the pain decreased, the nausea and vomiting stopped, intoxication decreased. We have observed no complications after the endoscopic diagnostic and curative procedures. Three patients died.
The method permits to form the exact diagnosis and in most cases exclude the non obligatory surgery, to decrease the number of complications and shorten the presence of patient in hospital.

P312

ENDOSCOPIC TREATMENT OF PANCREATIC AND BILIARY FISTULA

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Authors present 16 patients with biliary or pancreatic fistula. In 11 cases, ERCP examination revealed biliary fistula, in 5 patients pancreatic fistula was diagnosed The causes of biliary fistula were cholecystectomy in 7 patients /4 laparoscopic and 3 classical/, T-tube drainage failure in 2 patients, stab abdominal wound and blunt abdominal trauma in one patient each. Pancreatic fistula was a consequence of necrotizing pancreatitis in 2 patients, and in patients undergone insulinoma enucleation, distal pancreatic resection and after blunt abdominal trauma. In all the patients, endoscopic papillotomy was performed within 9-18 days after the fistula was diagnosed. Eight biliary fistulas and three pancreatic fistulas healed spontaneously, following endoscopic papillotomy only. The bile and pancreatic juice output of the fistulas was reduced for about 75% within 2 days after the papillotomy. Three patients with biliary and two with pancreatic fistula required additionally an endoprosthesis insertion. In these patients, the fistulas were also healed within 2 weeks after the prosthesis implacement. Authors conclude, that endoscopic papillotomy is an effective method in biliary and pancreatic fistula treatment. Consecutive endoprosthesis implacement is necessary in cases, when papillotomy is uneffective in biliary and pancreatic fistula healing.

P313

THE ROLE OF ENDOSCOPIC AND INTRAOPEARTIVE ULTRASOUND IN THE LOCALIZATION OF THE PANCREATIC INSULOMAS

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Adequate localization is remains a difficult problem associated with endocrine pancreatic tumors. There are several reasons for this: tumors are small, there is no constant site within the pancreas, multiple tumors are possible, etc.
From 1967 to 1995 we performed in our department 56 operations for supposed insular pancreatic tumors.
We studied the predictive value of CT, Ultrasonography, Angiography, Scintigraphy, Endoscopic US; Intraoperative Sonography and the Intraoperative Palpation in order to compare the localization of these tumors.
The localization based on our patients material was correct with sonography, angiography and CT in 12 (43%) of 28, in 20 (83,3 %) of 24 and in 8 (42,1 %) of 19 examinations respectively. The intraoperative US was true positive in 14 (93,3 %) of 15 patients and at two operations this examination was true negative. The endoscopic US was correct at 2 out of 2 examinations. Up to the 88,2 % of the tumors was palpable intraoperatively.
According to our experiences it seems that preoperative localization is difficult. Angiography and endoscopic ultrasound proved to be most helpful. Surgical exploration was indicated in most of the cases based upon the laboratory findings and clinical symptoms of hormonal activity of the endocrine tumors. In these cases the localization can be accurately done by Intraoperative Echography.

POSTER PRESENTATIONS

Topic: BILIARY

P314

LAPAROSCOPY VERSUS MINILAPAROTOMY FOR CHOLECYSTECTOMY

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Laparoscopic Cholecystectomy (LC) for gallbladder stones has quite popular for these years in japan. We have experienced 80 cases of LC for four years. At the same time, we began minilaparoscopic cholecystectomy(MC) in the right upper quadrant. We had 30 minilaparotomy cases. Mean wound length is 4.3cm. We introduce both operative methods and report the comparative study between LC and MC about mean operating time, blood loss, complications, the use of analgesics and hospital stay.

Results

	OPE. TIME (min)	BLOOD LOSS (ml)	COMPLI-CATION (case)	ANAL-GESIC (%)	HOSPITAL STAY (day)
LC	105	23	1	25.0	8.2
MC	85	75	2	56.7	12.4

Conclusion
Our comparative study suggested that it takes longer operating time in LC than MC, but LC is superior in other factors to MC. In wound healing, LC is more excellent than MC. LC is desirable method for cholecystectomy.

P315

SPONTANEOUS ENTEROBILIARY FISTULA

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The aim of this study is to see how we treat today in the era of laparoscopic biliary surgery,the internal enterobiliary fistula.During the last 17 years we operate d upon 4.200 cases of benign deseases of the biliary sy stem.Among them we treated also127 spontaneous enterobi liary fistula.In 70 cases the fistula was cholecystoduo deanal.In 25 cases the fistula was cholocystocolic.in 21 cases the was between the cholechous syst and the CBD. (all types of Mirrizi syndrome).In 10 cases the fistula was cholosystogastric and chodochogastric.The etiology of the last type was gastric ulcer adhered to the common bile duct.Although the experience in the laparoscopic treatment of cholelithiasis is continuously grouing, the internal biliary fistula are treated mostly by the open method.This operation needsseparation of the adhered organs,closure of the opening to the intestinal wall exploration of the common bile duct for stones and other gine surgical actions that are impossible to be done laparascopicaly at the present time.In the internationall bibliography there are some cases treated laparoscopica ly,but are rare exeptions.Another problem is the ileus due to obstruction by gall-stones that passed through the fistulous tract into the small intestine (gall-stone ileous).
Conclusions:According to our experience in the treatment of internal enterobiliary fistula,these must be treated by the open surgical technic.As time passes surgeons gate more experience and will be able to do and operation s laparascopicaly.At the present time to avoid iatrogenic damages to the extrahepatic bile ducts and to the intestine we recoment the classic open method for the treatment of spontaneous enterobiliary fistula.

P316

INFLUENCE OF ENDOTOXIN ON THE LIVER MICROCIRCULATION AT CHOLESTASIS

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Investigations by means of Limulus Amebocyte Lysate (LAL) test proved, that at mechanical obstruction of bile ducts increses portal vein endotoxemia.Using hydrogen clearance polarography method we studied the liver tissue blood flow in 7 Sham-operated and 7 bile duct ligated rats. The significant decrease of flow was noted in jaundiced animals (54.47+4.02 ml/min/100g versus 93.91+7.68ml/min/100g, $p<0.05$ in Sham-operated rats) on the 6th day after operation. The influence of E.Coli endotoxin LPS B4 on the liver tissue flow was studied by means of its injection into the portal vein or into the lumen of upper parts of gut. Injection of 0.5x10g LPS into the portal vein of Sham-operated rats led to the decrease of a liver tissue flow to 37.66+1.96 ml/min/100g on the 60th minute from injection (n=7). In the bile duct ligated group (n=7) the same procedure lowered tissue flow to 27.18+1.41 ml/min/100g and 4 of 7 animals died. We noticed no significant change in a liver tissue flow after an injection of 2x10 g LPS into the lumen of the gut during 3 hours study. On the 3d day after a bile duct ligation (liver tissue flow was 67.12+1.01 ml/min/100g) an injection of the same quantity of LPS into the lumen of the gut decreased the liver tissue flow to 28.98+2.85 ml//min/100g and 3 animals of 7 died during 3 hours. Our investigation demonstrated that at obstructive jaundice a situation appears when absorbtion of endotoxin in gut significantly increases and leads to the considerable disorder of liver microcirculation.

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MANAGEMENT OF INTRABILIARY RUPTURE OF LIVER HYDATIDOSIS

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Rupture into the biliary system is a major complication of multivesicular hydatid cysts in the liver. Growth of the echinococcal cysts causes displacement, distortion and stenosis of the hepatic ductules with impaired bile drainage. The hydatid cyst can rupture into the biliary tract due to long term compression ; causing biliary colic, obstructive jaundice and possibly liver abscess. During the last 11 years period, 131 cases with liver hydatidosis were treated at Department of Surgery, School of Medicine, Çukurova University , 14(11 %) of them had biliary fistulae. Six(4,5 %) of these fistulae had choledochal communications. There were 10 female and 3 male, median age was 40 at admission. Secondary bacterial infection was the most common complication in our cases(60 %). Median hospital stay 18 days. After removal of the ecchinococcus cyst, obliterating the biliary openings within the cavity combined with(6 cases) or without T-tube drainage was performed all of the cases. According to the thickness of the ectocyst wall, size of the cavity , severity of the infection and degree of bile leakage, one of the following procedures of obliteration can be performed : 1. Closure by inversion suture of ectocyst, 2.Omental flap obliteration, 3. Closed catheter drainage.

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HUMAN BILE DUCT CONTRACTILE ACTIVITY

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Responses of human common bile ducts to pharmacological agents, active on the gastrointestinal tract, were studied to determine the possible relevance to biliary dyskinesia. Seventeen common bile ducts (donor 8, explanted 9) from livers of transplant patients; 4 abnormal common bile ducts (3 biliary dyskinesia, 1 obstruction) were also studied. Common bile duct segments were mounted in organ baths to measure isotonic (12) and isometric (5) contraction and exposed to a range of pharmacological agonists. Spontaneous bursts of myoelectrical activity (1-4 min^{-1}) were observed in 18/21 common bile duct specimens independent of the pharmacological agents tested. No common bile duct responses were obtained to any pharmacological agonists used in 20/21 specimens. Relaxations to sodium nitroprusside and acetylcholine and contractions to noradrenaline were obtained in one specimen 0.75cm away from the Sphincter of Oddi. Common bile duct morphology from explanted and donor livers appeared normal with scanty intermixed muscle fibres and dense connective tissue located within the walls. Mucosal inflammation was observed in the 4 abnormal common bile ducts. No other reports of spontaneous myoelectrical activity in the common bile duct have been reported in man.

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BILIO-ENTERIC ANASTOMOSIS WITH THE BLUMGART'S TECHNIQUE: THE NAPOLI EXPERIENCE

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Surgical relief of biliary obstruction whether benign or malignant still poses considerable technical problems and this may favour the choice of non-surgical options.
Since 1990 we have performed bilio-enteric anastomosis using the Blumgart's technique (S.G.& O. 1982, 154:885-887; Br.J.Surg. 1984, 71: 257-261) in 49 cases. Thertyone patients were male and 18 female, age range 41-85 years. General status was assessed for all patients as Excellent (3), Good (13), Fair (27) and Poor (6). Fifteen patients were affected by CBD stones, 7 by benign stricture and 27 by malignant obstruction. Choledochoduodenostomy was performed in 16 cases and Roux loop hepaticojejunostomy in 33: (16 at common hepatic duct; 7 in the confluence area after local resection; 1 at right hepatic duct; 4 at left hepatic duct; 5 at segment III duct). In 1 case the anastomosis was associated with Whipple operation and in 2 cases with major liver resections. Five patients (10.2%) died postoperatively. However 3/6 were in the "poor" general status group while 2/43 were in the other groups (P=0.036). Five patients (10.2%) developed postoperative complications such as cholangitis (1), biliary fistula (2), wound infection (2). We conclude that the reported technique has demonstrated to be a safe and quick-to-perform one and has been associated with acceptable morbidity-mortality rates in our series. Its availability should be taken into account when selecting patients for surgical or not-surgical biliary decompression.

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INTRAHEPATIC CALCULI FORMATION FOLLOWING EXCISION OF A CHOLEDOCHAL CYST

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Formation of intrahepatic calculi is one of the major late complications following excision of a choledochal cyst. There are only few studies, however, dealing this complication. It is general belief that the main cause of intrahepatic calculi is an anastomotic stricture. We report our experience with eight patients who had intrahepatic calculi following excision of choledochal cyst.

In order to clarify the cause of intrahepatic calculi, seven patients underwent cholangioscopy and direct visual inspection during surgery, and one patient underwent percutaneous transhepatic cholangioscopy. Intrahepatic bile was cultured, and calculi were analyzed.

Stenoses of intrahepatic bile duct (membranous and septal) were demonstrated near the hepatic hilum in all patients. Calculi were always located at the hepatic side of the stenoses. No anastomotic strictures were noted at hepaticojejunostomy. The calculi contained mainly calcium bilirubinate. *Escherichia coli, Klebsiella pneumoniae* were cultured from the bile.

Stenoses of the intrahepatic bile ducts were demonstrated in all eight patients, which were considered to be the primary cause of the intrahepatic calculi following excision of the choledochal cyst.

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MECHANICAL SUTURE BY THE APPARATUS SPP-2 0 IN BILIARY SURGERY

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Our evidence of the mechanical suture's performing by the apparatus SPP-20 on the biliary system with 408 patients displayed additional to above mentioned its advantages. 1. Performance of the transduodeni papillesphincteroplasty (TDPSP) by the traditional method of Archibald did not prove to be applicable due to the traumatic property and the complication of the intervention's tehnic. We modificated the apparatus SPP-20 and created the fixative clamp to lead out the big duodenal nipple to the duodenotomic injury; the using of this fixative clamp significantly simplifies the technic of TDPSP and makes it unnecessary to be additionally operated on choledochotomy.2. After the supraduodenic (SD) choledochoduodenoanastomosis (ChDA) the developed underanastomosis "blind bag"of choledoch sometimes is a reason of cholangitis and pancreatitis; as well as prescnce of the rotary deformation of the duodenum and the stretch in the area of anastomosis (especially, during performance of the wide anastomosis) are the risk factors in the development of its failure and dyscenezia of the duodenum. To remove the above montioned shortcomings of the SD ChDA we created a more effective method of forming the retroduodenic (RD) ChDA with main requirements being preseved - releavant traumatic property and simplificate of making process. Upon the using of modificated apparatus SPP - 20 we performed : TDPSP - 257, RDChDA - 96, double internal drain of the choledoch - 48, transduodenic cutting of the contractive ChDA - 5 and papillectomy - 2. Specific post - operative complications were detected with 17 (4,2 %) patients (acute pancreatitis - with 5 patients, bile - expiration - 3 ones, cholangitis - with 4 ones, acute hepatic - renal insufficiency - with 3 ones, bleeding - with 2 ones. Of the total number 5 patients died (1,2%). Distant results up to 10 years had been studied with 282 patients. Good results were detected with 263 patients, satisfactory - with 31 ones, poor results - with 8 patients. Residual stone of the choledoch resulted in poor results with 5 patients, as well as restenosis of big nipple of the duodenum. This group of 7 patients had to undergo the operation again 2 patients with restenosis of the big nipple of duodenum and 4 patients with residual choledocholithiasis had been made ChDA by method, wich we created. Retrograde endoscopic lithoextraction was made with one patient with residual choledocholithiasis. One patient with restenosis of the big nipple of the duodenum refused to undergo reoperation. So, the low rate of lethality, as well as different specific complications, typical for traditional operational technic on the biliary system by mannual suture both in immediate post-operative period and in distant

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INTRADUCTAL ULTRASOUND IN THE PREOPERATIVE STAGING OF PANCREATOBILIARY CARCINOMA

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Objective : To determine the feasibility of using intraductal ultrasound for preoperative staging of pancreatobiliary carcinoma.
Subjects and methods : Intraductal ultrasound (IDUS) was performed in 14 patients using FUJINON SP501 with 20MHz. These included 9 bile duct carcinomas, 3 pancreatic carcinomas and 2 carcinomas of the papilla of Vater. IDUS was performed using trasnhepatic biliary drainage route. In all patients tumor was resected and histology and ultrasound findings were compared.
Results : In IDUS normal bile duct was visualized as having two layer structures. The first hypoechoic layer from the lumen corresponded to the mucosa and fibromuscle layer, and second hyperechoic layer corresponded to the subserosa and pericholedochal fat tissue. Bile duct carcinomas appeared as hypoehoic mass relative to adjacent structures. Advanced bile duct carcinomas were readily diagnosed due to destruction of external hyperechoic layer. However, it was difficult to differentiate fibrosis of the duct wall from carcinoma. Submucosal tumor extension was clearly depicted as hypoechoic mass. Accuracy of depth invasion of bile duct carcinomas was 88.9%, of invasion to the pancreas and duodenum was 100%. Diagnosis of common bile duct invasion of carcinomas of the pancreas and papilla of Vater was achieved in 100%.
Conclusion : IDUS may be a clinically useful method for preoperative staging of pancreatobiliary carcinomas.

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PERCUTANEOUS BILIARY DESOBSTRUCTION

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Biliarylithiasis (particularely retained stones in the main bile duct and intra hepatic stones) may be treated percutaneously obviating reoperation. We report our experience with 100 cases of biliary stones treated percutaneously between 1980 and 1995. The 100 patients were classified into 3 groups: Group A: gallbadder stones (12 cases), Group B: main bile duct stones (35 cases), Group C: intrahepatic stones (53 cases). The means to clear the bile ducts included percutaneous endoscopy and contact lithotripsy. After 3.3±0.6 courses, desobstruction was complete in 75 cases (75%): group A 10/12, group B 26/35, group C 39/53 and partial in 13 cases (13%) allowing to optimize the patient for curative surgery. Desobstruction failed in 12 cases (12%) successfully treated by surgery. Morbidity included 5 severe complications (5%) and one patient (1%) died from angiocholitis.
Percutaneous desobstruction of the bile ducts may be proposed as a priority in patients with a biliary drain in place and when sphincterotomy is impossible or contraindicated. These manoeuvers have a definitive place in the armamentarium of hepato-biliary surgery.

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GALLBLADDER CONTRACTION AFTER PARTIAL GASTRIC RESECTION

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Are increased incidence of gallstones has there reportered in patients who have undergone partial gastrectomy, but little is knowere about the pathophisiologic mecchanism. In general, variants factors are involved in the pathogenesis of gallstones. Recently much attention has been drawn to the role of gallbbladder motility and cholecystokinin (CCK) secretion in the formations of gallstones. Gallbladder function is suggested to etange after gastric surgery (Baxter, Fagerber). In several studies the plasma CCK response after oral ingestion of meal was found to be significantly increased in patients who have undergone partial gastrectomy when compared with normal subjects (Hofman, Inoue). It is not known whether increased post prandial CCK secretion gallbladder emptying contribute to the formation of gallstone in patiens partial gastrectomy Few studies have been carried out to investigate CCK secretion, gallbladder contraction, and their relationship in patients who have undergone partial gastrectomy after excluding the effect of gastic emptying. We have investigate the intestinal phase of CCK secretion and gallbladder contraction in these patients by administration of the stimulus directly in to intestine In the last years 70 patients who had undergone partial gastrectomy were studied. All had been operated on because of peptic ulcer, 1 to 23 years before.Eleven patients had Billroth I anastomosis, 44 of them uderwent surgical therapy for gastric ulcer and 16 for duodenal ulcer. Gallbladder emptying was measured by ultrasonography. Corn oil, a powerful stimulus for CCK release and gallbladder contraction, was administered through the small tube into the duodenum or the efferent limb in a dose of 60 ml. within 2,3 minutes. Gallbladder emptying, ultrasonography studied, was significantly reduced at 10 minutes in Billroth I patients and from 15 trough 30 minutes in Billroth II patients, compared with normal subjects. In the stimulation of digestive functions after feeding ; cephalic, gastric, intestinal and post-absorptive phases can be defined. Allthough there is a temporal relationship, between these phases due to the aboral progression of food, trough the digestive tract, these phases do infact overlap in time and probably interact with one another.

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SURGICAL TREATMENT OF THE GALLBLADDER CARCINOMA.

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Between 1989-1995 28 patients with gallbladder carcinoma were admitted to our Department. Surgical procedures were limited to laparotomy in 5 cases. 12 patients had paliative operations /average survival time 8 months/. 11 cases were treated by extended cholecystectomy /cholecystectomy plus bisegmentectomyn of the liver and lymphadenectomy/. All patients had an involvment of serosal layer, and only two of them were with no regional invasion. Average survival time 15 months but 5 patients are still alive.
The major route of spread of the gallbladder carcinoma is local or regional seldom distant. The main role in regional spread play lymphnodes metastases.
We performed common bile duct, retroportal, retropancreatic, celiac and interaortocaval nodes excisions with pathological exams. Survival of the patients following extended cholecystectomy was correlated with the presence or absence of lymphatic invasion. In our experience nodal metastases to celiac or interaortocaval nodes are contraindication to curative resection.
4 patients had local invasion to the colon /3/ and pancreas /1/. They underwent curative resection with hemicolectomy or pancreatoduodenectomy. All of them died in postoperative period.
The optimal surgical treatment for carcinoma of the gallbladder remains unclear. We think that operative procedure should depend on lymph nodes invasion. Cases with local invasion to adjacent organs should be qualified to paliative non curative procedures.

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TREATMENT OF BENIGN BILIARY STRICTURE COMPLICATING ACUTE NECROTING PANCREATITIS

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Acute necrotizing pancreatitis /ANP/ is recognized as one of factors in the etiology of benign biliary strictures /BBS/. However, only one such case has been reported in the available literature. In our institution, in two of 102 patients with BBS, the etiologic factor was infected pancreatic necrosis /IPN/. Both patients were referred from district hospitals, where IPN was diagnosed and treated surgically."Necrotic damage of the distal part of the common bile duct" /CBD/, later treated by external biliary drainage, was observed during the operation. Both patients were admitted to Intensive Care Unit of our hospital as they required intensive cardiorespiratory and nutritional support. Both of them underwent surgical treatment of IPN by way of staged abdominal repair / zipper technique/. The attempt of endoscopic CBD drainage was made in both patients, with only one being successful; the other one remained on external biliary drainage. Postoperative course was complicated but eventually both patients survived and were discharged from hospital after 3 months. Definitive reconstruction of the CBD, due symptoms of recurrent cholangitis, was performed 9 and 15 months after discharge, respectively. In both patients hepatico-jejunal Roux-en Y anastomosis was performed. Long-term results: up to now, the postoperative follow-up period has been 3,5 and 2,5 years, respectively, with the patients showing no signs and symptoms of cholangitis and having the liver function tests results within normal range. One of the patients exhibits symptoms of exocrine pancreatic insufficiency and insulin-dependent diabetes mellitus.

Conclusions : ANP bears the potential risk of subseqent bile duct damage and stricture. Endoscopic biliary tract drainage may have a role in ameliorating the course, of ANP. Surgical reconstruction of BBS is recommendad after complete recovery from ANP.

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LIVER RESECTION : A TREATMENT OF CHOICE IN PATIENTS WITH PRIMARY LOCALIZED INTRAHEPATIC GALLSTONES.

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Liver resection or percutaneous dilatation of bile ducts and stones extraction have been diversely advocated in the treatment of intrahepatic gallstones. The purpose of this work was to analyze the results of 21 consecutive patients with primary localized intrahepatic stones treated by liver resection. There were 12 females and 9 males with a mean age of 44 years (range : 20 to 71 years). All patients had relentless cholangitis. Sixteen patients had had, prior to liver resection, an average number of 2.25 therapeutic procedures (range : 1 to 5) followed by recurrent cholangitis. There were 7 left lateral lobectomies, 7 left hepatectomies, and 7 right hepatectomies. There were no operative death. Four patients (20%) experienced postoperative complications : 2 subphrenic abcesses and 2 subphrenic hematomas. The rate of subphrenic abcesses was significantly lower in 15 patients receiving prophylactic antibiotherapy (0%) than in the 6 other patients (33%). The mean follow-up was 55 months. All patients but two were free of biliary symptoms and postoperative imaging confirmed the absence of stones in the remaining liver. Two patients had recurrent cholangitis resulting from complications of biliary procedures performed before the diagnosis of intrahepatic stones : stenosis of a hepatico-jejunostomy treated by re-anastomosis and postsphincterotomy stenosis of the papilla treated by repeated endoscopic sphincterotomy. Cholangitis disappeared thereafter in both patients. These results suggest that liver resection is a very efficient treatment in patients with primary localized intrahepatic gallstones.

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LAPAROSCOPIC SUBTOTAL CHOLECYSTECTOMY FOR THE "DIFFICULT" GALLBLADDER.

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Dissection of Calot's triangle can be hazardous in the presence of severe inflammation of the gallbladder (GB) or cirrhosis with portal hypertension. Open subtotal cholecystectomy has proven to be a safe, simple and definitive procedure in this setting (Ref). This study reviews the outcome of laparoscopic subtotal cholecystectomy (LSC) performed in 30 patients (mean age: 53 yrs; 22 females, 8 males) over a 23 month period (January 1994 - November 1995). These patients constitute 8.8% of the total number of laparoscopic cholecystectomy (N=340) and 16% of patients with acute cholecystitis (N=186). Eighteen in the later group were converted to open cholecystectomy. Indications for LSC was acute cholecystitis/empyema (N=23) severe fibrosis (N=6) and cirrhosis with portal hypertension (N=1). The cystic duct and artery were isolated by blunt dissection and clipped before division when possible. When this was not feasible the GB was divided at the junction of the cystic duct with Hartman's pouch and then tied with an Endoloop (Ethicon), or suturing (2 cases). Initial standard dissection of the GB was attempted but converted to the subtotal modification if no dissection plane or bleeding difficulties were encountered. The GB was entered and the wall was divided along the junction with the liver using diathermy and clips, leaving a disc of posterior wall in situ. Gallstone recovery and irrigation were meticulously performed. A portovac drain was inserted in 14 cases. Median operation time was 73 minutes (range: 45-130). There was one death due to a myocardial infarction. There were 5 local complications (1 self-limiting bile leak, 4 subhepatic collections of which 2 required percutaneous drainage) and 9 respiratory infections. Median hospital stay was 5 days (range 2-28 days). LSC is a safe, relatively simple and definitive operation for removal of the difficult gallbladder. In most situations this technique avoids the need for open conversion or cholecystectomy particularly in the high risk patient and avoids potential injury to the CBD in complex cases.

Ref. Bornman PC, Terblanche J Surgery 1985; 98: 1-6.

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Return to work after cholecystectomy: results of laparoscopic versus open surgery

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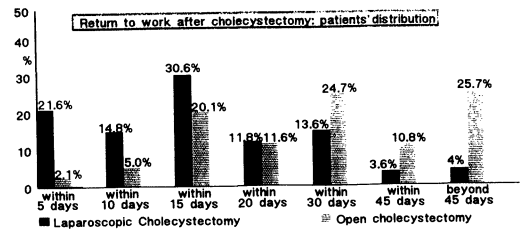
A significant decrease of postoperative pain and an early return to normal alimentary habits make up some of the main advantages provided by Laparoscopic Cholecystectomy (LC). Some authors pointed out an earlier return to work for these patients compared to patients undergoing Open Cholecystectomy (OC).We evaluated, by a self-administered postal questionnaire, the time passed between surgery and the return to work of 200 LC patients (59 M, 141 F, median age 49 years) and 200 OC patients (83 M, 117 F; median age 53 years) who underwent surgery from July 1990 through May 1994. Three hundreds and sixteen patients (79%) returned the completed questionnaire (173 LC (86.5%) and 140 OC (70%)). 36.4% (n=63) and 7.1% (n=10) of the LC and OC patients referred a return to work within 10 days from surgery ($p < 0.0001$). Return to work beyond 45 days from surgery occurred respectively in 4% (n=7) and 25.7% (n=36) of the two groups of patients ($p < 0.0001$). The data-distribution statistical analysis showed that half of LC and OC patients resumed their professional activity within 15 and 30 days from surgery respectively. The results of our study warrant that LC shows in comparison with OC a shorter convalescence time and an earlier return to full activities. These figures may imply a significant decrease of social security and insurance costs.



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MANAGEMENT OF COMMOM BILE DUCT STONES:EVOLVE IN THE LAPAROSCOPIC SURGERY ERA

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A retrospective study was carried out on 386 laparoscopic cholecystectomies(LC)concerning the management of common bile duct stones(CBDS).Initially while expertise in LC was achieved we didn't perform routine intraoperative cholangiography (IOC) and preoperative endoscopic retrograde cholangiopancreatography(ERCP) was indicated in selected patients with predictive factors suggesting CBDS(jaundice,high serum level of bilirrubin and alkaline phosphatase and ultrasonographic bile ducts dilatation).Later,when skills in handling the cystic duct were developed IOC became a routine procedure as we used to in the prelaparoscopic surgery era.Actually we have started doing laparoscopic transcystic exploration of the CBD when unexpected stones are found in the IOC.

Summary of results

1) Patients suspected of carrying CBDS:15 on 386 LC= 3,88%. (By ERCP).
2) Patients not suspected of carrying CBDS:4 on 111 IOC = 3,63% (treated by transcystic drain+postoperative endoscopic sphinterotomy(ES).
3) Patients with unknown retained stones:5 on 386 LC= 1,29% (treated by ERCP and open CBDS removal.

Conclusions 1)Preoperative ERCP is,in our group,the standard procedure for higlhly suspected carriers of CBDS.2)Routine IOC allows the recognition of unsuspected CBDS and acquiring skills for handling the cystic duct for further laparoscopic exploration.3)The management of CBDS remains controversial according to:a)expertise in LC and use of routine IOC.b)availability of experienced biliary endoscopist.

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EXTRACORPOREAL LITHOTRIPSY AND SPHINCTEROTOMY IN TREATMENT IN PATIENTS WITH CHOLEDOLITHIASIS.

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27 patients with choledocholithiasis were managed in our department aged 50-90 years [11 patients older than 80 years of age]. We designed a technique combining extracorporeal lithotripsy with endoscopic operations on the major duodenal papilla. All the patients had had jaundice/bilirrubin - 90,5-196,9 mmol/l. 14 patients was underwent cholecystectomy earlier. 7 patients had parapapillary diverticulums.The number of gallbladder stones were from 1 to 15. Stone diameter in choledochus was 17-45 mm. As a first stage of treatment, was performedsuccessfull endoscopic sphincterotomy 2-7 days after the admission. 2 patients was performed microcholecystostomy under ultrasound guide for decompression of biliary tract. Nasobiliary drain was used in 5 patients after the endoscopic sphincterotomy to prevent the blockade ofthe terminal part of choledochus and create the optimal conditions forevacuation of fragments of stones. We utilized the Dornier Lithotripter Compact. Choice the position and efficiency control we carry out under ultrasound and X-ray guide. Good results showed a maximal stone size of 6 mm in diameter. Therapy was continued when the fragments of stone were less than 6 mm in diameter [7 patients with numerous and big stones]. After successful treatment almost all patients became stone free. Only one patient was underwent choledocholithotomy.

After extracorporeal lithotripsy we observed a transient diastasuria - in 5 patients, microhematuria - in 5 patients, acute pancreatitis - in 4 patients. Complete clearance was obtained in all patients after one or more procedures before discharge.

No mortality was reported. Mean hospital-stay was 22.

In conclusion, combined extracorporeal lithotripsy and endoscopic sanation of choledochus seems to be an effective method of treatment in elderly patients with choledocholithiasis.

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ROKITANSKY-ASCHOFF SINUSES OF THE GALLBLADDER CAN BE THE INITIAL SITE OF FORMATION OF SOME TYPE OF BLACK PIGMENT GALLSTONES. A STUDY BY SCANNING ELECTRON MICROSCOPY.

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Introduction. Black pigment stones (BS) mainly consist of glassy masses of bilirubin polymers and are frequently found in patients with hemolysis, or with cirrhosis, chronic hepatitis or in patients with previous gastrectomy. We have recently documented that black microstones can occour both in the lumen and in the Rokitansky-Aschoff (R-A) sinuses of patients with adenomyomatosis (ADM) of the gallbladder (GB) (1). **Material and Methods**. During the prospective study of 168 consecutive patients who had systematic stone and bile analysis and histologic examination of GB wall at the University of Genoa, ADM, was found in 54 patients (32 %). The 54 ADM patients had gallstones, which were black (alone or in association with other stone) in 32 patients (59 %). 21 of these patients had BS as unique stones; the other 11 patients had BS associated with single cholesterol (n= 7) or multiple mixed (n= 4) stones. While 12 patients BS as unique stones were associated with the typical risk factor for BS, there were 9 patients who were unrelated to the typical risk factors for BS. 7 of these patients, with a mean age of 51 years (range 43-72) had black intraparietal and intraluminal microstones. The residual 2, with a mean age of 35.5 years (range 34-41) had spicular BS in the main lumen of GB but not within evident R-A sinuses. In 5 patients with ADM and BS (4 with intraparietal and intraluminal BS and 1 with spicular BS in the main GB lumen) scanning electron microscopy (SEM) analysis of stones and gallbladder specimens was performed. **Results**. SEM analysis of GB specimens has demonstrated: 1) the presence of black microstones within the R-A sinuses of GB; 2) the microstructure of these microstones (prevalence of granules of calcium bilirubinate). SEM analysis of black pigment gallstones showed the prevalence of glassy masses of bilirubinate at the periphery and of granules of bilirubinate in the center of non spicular BS and the presence of calcium bilirubinate, phosphate and carbonate in spicular and coral-like BS. **Conclusions**. It is suggested that: (i) R-A sinuses of the GB can be the initial site of formation of BS, in particular of non spicular subtype; (ii) in black pigment microstones found within the R-A sinuses calcium bilirubinate is found mainly in clustered state. This trend is reversed in the periphery of BS found in GB main lumen, where calcium bilirubinate is found in glassy masses; (iii) non spicular BS can start from a core of bilirubinate granules, extruded in the main GB lumen, while becoming surrounded by black pigment material in a later stage.

1) F Cetta, A Cariati et al Gastroenterol. 1993; 104: A 353.

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COMPLICATIONS OF DIAGNOSTIC AND THERAPEUTIC ERCP : A PROSPECTIVE STUDY. D.L.Carr-Locke, J.Vandervoort, T.C.K.Tham, R.C.K.Wong, A.D.Roston, A.Slivka, A.P.Ferrari Jr., M.Hughes*, D.R.Lichtenstein, J.Van Dam. Division of Gastroenterology, Harvard Medical School and School of Public Health*, Boston, MA.

The incidence of post-ERCP complications has been derived mainly from retrospective studies which underestimates its incidence.

AIM : To determine the incidence of complications following diagnostic and therapeutic ERCP in a single center. METHODS : Data on ERCP-complications in 817 patients were prospectively entered in a database. Definition of complications : pancreatitis = abdominal pain and fourfold elevation in amylase and/or lipase after 24 hours resulting in prolongation of admission; bleeding = Hgb drop of >2g/dl and the need for endoscopic hemostasis; cholangitis = fever, chills, elevated liverenzymes and positive blood culture within 48 hours of the procedure; hypoxia = O2-saturation <90% for 2 minutes; hypotension = systolic blood pressure <90mmHg for 2 minutes; bradycardia = heart rate <50bpm for 2 minutes.

RESULTS : Of the 817 ERCPs, 47.6% were diagnostic and 52.4% were therapeutic. The overall complication rate was 80/817 (9.8%).

Complication	Diagnostic (389)	Therapeutic (428)	Total (817)
Pancreatitis	27 (7.0%)	36 (8.5%)	63 (7.7%)
Bleeding	0 (0%)	6 (1.4%)	6 (0.7%)
Cholangitis	0 (0%)	4 (0.9%)	4 (0.48%)
Hypoxia	1 (0.25%)	2 (0.47%)	3 (0.36%)
Hypotension &/or bradycardia	1 (0.25%)	3 (0.71%)	4 (0.48%)
TOTALS	29 (7.4%)	51 (12%)	80 (9.8%)

CONCLUSION : The higher risk of post-ERCP complications after therapeutic ERCP is mainly caused by cholangitis and post-sphincterotomy bleeding. The incidence of pancreatitis is the same for therapeutic and diagnostic ERCP.

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BILE TRACT STRICTURE PRECEDES NOT FOLLOWS THE OCCURRENCE OF PRIMARY HEPATOLITHIASIS.

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During the study of 1740 consecutive patients, who underwent surgery for bile tract disease and who had systematic stone (GS) and bile analysis and comparison of the content (bile and GS) to the container (gallbladder and bile duct wall), we observed 18 patients with primary hepatolithiasis (HL) in a 16-year-period. Six patients had intrahepatic stones together with diffuse choledocholithiasis, 7 had HL after previous operation on the biliary tract. Two patients, both female, (aged 57 and 61) had HL limited to some liver segments, affected by sectorial Caroli's diseases. Both had cholesterol (Ch) GS. In the other 13 patients GS were brown in 8 cases, Ch or mixed in 4, and black pigment in 1 case. The last 3 patients had composite stones, i.e., different stone populations in the same patient), always including some brown GS. Therefore, brown GS were found in 11 patients (61.1 %), but they were found as unique stones in only 44.4 % of patients with HL. Present findings have 2 peculiarities: (i) they were collected during a large prospective study; (ii) eight of the 18 patients were included in the study at least twice. Therefore, they had repeated X-ray examinations together with bile and GS analysis. This group of patients was analyzed to detect the precursory role of stricture and bile stasis in the pathogenesis of HL. In this subgroup of patients it was shown that stricture and bile stasis were a prerequisite, not a consequence of intrahepatic GS. In particular, the following sequency was observed: 1) normal bile ducts at the time of cholecystectomy; 2) postoperative stricture without stones; 3) presence of GS within the intrahepatic ducts. In 3 of the patients, 1 with Ch, 1 with mixed and 1 with black GS, stones also contained suture material. Therefore, stricture at the confluence of the bile ducts, and bile duct dilatation certainly preceded, not followed stone formation. In addition, it was shown that: 1. Bile infection was (i) constant in patients with brown intrahepatic GS, (ii) present, but not always, in patients with composite GS, and (iii) absent in patients with Ch GS as unique stones. The mean age was 42.2 years (range 29-63) in patients with Ch HL, while it was always greater than 50 in patients with brown GS as unique stones. It is suggested that congenital or acquired abnormalities of the bile tract determine the occurrence of severe or moderate strictures, causing a delayed clearing of the bile. According to the degree of the stricture, if GS form in the first decades in the absence of bacterial infection, they can be Ch or mixed; if they form in the elderly in the presence of bile infection by E.coli, they are almost invariably brown pigment stones. On the contrary, factors due to diet, or supersaturation of the bile with Ch seem of little importance in the pathogenesis of primary HL.

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DIFFERENT HISTOTYPES OF GALLSTONES CARCINOMA ARE ASSOCIATED WITH DIFFERENT RISK FACTORS AND ARE LIKELY TO BE DUE TO DIFFERENT GENETIC ALTERATIONS.

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Seventy-three consecutive patients with gallbladder carcinoma (GBC), 17 men (M) and 56 women (W), mean age 69,4 years, were found during the study of 2850 patients, who underwent surgery for biliary tract diseases (GBC=2.59% of all patients). Sixty-nine had gallstones (GS). Patients were collected in 2 different centers (49 out of 1690 in the former and 24 out of 1160 in the latter). Thirty-one of these patients (7 M, 26 W, mean age 68,7), who had complete removal of the gallbladder (either by simple cholecystectomy or more radical operations) had systematic bile and stone analysis. In particular, in addition to bile pH and bile culture, the biliary trypsin content was also determined, as a reliable marker of pancreatico-biliary reflux (PBR). Large stones were more frequent in patients with squamous cell carcinoma (SQC) (n=8; all with GS>15mm) than in patients with adeno (ADC) or poorly differentiated carcinoma (n=22) (15: GS>15 mm; 7: GS<15mm). Time lapse of GS in patients in whom this finding was available also resulted significantly different: 16.3 years in patients with ADC (n=13) vs. 31.6 years in patients with SQC (n=6) (p=0.002) (1). In particular, 3 patients had papillary tumors: 2 had papillary carcinoma (PAP) and 1 papillary adenoma with severe dysplasia. None of these patients had associated GS. Two of the 3 had increased biliary trypsin values suggesting PBR. On the basis of present data, it is suggested that PAP and SQC seem to be associated with different factors and conditions. PAP is frequently associated with PBR, but seldom with GS. On the contrary, SQC is more closely related to long-standing cholesterol or combination stones and to risk factors affecting their formation (female sex, parity, obesity or high fat diet). Instead of classifying GBC as a unique entity, it is suggested to separate carcinomas associated with or related to GS from those without GS. Distinction between these 2 groups as well as between PAP and SQC could be of importance for both epidemiologic and clinical purposes, i.e., for a proper recognition of the risk factors, a better knowledge of the natural history of the illness and a correct evaluation of the therapeutic options. In particular, since cancer is due to biochemical alterations affecting cell genes, it is likely that PAP and SQC are also due to different genetic mutations, as it has recently been suggested for different histotypes of esophageal, gastric or pancreatic cancer. (1) Cetta F, et al. *Gastroenterology* 104: A353; 1993.

P336

BACTERIAL OVERGROWTH IS THE BASIC FACTOR FOR THE FORMATION OF CLOGS OBSTRUCTING BILIARY ENDOPROSTHESES USED FOR ENDOSCOPIC STENTING OF PATIENTS WITH CARCINOMAS OF THE PANCREAS AND BILE TRACT.

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Data are reported concerning 15 patients, who had treatment of non resectable tumours of pancreas and bile tract by biliary endoprostheses. In all of the patients bile samples were obtained for bile culture before the placement of the endoprostheses. Bile culture of these samples resulted positive in 9 of the 15 patients (60%) (E.coli in 4 cases, Proteus in 3, Enterobacter and Klebsiella in 1 case, respectively).

Prostheses were removed within an average interval of 251 days (range 55-416 days) after implantation. Deposits obstructing the endoprostheses were examined by stereomicroscopy and scanning electron microscopy and analyzed quantitatively by Fourier transform infrared spectroscopy. All the deposits contained, in addition to small amounts of cholesterol, calcium palmitate and bilirubinate, which are the typical components of brown stones. External deposits (i.e., out of the prostheses) showed a higher bilirubinate / palmitate ratio when compared with internal deposits, which usually had a greater palmitate content. In particular, calcium palmitate was found uniformly in hundreds of light layers alternating with tan bilirubinate layers throughout the entire cross section of the clog. Bile culture at removal of prostheses was positive in 100 % of cases, usually showing a polymicrobic association.

It is suggested that material resulting in stent clogging has the same composition as brown pigment stones and then also has the same pathogenesis. In particular, bile infection, as in brown stone pathogenesis, precedes, not follows the clogging of the prostheses, and is the basic responsible for the formation of the brown deposits, mainly by the action of beta glucuronidase and phospholipases, the latter causing diffuse precipitation of palmitate. Sphincterotomy[1] and placement of a permanent foreign body within the bile tract[2] are basic factors for bile contamination and growth of bacteria in patients with previous sterile bile However, in addition to the diameter of the prosthesis and other technical parameters, factors related to the patient as age and types of bacteria[3] present in the duodenum, also play a role in stent clogging, which has to be considered a multifactorial process.

(1) Cetta F *Arch Surg* 128: 329-336; 1993. (2) Cetta F, Lombardo F, Rossi S *HPB Surgery* 6: 235-242; 1993. (3) Cetta F *Ann Surg* 213: 315-326; 1991.

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SURGICAL MANAGEMENT OF TUMORS OF THE AMPULLA OF VATER

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Materials and methods : Between, 1970 and 1992, 63 patients underwent surgery for ampullary tumors. The group comprised 33 males and 30 females with a mean age of 64.8 ± 9.8 years. Surgical procedures included subtotal duodenopancreatectomies (n = 40), total pancreatectomies (n = 3), ampullectomies (n = 8) and surgical bypass or exploratory laparotomies (n = 12). Resectability was 68%. Pathology included 53 adenocarcinomas, 1 undifferentiated lesion and 9 benign lesions. According to the MARTIN staging criteria tumors were classed as follows : stage I = 7, stage II = 11, stage III = 14, stage IV = 21. All patients with stage I, II or III tumors underwent resection. Among the stage IV patients, 11 were resected and 10 had bypass procedures.

Results : Mean hospital stay was 20.6 days. For the patients having undergone subtotal duodenopancreatectomies, mean time of stay was 24.8 days (16.5 days when the postoperative course was uncomplicated). Overall operative mortality was 12.7%, and 7.5% after subtotal duodenopancreatectomy. Five-year survival for the entire group was 40%. Five-year survival for stage I through IV tumors was 85%, 65%, 44% and 8% respectively. For stage I, II, and III lesions, survival was significantly better following subtotal duodenopancreatectomy than after ampullectomy. For stage IV lesions, 1 and 2-year survival following subtotal duodenopancreatectomy and surgical bypass was 70% and 25%, 20% and 0% respectively. We now consider subtotal duodenopancreatectomy rather than ampullectomy as the treatment of choice for benign ampullary lesions, having reoperated, 2 patients with stage IV tumors who had undergone ampullectomy for apparently benign lesions, 4 and 22 years previously.

Conclusions : Subtotal duodenopancreatectomy is the treatment of choice for ampullary tumors, even when these are benign.

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CHEMICAL COMPOSTION OF THE BILIARY STONES STUDIES WITH INFRARED ABSORPTION SPECTROPHOTOMETRY

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To make a comparison between the chemical composition of the common bile duct stones and intrahepatic stones, we analyzed every surgical specimen of the biliary stones(135 from CBD 92 from IHD) between Jan 1993 and Aug 1995. By use of the infrared absorption spectrophotometric method, they were classified according to their major chemical composition into 5 categories: 1.cholesterol stone 2.calcium bilirubinate stone 3.calcium stearate stone 4.calcium carbonate stone 5.calcium phosphate stone.There was no gender difference in the mean age of each group, but the mean age of IHD group (53 years) was younger than that of the CBD group(64 years).It may be due to the different mechanism of stone formation. The relative incidence of hepatolithiasis in this series was around 20%, it made no difference with the average figure(3486/17182=20.3%,Su.1992) reported in Taiwan.Calcium stearate stones were mainly found in the IHD group, most of them were muddy and fragile.

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USE OF INFRARED ABSORPTION SPECTROPHOTOMETRY IN GALLSTONES ANALYSIS

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The aim of this study was to investigate the epidemiological characteristics of gallstone disease in Changhua county, located in central Taiwan. From Jan 1993 to Aug 1995, we analyzed 314 GB stones for its chemical composition and classification by infrared absorption spectrophotometric method. They were classified according to their major chemical composition into 5 categories: 1.cholesterol stone 2. calcium bilirubinate stone 3.calcium stearate stone 4.calcium carbonate stone 5.calcium phosphate stone. In this study, we found that the incidence of the cholesterol stone was 32% it was lower than the 43 to 56% reported by other hospitals in Taiwan. The reason is that Changhua is primarily an agricultural county. The pure cholesterol (> 98%)stones only comprised 27 % of the GB stones in this series. Becoming Westernished in our dietary patterns, the occurrence of the pure cholesterol GB stones will increase. The relative incidence of the pure choesterol stone to other kinds of GB stones was opposite to the age distribution in this study.

P340

RESULTS OF RECONSTRUCTION OF BENIGN BILE DUCT STRICTURES

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Over a period of 21 years(1974.-1994.) 103 patients were operated for benign bile duct strictures. There were 66 (64.1%) women and 37 (35.9%) men. The average age was 50.2 years (ranging from 16 to 84 years). Two patients had congenital stricture, 6 stricture due to chronic pancreatitis, 1 posttraumatic and 94 postoperative bile duct stricture (82 after cholecystectomy, 8 after distal gastrectomy for duodenal ulcer, and 4 after hydatide cyst operations). According to Bismuth's classification, there were 23 (22.3 %) strictures of type I, 28 (27.2 %) of type II, 33 (32 %) of type III and 19 (18.5 %) of type IV. A number of complications were registered in our patients; intrahepatic lythiasis in 38, liver fibrosis or cirrhosis in 15, athrophy/hypertrophy complex in 7, liver abscesses in 10, external biliary fistula in 12, biliodigestive fistulas in 5, colonic fistula in 2, gastrojejunal fistula in 1, incisional hernia in 9, supurative pericarditis in 1, retroperitoneal biloma in 1, perihepatic, subphrenic absceses and billiary peritonitis in 1, respectively, portal vein thrombosis in 1, and the number of minor complications, like inadequate Roux-en-Y in 35 patients and so on. The majority of patients had dense intraabdominal adhesions. In 69 patients 1 to 6 previous attempts of reconstruction were performed elsewhere. In two patients reconstruction was technically impossible due to portal vein thrombosis in 1 and to inaccessible bile ducts in 1 patient. In 101 patients 102 reconstructions were carried out (one patient was reoperated one year after previous reconstruction). In 96 patients hepaticojejunostomy with 75 cm long Roux-en-Y, in 3 choledochoduodenostomy, and choledochoplasty (stricturoplasty) in 2 were carried out. Three patients died in the early postoperative period (two in whom the reconstruction was impossible, and one due to worsening of previous renal insufficiency). Four patients died later, two due to variceal bleeding, one due to myocardial infarction and one due to pancreatic carcinoma. Six patents were lost from follow-up. The rest of 90 patients were followed up for 5.5 years (ranging from 6 months to 21 years).

Good result of the reconstruction was achieved in 67 out of 90 reconstructed patients (74.4 %), satisfactory in 21 (20.4 %), and unsatisfactory in 2 (1.94 %). We conclude that satisfactory results of reconstructions of benign bile duct strictures could be acheived in a majority of patients providing that the operation is not performed too late, and that it is properly done.

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INJURIES TO THE SEGMENTAL BILE DUCTS

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Surgically important variations of the segmental bile ducts of the right lobe of the liver appear in about 15-35%. Frequency of the injury to these bile ducts is not known, but it is believed to be more frequent then it is usually thought, as the ligature of small bile ducts may pass without serious consequences. The treatment of these injuries is controversial.

We treated 10 patients; eight women and two men aged from 21 to 65 years (average 42.5 years). In nine patients there was an injury of the sectoral or segmental duct, while in one there was an injury of the Luschka's bile ducts. In 5 patients injury took place in our Institution, other 5 patients were operated elsewhere and later sent to us. Injury was recognized immediately in 4 patients only, so an immediate repair was performed in 3 patients, while a ligation of the injured duct was done in 1 patient. Four patients were operated for biliary peritonitis with lavage and external drainage, three of which developed external biliary fistula that ceased spontaneously, while only one had to be reoperated and an anastomosis between the injured duct with the Roux-en-Y jejunal limb was performed. In two patients who developed an external biliary fistula through the subhepatic drain reoperation was not necessary. A patient in whom an injured duct was ligated, developed liver abscess and wound disruption and subsequentlydied. Other 9 patients were followed up from 5 months to 15.5 years, average 3.5 years, and all are symptom-free.

We conclude that the management of these injuries depends upon the size of an injured duct, time of recognition of the lesion and eventual complications.

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BENING STENOSIS OF BILIO-DIGESTIVE ANASTOMOSES: PERCUTANEOUS TREATMENT WITH BILIOPLASTY

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PURPOSE: 2‰ of the patients undergoing cholecistectomy present iatrogenic complications to the biliary tree, that are treated with bilio-digestive anastomosis. Many of these anastomoses evolve in a benign stenosis. The aim of our study is to evaluate the percentage of success and the complication rate of percutaneous treatment of anastomotic stenoses with bilioplasty.
MATERIALS AND METHODS: 29 patients with recurrent cholangitis and subsequently treated with bilio-digestive anastomosis were included in the study. At time of presentation they had an increase in γGt and alcaline phosphatase; 4 had jaundice. Percutaneous cholangiography showed a stenosis of the anastomosis in all patients.
24 patients underwent percutaneous bilioplasty with one year follow up. In 1 patient the treatment was not feasible because of complete obstruction of the anastomosis, in 1 patient we observed a re-stenosis after 1 year. Complications occurred in 4 patients (2 major and 2 minor): successfully treated with interventional procedure.
CONCLUSION: Clinical follow up of patients undergoing bilio-digestive anastomosis is mandatory, because of the high risk of stenosis. We think that percutaneous bilioplasty is the treatment of choice because is able to obtain the same results of the surgical procedure with inferior complication rate.

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ANALYSIS OF OPERATIVE AND IMMEDIATE POSTOPERATIVE COMPLICATIONS DURING LAPAROSCOPIC CHOLECYSTE-CTOMY IN A SERIES OF 402 CASES.

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The aim of this study is to analyse the intraoperative and immediate postoperative complications of laparoscopic cholecystectomy and their management.
In the 3rd Surgical Department of "EVANGELISMOS" Hospital, 409 patients were programmatised for laparoscopic cholecystectomy. Finally, 502 laparoscopic cholecystectomies were performed (98.3%) and 7 open cholecystectomies (1.7%) for different reasons. There were 37 intraoperative complications in 34 patients (8.3%). The management of intraoperative complications was: conservative in 7 patients, laparoscopical in 23 and by open operation in 4 patients. In these 4 patients (0.9%), laparoscopic cholecystectomy was converted in open cholecystectomy because of haemorrhage in 3 patients and common bile duct injury in 1 patient.
Immediate postoperative complications were presented in 20 patients (4.8%). Two of them were managed by open operations (1 haemorrhage, 1 bile leakage) and 1 by laparoscopic operation (extraction of drainage tube from peritoneal cavity). The other complications were managed conservatively. There was one postoperative death in this series (0.25%) because of acute cardiopulmonary insufficiency.
In conclusion, the small number of intraoperative and postoperative complications, suggest that laparoscopic cholecystectomy should replace the open cholecystectomy in the majority of cases.

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INFLUENCE OF PNEUMOPERITONEUM PRESSURE ON LUNG COMPLIANCE AND RESISTANCE DURING LAPARASCOPIC CHOLECYSTECTOMY

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The aim of this study is numeric and visual presentation of the positive pressure ventilation and lung level changes during pneumoperitoneum (positive abdominal pressure).

100 patients in general anesthesia were evaluated, with ASA I classification female, and the average age was 40. Compliance, resistance, peak, peep, plato, tidal volume, minute volume, expiratory CO2, O2 saturation with pulse oxymetria during surgery, metabolic and gas status before and at the end of pneumoperitoneum (P.P.)

We used Dräger apparatus, Spirolog2, PM8050 monitor Dräger overbuilt on Dräger anesthesia apparatus.

The results are presented graphically and in table showing middle values in percentages. The value in horizontal position is the initial and control value. In Trendelenburg position with ∠ 40° the compliance decreased from 100% (initial value) to 74,3%. The effect of compression from the abdominal organs on the lungs was 26%. With increasing abdominal pressure, compliance decreased on 46,5%. The effect of the compression was 54%. Anti-Trendelenburg position with ∠ 40°, compliance increased on 54%. The effect of compression decreased on 38%.

In P.P. with 5 mm Hg pressure, the compliance was 64% and the effect of compression was 36%. In P.P. with 10 mm Hg pressure, the compliance was 47%. At 15 mm Hg, the compliance was 44% and the effect of compression was 56%. At 20 mm Hg the compliance was 38% and the effect of compression was 62%. At 25 mm Hg , the compliance was 36% and the effect of compression was 64%. The largest effect of compression was on 15 mm Hg. From 15 to 25 mm Hg the effect was higher for only 8%. In obesity patients the largest effect was on 10 mm Hg and between 15 and 25 mm Hg the effect was higher for only 3%. Higher pressure than this value cannot make inter-abdominal visuality better.

During this surgery the patient must be continuously monitored. The problem with adequate ventilation exists in patients with chronic obstructive lung disease and significant compliance reduction before surgery, high value of blood CO2 or bad O2 saturation due to any reason in the respiratory physiological circle.

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LUNG COMPLIANCE AND RESISTANCE DURING LAPARATOMY AND LAPARASCOPIC CHOLECISTECTOMY

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The most obvious difference between traditional surgery and laparascopic surgery is the need to establish pneumoperitoneum.

In this study we present the results of compliance and resistance during two different surgical methods, in general NLA anesthesia. Ventilation was with constant tidal volume and frequency.

In this study we used Dräger apparatus, Spirolog 2 and M.P.8050 monitor Dräger, which were overbuild on Dräger anesthesia apparatus.

Compliance, resistance, expiratory CO2, peak, plato, peep of airway gas, O2 saturation with pulsoximetry were continuously monitored.

Metabolic and gas status were measured at the beginning and after pneumoperitoneum (P.P.). The initial value of compliance and resistance in horizontal position represented a control value for the other positions in the measurement.

In Trendelenburg position, compliance was 73% and resistance was 24% higher. In Trendelenburg ∠ 40° with P.P., compliance decreases on 46% and resistance was 65% higher than at the beginning. The compliance value in the Trendelenburg position was 53% and resistance 34%. At the end position (horizontal) compliance was 89% from the initial value. The compliance value in traditional (laparatomy) cholecistectomy represented a control value for the other positions. In cholecistectomy position compliance was higher for 10,5% and resistance was 11%. During surgery compliance decreased for 24% and resistance decreased for 8%. At the end position (horizontal) compliance and resistance are nearly the initial value. These changes can easily be established in lung uncompromised patients. The problem with adequate ventilation exists in chronic obstructive lung diseases with significant compliance reduction before surgery, high value of CO2 or O2 saturation of any reason in respiratory Physiological circle.

In laparascopic surgery constant monitoring is necessary. Increased intraabdominal pressure after insufflating may cause respiratory problems, especially in patients with diminished pulmonary reserves.

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MANAGEMENT AND OUTCOME OF LAPAROSCOPIC BILE DUCT INJURIES

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The incidence of bile duct injuries is reported to have increased following the introduction of laparoscopic cholecystectomy(LC). We report the results of management of 15 patients referred to the Hepatobiliary Unit following bile duct injuries sustained at LC over the last 3 years. 15 were female and 1 was male. The age ranged from 22 to 74 years.

Four patients had conversion and repair following recognition of injury at the time of LC. They presented 4-8 months later (mean 6.5 months) with cholangitis. In the other 11, injury was suspected in the postoperative period (2-42 days, mean 11 days), because of abdominal pain, fever, and ileus. Diagnosis was by ERCP and when necessary by percutaneous transhepatic cholangiography. Angiography was performed when major injury was diagnosed. US and CT were performed for the diagnosis and drainage of intra-abdominal collections.

Two patients had a cystic duct stump leak, 3 a gallbladder fossa leak, 1 a common bile duct (CBD) injury, 9 a common hepatic duct (CHD) injury, and 3 an associated vascular injury.

The 5 patients with cystic duct or fossa leak had successful nasobiliary and percutaneous drainage of bile with no sequelae at a median of 18 months.The patient with CBD injury was successfully managed by primary repair. Three of four CHD injuries repaired at the time of LC needed revision and 1 responded to percutaneous dilatation. 3 revision reconstructions were successful (mean 11.2 months). Five Roux loop reconstructions for injuries diagnosed later were successful (20 months mean follow up).

Patients without main duct damage were successfully treated with percutaneous drainage and stents. Roux loop reconstruction was successful both as a primary procedure and for failed repairs done elsewhere. Patients with major duct injuries should have angiography.

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COMPLICATIONS OF PERCUTANEOUS STENTING FOR BILIARY OBSTRUCTION: A FIVE YEAR REVIEW

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Introduction: Percutaneous placement of biliary stents is usually performed when the endoscopic method has failed or the ampulla is inaccessible due to previous surgery. The complications of the percutaneous route have not been properly evaluated.

Method: Using the Radiology department computers all patients who had undergone percutaneous stent placement (PSP) over a five year period, were identified. The casenotes were analysed for patient characteristics, indication for the procedure, diagnostic criteria, complications and outcome.

Results: 94 patients (50 men and 44 women) underwent PSP over a five year period. Mean age 68.5 years (range 37 to 90 years). The main indications were carcinoma of the pancreas or liver/hilar metastasis (59%). Prior to the procedure, all patients had biliary obstruction, associated with cholangitis in 10 (11%), or impaired renal function in 9 (10%) sixty-five (69%) had previous unsuccessful ERCP, whilst 23 (24%) had previous gastric surgery.

Eighty-five patients had successful PSP. Early complications were seen in 23 (27%) patients: acute cholangitis 10 (11%), haemobilia 4 (5%), renal impairment 4 (5%), bile leak 3 (3%), perforation 4 (5%), pleural effusion 3 (4%). There were eleven (13%) in hospital deaths. 60 (64%) patients were discharged home, 10 (11%) transferred back to their referring hospitals whilst 8 patients required surgery or radiotherapy. The late complications were as follows: Stent blockage in 10 (12%), cholangitis 13 (15%), stent migration 5 (6%) and a broken stent in 1 (1%). 71 (84%) of the 85 undergoing PSP had their symptoms relieved. Of the 9 patients who failed stenting, there were 5 deaths, three required palliative surgery and one was discharged for palliative care.

Conclusions: Percutaneous stent placement is an effective method of palliating obstructive jaundice, but should be limited to those patients who have failed an endoscopic approach.

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SENSITIVITY AND SPECIFICITY OF CHOLECYSTOKININ CHOLESCINTIGRAPHY.

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The aim of this study was to evaluate the sensitivity and specificity of cholecystokinin cholescintigraphy by reviewing our use of this test over the last ten years. A total of 185 patients underwent cholecystokinin cholescintigraphy for acalculous biliary symptoms between 1985 and 1994. Outcomes were available for 148 (80%) of these patients. Forty six patients had an abnormal gallbladder ejection fraction (GBEF < 40%) of whom 34 underwent cholecystectomy. Symptoms relief was obtained in 28 patients with a median follow up of 6.5 years and over 80% had a histologically abnormal gallbladder removed. Of the 139 patients with a normal GBEF, 32 were lost to follow up, 17 had an alternative diagnosis made, 23 lost their symptoms with no diagnosis being made and 30 have persistent symptoms. Thirty seven patients with a normal GBEF have undergone cholecystectomy for ongoing symptoms. The range of GBEF in this sub-group was from 43% to 99% with a median GBEF of 66%. Symptom relief was obtained in 30 of these patients (81%) and histologically abnormal gallbladders were removed in 34 cases. These results are no different to the outcomes in patients with abnormal GBEFs. This study confirms that cholecystokinin cholescintigraphy will predict patients who will benefit from cholecystectomy with a sensitivity of over 80%. The specificity of the test is 45% at best and may be less than 30%. This suggests that cholecystokinin cholescintigraphy requires further evaluation before it is used as a routine test.

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COMPLICATIONS DURING LAPAROSCOPIC CHOLECYSTECTOMY

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Preoperative, intraoperative and postoperative data were documented systematically and prospectively in 593 patients, who underwent laparoscopic cholecystectomy (LC) from January 1993 to November 1995. **Results**: In 18 cases initially applied LC was converted to open procedures (3%) because of unclear anatomy (5), technical difficulties (8) or when intraoperative complications were diagnosed (5 cases). Intraoperative complications occurred in 13 cases. We had 4 serious bile duct injuries (0.67%). Two of them were unrecognized at the primary intervention, other two were immediately detected and conversion to open procedure was done. In one case of acute cholecystitis common bile duct was transected because of its misidentification as cystic duct, in another case it was lacerated. Suture of common bile duct with its drainage were performed in both cases followed by good results 6 month later. In one case injury of *ductus hepaticus communis* occured, but it was misdiagnosed as bile leakage after operation. The patient was reoperated 3 month later because of persistent bile fistula. The site of injury was not found at laparotomy and just drainage of infrahepatic space and port of liver was made. Two months later stricture of bile duct formed and relaparotomy was done. Signs of mechanical jaundice disappeared after hepaticojejunostomy was performed . Another patient readmitted to the clinic 10 days after LC because of peritonitis. Thermal necrosis of *ductus hepaticus communis* was found on laparotomy. Primary suture of bile duct with its drainage with Kehr's tube led to stricture forming. Four moths later hepaticojejunostomy was performed with good results. Two diaphragm injuries without opening of the thoracic cavity occurred. Five patients had significant intraoperative bleeding: from cystic artery (2) or liver bed (3). In three of them conversions to laparotomy were necessary, In one case bleeding from liver bed was solved by applying the drainage tube placed in infrahepatic space. One fatal outcome occurred because of unrecognized electrothermal perforation of small bowel and diffuse peritonitis in 78 years old patient. We suspected that insulation of instrument was damaged and perforation of bowel occurred as a result of direct contact of metal instrument port and bowel wall. More than 50% of all complications occurred when the surgeon was performing his first 50 operations, or when he started with acute cases. All of our surgeons were mastered themselves. **Conclusion:** Good learning programs with obligatory hands-on training should be introduced for the beginners; experienced surgeons should accompany the less experienced ones until the threshold number of interventions is performed.

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BILE DUCT STRICTURE AFTER BLUNT TRAUMA

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Bile duct injury caused by blunt abdominal trauma is not common, probably because bile duct is protected by surrounding tissues, including the liver, the pancreas, the duodenum and the vertebral column. Two cases of obstructive jaundice after blunt abdominal trauma in vehicle accident have been treated in our institute. In this study these two cases are to be reviewed extensively. Case 1: Forty-two-year-old female was admitted to the nearer hospital immediately after vehicle accident because of severe abdominal pain, which spontaneously reduced by the next morning. Eighteen days later after the accident, apparent jaundice and liver dysfunction were pointed out. She was referred to our institute for further examination and treatment. Ultrasonography (US) and endoscopic retrograde pancreato-cholangiography (ERCP) revealed dilatation of biliary tract and circular stenosis of mid-portion of extrahepatic bile duct, at which no malignant cells were detected through the cholangioscopic biopsy. Although jaundice successfully disappeared by biliary drainage, stenosis of the biliary tract persisted. Eight weeks after the initial trauma, she underwent choledochojejunostomy. Surgical specimen showed fibrosis of the common bile duct without any evidences of malignancy. Case 2: Forty-year-old male was admitted due to further examination for jaundice 2 weeks after the vehicle accident. Naso-biliary tube was placed in the proximal portion above the stenotic lesion of lower bile duct following ERCP. The biopsy finding through the cholangioscope showed no malignancy. Stenotic lesion of lower bile duct had no tendency for improvement despite 6 weeks' biliary drainage. Biliary reconstruction was performed and his postoperative course was uneventful.

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Hepatobiliary Cystadenoma A Case Report and Literature Review

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Hepatobiliary Cystadenoma (HBC) was very rarely diagnosed in the past. But it has been reported more frequently in China in last two decades. After treating a case of HBC recently in our hospital, a review of literatures on this subject was done, and 9 cases of HBCfromdomestic documents were analysed together with our case.

The occurence of HBC may be related with the abnormal dovelopment of the biliary duct epithelium during embryogenesis. Owing to high recurrence rate after resection, it is now regarded as kind of premalignant tumors. The main clinical symptoms include abdominal pain、tumor mass、jaundice、and gastrointestinal complains. Be well aware of the disease and with advanced image diagnostic techniques, it is possible to establish an accurate diagnosis before operation. As for it's treatment, radical hepatolobectomy is advocated in order to prevent recurrence following surgery. Pathological confirmation by frozen section and choledochography should be instituted during operation.

KEY WORDS hepatobiliary Cystadenoma, diagnosis, operation

P352

Mini-incision, Primary Chloleystorrhaphy in the Management of Cholecystolithiasis and Cholecystopolyps

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From November 1990 to November 1994, Olympus A5207 laparoscope was used to remove gall stones and polypoid lesions, through mini-incision of the abdominal wall and fundus of the gallbladder. The polyps were sent for frozn section immediately and intraoperative cholangiography was performed. After complete hemostasis, the mucous membrane and serous coat were separately closed by continuous suture using 4/0 nontramatic suture needls. A totle of 244 cases were treated with this technique. Among them, 132 had cholecystolithiasis, 112 had polyps. One case developed bile leakage which was cured by catheter drainage. One hundred and three patients with gall stones and 88 with polys four cases of gall stons (3.88%) and five polys (5.68%) respectively. The techniqune of mini-incision and primary cholecystorrhaphy is less tramatic and capable of preseving the function of gallbladder. Generally the patients could get up and take liquid diet in the evening after operation. The hosptal stay is shorter than those undergoing cholecystectomy.

Key words cholecystolithiasis, cholecystopolyps, laparoscope primary suture

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FREQUENCY AND CHARACTERISTICS OF ABDOMINAL SYMPTOMS IN GALLSTONE DISEASE: RESULTS OF AN EPIDEMILOGICAL STUDY.

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Different surgical and non surgical therapeutic options are presently available for the management of gallstone patients. One of the key factors in clinical decision making is the recognition of symptoms caused by the gallstones; however, there is still no definitive agreement regarding the abdominal symptoms specifically attributable to this condition. The aim of the present study was to evaluate the frequency and characteristics of abdominal symptoms in gallstone disease (GD) patients, during an epidemiological study, Multicentrica Italiana Colelitiasi (M.I.COL.), a community-based investigation of GD prevalence in Italy, involving 18 cohorts in 10 Italian regions. Components of the study protocol pertinent to this work include ultrasonographic (US) examination of the upper abdomen and direct interview of subjects using a precoded questionnaire regarding medical history and abdominal symptoms during the 5 years prior to the interview in gallstone-free (GF) and in gallstone patients (GS), and in the 5 yrs prior to surgery in cholecystectomized patients (C). The population studied comprised 29,584 subjects (15,910 males and 13,674 females; aged 30-69 yrs). On the basis of the clinical and US results, this population was divided into the following groups: GF= 25,479, GS=2,480 and C=1,634. The frequency of abdominal symptoms (belching, heartburn, nausea, vomiting, bloated feeling after meals, intolerance to fatty or fried foods, heavy feeling on the right side or epigastrium, bitter taste in the morning and abdominal pain) and the characteristics of pain (localization, radiation, intensity, frequency, relation to meal, rate of complications) when present, were evaluated on the basis of the questionnaire. Multivariate analysis was performed with the multiple logistic regression model to estimate the Odds Ratio and the 95% C.L. adjusted for the other variables in the model. Multivariate analysis demonstrated that, among the evaluated symptoms, three were closely linked to GD abdominal pain (OR 2.2 GS vs GF; OR 4.4 C vs GF), heavy feeling on the right side (OR 1.3 GS vs GF; OR 1.7 C vs GF) and intolerance to fatty or fried foods (OR 1.2 GS vs GF; OR 1.3 C vs GF). Pain was present in 17.9% of GS, 72.5% of C prior to surgery and 8.3% of GF. With respect to GF, the pain in GS tends to radiate (OR 1.3), is variable in duration, forces the patient to lie down (OR 1.3), is not relieved by bowel movements (OR 1.2), is meal-related and triggered by abundant meals (OR 1.2), and can be associated with complications (OR 1.4). In C before surgery, with respect to GF, the pain forces the patient to lie down (OR 2.2), needs drugs to be relieved (OR 1.3), has a longer duration (OR 1.3), occurs more frequently (OR 1.5), is meal-related (OR 1.2), is not relieved by bowel movements (OR 1.6), and is more frequently associated with complications (OR 2.1). This study confirms that abdominal pain is closely associated with GD, and also shows that other abdominal symptoms are significantly linked to this disorder. If confirmed by the longitudinal study, these findings could be useful in the therapeutic management of gallstone patients.

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LAPAROSCOPIC SPLENECTOMY FOR MASSIVE SPLENOMEGALY

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Laparoscopic splenectomy for haematological disorders and staging of lymphoma has been widely reported. However little experience of laparoscopic splenectomy for massive splenomegaly has been reported. We report 16 (12M, 4F) laparoscopic splenectomies for massive splenomegaly (> 1300g). Median splenic weight 1800g (range 1300g - 3500g). Pneumoperitoneum was by open cannulation, vascular control was achieved with Endo GIA. No pre-operative embolisation was utilised. Operation was completed laparoscopically in 13/16 cases. Three patients were converted due to haemorrhage. Seven of 16 required pre-operative blood transfusion. Operative duration was 150 minutes (105 -270) in patients completed laparoscopically. Post-operative stay was 4 days (2 - 13). There were no deaths. Three patients had significant post-operative morbidity (MI, post-operative bleed, left pleural effusion). Post discharge recovery was rapid and comparable to laparoscopic splenectomy for smaller spleen. Laparoscopic splenectomy for massive splenomegaly is achievable and desirable. Operative bleeding is a significant problem and experience is required to complete the procedure.

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BILIARY CYSTADENOCARCINOMA RESECTED BY SEGMENT 3 AND 4 HEPATECTOMY

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We report a case of biliary cystadenocarcinoma of the liver in a 72-year-old woman presented to our hospital with abdominal fullness. Laboratory data showed an elevation of alkaline phosphatase and a decreased excretion of Indocyanine green (ICG). CT revealed a cystic tumor with papillary projections ,measuring 13-15 cm, in the left medial segment of the liver (S4). Percutaneous transhepatic cholangioscophy (PTCS) disclosed the tumor in the dorsal subsegmental duct of S4 and the cholangioscopic biopsy from the tumor revealed papillary adenocarcinoma. PTCS showed the left lateral posterior segmental bile duct (B2) joined the common tract of the left medial (B4) and left lateral anterior (B3) segmental bile duct, and the tumor involved B4 and B3 but not the common tract of B4 and B3. A radical surgery, which included segment 4 and 3 resection with preservation of the left hepatic duct and the segment 2 was performed. The histopathological examination revealed that the tumor did not involve the liver parenchyma and had no lymph node metastasis. Postoperative course was unremarkable and the patient at present time, 4 years and 6 months after the operation, is doing well without recurrence of the tumor.
We present an unusual surgical procedure of segment 4 and 3 resection with preservation of the left hepatic duct and segment 2 in a patient with poor liver function and emphasize the diagnostic role of percutaneous transhepatic cholangioscophy (PTCS) to make a precise information of the segmental anatomy of the intrahepatic bile ducts and cancer extension.

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METHYLPREDNISOLONE: IS THERE A ROLE FOR PBC TREATMENT?

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Methylprednisolone (MP) treatment has been considered to be an effective treatment for primary biliary cirrhosis (PBC). Since bone loss is the major side effect, extensive clinical trials have been limited.
Up to now, biliary lipid metabolism in PBC has not been investigated during MP therapy. We studied six patients with histologically confirmed PBC (stages I-III) administering 24 mg of methylprednisolone per day for a month. All patients underwent a 30-day washout period of all previous treatments before entering the trial. The following parameters were tested before and after the treatment period: serum biochemistry, serum bile acids, immunoglobulins and autoantibodies; cholic acid pool size, kinetics and synthesis; biliary lipid secretion; biliary bile acid molar percentage; cholesterol saturation index (Carey).
MP induced a statistically significant ($p<0.03$; Wilcoxon rank test and Bonferroni correction) increase in total and HDL-cholesterol serum levels (from 228±22 mg/dl to 248±23 and from 52±4 to 67±2, respectively; mean±SE) and a decrease in ALP ($p<0.03$) and γ-GT (p=ns) levels (from 546±176 U/L to 283±92 and from 220±95 to 125±146 respectively; median±SE).

We didn't find any statistically significant variation in the following parameters: biliary lipid molar percentage, biliary lipid output, cholesterol saturation index, cholic acid pool size, kinetics and synthesis. On the contrary, we observed a significant increase ($p<0.03$) in bile deoxycholic acid (DCA) molar percentage (from 17.7±1.5 % to 39.1±2.5; mean±SE).

Summarizing our findings, we can conclude that a short term administration of MP has no effect on biliary lipid secretion, cholic acid pool size and kinetics; on the other hand, it modifies endogenous bile acid pool size by increasing deoxycholic acid levels.

Before corticosteroids can be considered for the treatment of PBC, further studies are needed to evaluate whether the DCA accumulation is long-lasting thereby affecting the beneficial immunosuppressive effects.

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ERCP ASSOCIATED WITH LAPAROSCOPIC CHOLECISTECTOMY IN THE TREATMENT OF CHOLELITHIASIS

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Laparoscopic cholecistectomy (LP) has been almost universally accepted as the treatment of choice in the management of gallstones . However, gallstones are associated with choledocolythiasis in 5-15% of cases. The management of patients with suspectect common bile duct stones remains still controversial. It remains technically difficult to remove bile duct calculi laparoscopically and feww centres currently have the expertise or equipement to do this. Possible options are: 1) Endoscopic cholangiography and stone removal followed by laparoscopic cholecistectomy or 2) cholecistectomy, intraoperative cholangiography and common duct exploration . From january '94 to july '95 142 cholecistectomy have been performed in our Department: 76 laparoscopic , 66 laparotomic. In 42 (30%) patients bile duct calculi were suspected on the presence of one or more of the following criteria: at least a two-fold increase in total serum bilirubin, serum alkaline phosphatase, serum amylase; an ultrasound common bile duct greater than 8 mm or showing a possible stone in duct; a recent history of pancreatitis and jaundice. A preoperative ERCP was performed in all of these cases. Bile duct calculi were demonstrated in 26 cases (62%) and a successfull endoscopic removal of calculi was achieved in 23 cases. In 3 patients calculi could not be cleared from the bile duct endoscopically : in these cases an open cholecistectomy was performed. In the remaining 39 patients, a LC was successfully performed in 38 cases (1 failing having refused the operation). The overall mortality rate was 0. The morbidity of preoperative ERCP was 19 % due to bleeding (3 patients, not requiring blood transfusion), cholangitis (2 patients) and pancreatitis (3 patients). These complications caused an overlenght in the hospitalization but in no cases were determinant in the choice of surgical treatment. In conclusion, altought the choice of treatment in patients with suspected common bile duct stone is still controversial, we believe that a precholecistectomy ERCP with stone removal should be performed in selectioned cases according to low mortality and morbidity rates.

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THE LAPAROSCOPIC TREATMENT OF COMMON BILE DUCT STONES (CBDS) : A PLEA FOR A PRECISE SURGICAL STRATEGY.

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Ninety-two patients with CBDS have been prospectively treated by laparoscopic common bile duct exploration (CBDE). Age over 75 years-old and high risk patients were found in 17 and 16 % respectively. Seventy-six patients underwent initial transcystic approach while 30 patients finally underwent choledochotomy. Mortality was 0 versus 13 % according to age > 75 years and high risk patient. Transcystic approach carried out the lower stone clearance rate (63 %), the higher biliary complications, the shorter operative time and postoperative hospital stay (POS). Choledochotomy carried out the greater stone clearance rate (93 %), the lower complications rate and the longer operative time and POS.
In conclusion, laparoscopic CBDE required a precise peroperative strategy during laparoscopy and should be avoided in old and high risk patients.

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LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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Few years ago acute cholecystitis was considered to be a contraindication to laparoscopic cholecystectomy (LC), but now attempts are made to treat it with this procedure. Among our 468 patients to whom LC was performed - 87 (18.6%) were operated on because of acute cholecystitis. To all of them diagnosis was confirmed after pathologoanatomical examination of the specimen. 76 (87.4%) patients were ill with acute phlegmonous, 11 (12.6%) - with acute gangrenous cholecystitis. 72 (82.8%) were women, 15 (17.2%) were men. The patients ages ranged between 23 and 82 years (mean range 53.3 years). The operating time ranged from 62 to 143 minutes (average - 82 min.). The average duration of postoperative hospitalization was 7.3 days (from 3 to 17 days). There was no mortality and few complications: wound infection in four patients, postoperative pneumonia - in one, and one patient turned yellow 2 days after LC (choledocholithiasis was successfully treated with EPST). In 12 (13.6%) cases converting to an "open" operation was necessary because of: dense adhaesions and subhepatic infiltrate - 9 cases, adhaesions in abdominal cavity after previous operations - 2 cases, technical disorders of equipment - 1 case. In our experience LC in acute cholecystitis is possible to perform in most cases. It benefits the patient because of more rapid recovery and less pain compared to open operation. To our opinion the significant skill and experience in performing LC is required before attempting to treat acute cholecystitis laparoscopically.

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SAPHENOUS VEIN GRAFT FOR IATROGENIC LESION OF THE COMMON BILE DUCT. REPORT OF A CASE.

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Iatrogenic injury of the common bile duct occurring during elective cholecystectomy is a rare but very serious complication for the patient and a real problem for the surgeon. If it's immediately recognized and repaired at the operation, the lesion has a better prognosis than if it's treated later on. In case of tissue loss the customary treatment has been a Roux-en-Y hepatico-jejunostomy. The Authors describe a case of 2 cm. long lesion, localized at the distal common hepatic duct, caused by a too large T-tube inserted forcefully into the biliary tract after a successful cholecystectomy and choledocholithototmy. To repair the tissue loss, a graft of saphenous vein was emploied, with a smaller T-tube inserted through the anastomosis. The patient had an uneventful post-operative course. The follow up for six years has been regular and no late complications have occurred. The Authors emphasize the possibility to use more liberally the saphenous vein graft to treat iatrogenic injuries of the common bile duct with tissue loss.

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LIVER RESECTION AND INTRAOPERATIVE CHOLANGIOSCOPIC EHL AS A TREATMENT MODALITY FOR IHD STONE

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Hepatolithiasis is prevalent disease in east Asian countries. However, there are still controversies about which one is the appropriate treatment modality. Retrospective study was carried out on 66 patients with intrahepatic duct(IHD) stone that were treated surgically. Clinical profiles of patients were reviewed and modalities of surgical treatment were compared in respect of outcomes and complications. There were 40 females(60.6%) and 26 males(39.4%). The 5th and 6th decades exhibit peak incidence(54.5%). Pain was the most common symptom(66.7%) and history of recurrent cholangitis was confirmed in 38 patients(57.6%). Stone location was mainly in left lobe(51.5%), and bilobar distribution occupied 27.3%(18 cases). Elevation of liver enzyme levels was observed in significant proportion of the patients; ALT in 39(59.1%), AST in 42(63.6%), alkaline phosphatase in 38(57.6%). Elevation of plasma γ-GT was the most evident laboratory finding(78.8%) while elevation of bilirubin level(46.9%) was not remarkable. Partial liver resection was done in 42 cases(63.6%); left lateral segmentectomy in 30(71.4%), subsegmentectomy of right lobe in 8(19.1%), left lobectomy in 3(7.1%), right lobectomy in 1(2.4%). Hepaticojejunostomy with subcutaneous jejunostomy was carried out on 11cases(16.7%) which had severe ductal stricture and dilated common bile duct(CBD). Intraoperative cholangioscopic examination with electrohydraulic lithotripsy(EHL) was carried out on 44 cases(66.7%). Mean operation time was longer in the case with EHL(199.3 min) than other group(156.2 min). However, the incidence of postoperative residual stone was decreased with intraoperative cholangioscopic EHL unless increase of complications. Recurrent cholangitis was absent in the patients who received partial hepatectomy, and adequate biliary drainage procedure. In conclusion, resection of diseased part of liver and adequate biliary drainage are the treatment of choice for IHD stone disease. Intraoperative cholangioscopic examination with EHL could reduce the incidence of residual stone and provide the precise information about biliary trees such as combined malignancy or ductal stricture.

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HISTOLOGIC FACTORS OF PROGNOSTIC VALUE IN GALLBLADDER CARCINOMA

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Gallbladder carcinoma (GC) is fifth in frequency in developed countries. Its prognosis is usually bad, mostly due to the advanced state of the disease at diagnosis.
Aims: To analyse the prognostic histologic factors according to the TNM classification and the cell differentiation degree in our series of GC.
Methods: Twenty-five GC were included in the series (4 men, 21 women, mean age 75±13 years). All patients had gallstones. Six cases were preoperatively diagnosed of GC by US scan (24 %), in 3 cases the diagnosis was made by the surgeon at operation, and the rest were unsuspected histologic diagnosis. Patients were divided into group A (complete resection, n=15) and group B (no resection or incomplete resection, n=10).
Results: Only in one patient of group A the diagnosis was made preoperatively. In this group, six tumours were T1N0, well differentiated in 5 cases. Four cases were; 3 of them N0 (well differentiated and 1 N1 (undifferentiated). There were 5 T3 tumours, one of them N0 (undifferentiated) and 4 N1 (2 well differentiated). In group B there were 10 GC, 8 of them preoperatively diagnosed by US. Seven tumours were T3 (2 well differentiated, 2 moderately differentiated, 3 undifferentiated). Three tumours were T4 (all of them undifferentiated). All patients in group A survived more than 2 years, except for one case T3N1 and one T2N1, who succumbed due to local relapse. Patients in group B did not survived more than 6 months.
Conclusions: 1) Preoperative diagnosis of GC is not frequent, especially in non locally advanced tumours (T1 - T2). 2) The level of infiltration in gallbladder wall (T) is related to node metastases. 3) Well differentiated tumours have a better prognosis.

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A CLINICAL STUDY OF FREE RADICAL IN THE PATIENTS WITH OBSTRUCTIVE JAUNDICE

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In some patients with severe obstructive jaundice (OJ) , on whom PTBD was performed, the bilirubin decreasing rate is poor. In these patients, the tissue injury of the liver has become irreversible due to OJ. Recently free-radical have attracted the attention of researchers as the cause of the tissue injury. Therefore , the generation of free radicals was studied in comparison with the bilirubin decreasing rate in patients with OJ. (MATERIALS AND METHODS) Blood samples were collected 1, 3, 7, 14, and 21 days after PTBD from 40 patients with , and from some controls. In these samples, serum total bilirubin levels, serum lipoperoxide (LPO) , serum superoxide dismutase (SOD) activity and luminol dependent chemiluminescence (LDCL) were measured. (RESULTS) LPO , LDCL and SOD activity levels of blood samples collected the first day after PTBD in patients with OJ were significantly higher than those of the controls. The patients were divided into two groups; one group (A) had a good bilirubin decreasing rate (b<-0.05) , the other group (B) had a poor bilirubin decreasing rate (b>-0.05). In group B, LDCL and LPO levels were significantly higher each day in comparison with those of group A. SOD activity of group A was consistently higher than that of group B. From results it can be concluded that ; 1) Free-radical are also generated in the patients with OJ, 2) In patients with poor bilirubin decreasing rate , the generation of free-radical is higher , but scavenger levels are lower, therefore tissue injury ensues more seriously.

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FUNCTION CHANGES OF LIVER CELL MEMBRANE FOR BILIBUBIN EXCRETION IN OBSTRUCTION JAUNDICE

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The aim of this animal study was to investigate dynamically the relationship between excretory function of bilirubin and ultramicrostructure of the liver. The obstructive jaundice (OJ) model was made in 322 Wistar rats with ligation of common bile duct and the snam for control. The samples of bile juice, peripheral blood and liver tissue were collected on the 1, 3, 5, 7,14,28 days postoperatively and the 1,7, days after relief of obstruction. The results showed that Na+K+ATPase existed on the sinusoid, intercellular and bile canacular membrane facies had irregular distribution. The Na+K+ATPase activity was increased in the early stage of OJ and decreased some extent later. The changes became evident with OJ prolonged, expecially on the facies of bile canalicular membrane. The activity of sucinate dehydrogenase(SDH) within liver cell decrease gradually with duration of OJ prolonged. The activities of Na+K+ATPase and SDH could recover followed the duration prolonged after relief of OJ. It also showed that serum δ-bilirubin maintained higher level after relif of OJ. It might explain that clinical jaundice often disappeared slowly because of delayed excretion of δ-bilirubin through the kidney, despite the better recovery of liver function. Clinical observation revealed that the course of disappearence of OJ was not regular after relif of obstruction and amelioration of liver function was not compatible with extent of improvement of OJ.

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THE PATHOLOGICAL INVESTIGATION OF GALLBLADDER MUCOSA BY STEREOSCOPE

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Materials and Method;We evaluated 34 cases of gallbladder which were resected from February 1995 to April 1995. we observed the structure of mucosa and blood vessel which could be seen through by stereoscope(10-60X). Then the specimens were fixed for 24 hours by 10% buffer hormalin , they were stained by Hematoxylin-Eosin and observed pathological findings in order to be distinguished with the findings by stereoscope.**Results;**(1)The normal mucosa of gallbladder showed regular and latticed pattern of mucous membrane .(2)In the inflammatory mucosa the irregularity of latticed pattern and the product of small blood vessel could be seen .Their blood vessel ran along the peak of lattice.(3)In the hyperplastic mucosa tall papillary mucous pattern could be observed and the product of blood vessel was quite little.(4)The mucosa with cholesterosis showed the irregularity of latticed pattern and the settlement of cholesterol in the peak of lattice.(5) In the cancer of gallbladder the latticed pattern disappeared and large blood vessels with encasement which ran disorderly could be observed.**Discussion;**The purpose of this study is the trial of the intraoperative observation by stereoscope in order to improve the diagnosis of minute abnormality such as surperficial type of early gallbladder cancer because in our past experience 32.9% (25/76) of resected gallbladder cancer were pathologically diagnosed as gallbladder cancer initially after surgery. As there were differences of the mucous pattern between normal, inflammatory mucosa and malignant lesions in our series, it is suggested that the observation by stereoscope is useful for the differential diagnosis.

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TREATMENT OF PATIENTS WITH ADVANCED TUMORS OF THE BILE DUCTS WITH CONTINUOUS INFUSION 5-FLUOROURACIL IN CONJUNCTION WITH CALCIUM LEUCOVORIN, MITOMYCIN-C AND DIPYRIDAMOLE: A PHASE II TRIAL

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From February 1988 until January 1995, we treated 31 patients with advanced tumors of the extrahepatic bile ducts with continuous infusion 5-Fluorouracil (5FU) (200 mg/m2/day), Calcium Leucovorin (LV) (30 mg/m2/IV) q week, Mitomycin-C (Mito C) (10 mg/m2) IV (not to exceed 15 mg total per dose) q six weeks and Dipyridamole (D) (75 mg) orally q.i.d. There were 11 women and 20 men whose median age was 66 years (range 39 to 80 years). Median Karnofsky performance was 80% (range 60% to 100%). There were 20 patients with Stage II or III disease and 11 patients with Stage IV. Thirty patients were evaluable for response with 31 patients evaluable for toxicity and survival. There were 3 complete responses (10%) and 10 partial responses (33%), for an overall response rate of 43%. The median survival for patients with locally advanced disease (Stages II and III) was 11 months (range 4 to 29 months) and 12 months (range 6 to 89+ months) for patients with metastatic disease (Stage IV). The dose limiting toxicity was stomatitis observed in 17 patients (55%) requiring a reduction in the 5FU dose. No treatment related fatalities resulted from therapy.

CONCLUSION: This regimen is safe and well tolerated. It is active therapy for patients with advanced bile duct cancer. The survival benefit observed from this four drug program in patients with both locally advanced and metastatic disease is superior to that which is seen with standard 5FU based therapy or radiation therapy.

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INTERNAL VS EXTERNAL BILIARY DRAINAGE FOR LONG-TERM OBSTRUCTIVE JAUNDICE: IN REFERENCE TO THE HEPATIC TISSUE BLOOD FLOW AND THE HEPATIC ENERGY METABOLISM IN OBSTRUCTIVE JAUNDICED RATS.

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【Object】 When biliary decompression was applied in early stages of obstructive jaundice, hepatic energy metabolism shortly improved. However, in long-term obstructive jaundice, hepatic energy metabolism was very late to improved after biliary drainage. We evaluated the effects of biliary drainage on hepatic energy metabolism between internal and external drainage for long-term obstructive jaundiced rats. 【Method】 Long-term (4 weeks) obstructive jaundiced rats, Male Specific pathogen-free Sprague-Dawley rats, received either one of these two kinds of biliary decompression method; Group 1: internal drainage by choledochoduodenal fistula, Group 2: external drainage by Choledochobladderal fistula. Arterial ketone body ratio (AKBR) was measured as an index of hepatic energy metabolism. Hepatic tissue blood flow was determined by laser Dopper velocimetry. 【Result】 Total bilirubin levels increased after obstructive jaundice but promptly decreased after both biliary drainage groups. In the course of producing obstructive jaundice, AKBR become lower by the fourth week of jaundice and hepatic tissue blood flow decreased early after obstructive jaundice. After internal drainage, decreased AKBR recovered to normal after 6 weeks and decreased hepatic tissue blood flow improved to normal after 10 weeks. On the other hand, after external drainage decreased AKBR recovered to normal after 10 weeks and no recovery of hepatic tissue blood flow was observed after external drainage until 10 weeks. 【Conclusion】 Internal biliary drainage was superior significantly ($P<0.01$) to external biliary drainage in recovering decreased hepatic energy metabolism and hepatic tissue blood flow.

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PROLIFERATING CELL NUCLEAR ANTIGEN (PCNA) EXPRESSION IN THE GALLBLADDER WITH PANCREATICOBILIARY MALJUNCTION

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Patients with pancreaticobiliary maljunction develops more frequently cancer of the biliary tract. In the present study, we examined PCNA expression in the gallbladder with pancreatobiliary maljunction comparing to that without maljunction.

(PATIENTS AND METHODS)

A total of 22 patients with pancreaticobiliary maljunction [8 patients accompanied with cancer of the gallbladder (MCA group) and 14 patients without cancer (M group)] were studied. In addition, 23 gallbladder cancer patients without pancreaticobiliary maljunction (CA group) and normal gallbladders of the gastric cancer patients (N group) were also examined as controls. The PCNA expression of the cancer and mucosa of the gallbladder were examined by immunohistochemical staining method using anti-PCNA monoclonal antibody (PC 10). The number of positive cells in every 500 cell were calculated and expressed as the PCNA-positive rate (%).

(RESULTS)

1) The PCNA positive rate in cancer lesions of MCA group (33.0%) did not differ from that of CA group (31.6%). 2) The PCNA-positive rates of non cancerous mucosa of the gallbladder in patients with pancreaticobiliary maljunction (14.2% in MCA group and 11.6% in M group) were significantly higher than those without maljunction (3.9% in CA group and 1.5% in N group).

(CONCLUSIONS) The proliferating cell activity of mucosa of the gallbladder was higher in patients with pancreaticobiliary maljunction than in patients without maljunction. This may be one of the explanation of high incidence of gallbladder cancer in patients with pancreaticobiliary maljunction.

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AGENESIS OF THE GALLBLADDER WITHOUT BILIARY ATRESIA: REPORT OF 2 CASES

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Agenesis of the gallbladder without biliary atresia is very rare: the reported incidence rate is 0,01-0,04%, only 181 findings in a series of 1.352.000 autopsies. In about 50% of the cases it is associated with cardio-vascular, scheletrical, genito-urinary or gastrointestinal malformations. the Authors report two cases of atresia of the gallbladder in which US examination showed lithiasis of the gallbladder. One case presented dilatation of the biliary tract and underwent CT-scan examination that showed agenesis of the gallbladder; diagnostic laparoscopy was performed. The other case was an intraoperative surprise. None of them presented lithiasis of the biliary tract.

It is interesting to notice that US examination, that usually has a specificity of 95-98% in the diagnosis of lithiasis of the gallbladder, showes a low sensibility in case of atresia of the gallbladder. Colangiography can only show exclusion of the gallbladder. In most of the case only the presence of other anomalies or the familiarity for this malformation can elicit the suspect of atresia of the gallbladder and justify a deeper diagnosic study.

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COMMON BILE DUCT (CBD) LESIONS FOLLOWING LAPAROSCOPIC SURGERY. PERSONAL EXPERIENCE

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The Authors report their experience of three lesions (0,46%) of the CBD occurred in a series of 650 laparoscopic cholecystecomies performed from October 1991 to November 1995 in their department. One was due to an incorrect dissection of the Calot Trinagle, the other two occurred because of an anomal insertion of the cystic duct. According to 1995 Strasberg's classification one lesion was type E2 and two were type D (one of the common hepatic duct and one of the left hepatic duct). All three lesions were recognized intraoperatively.

Two have been repaired by laparotomy: one (type E2) by Roux-en-Y hepaticjejunostomy, the other (type D) by suture of the lesion on a T tube stent. The second case deserves a particular mention because it was due to a very rare instance of insertion of the cystic duct in the left hepatic duct, as no isolated lesions of the left hepatic duct has been reported in the literature due to this exceptional anatomical malformation.

The third lesion (type D on the common bile duct) could be repaired laparoscopically by direct suture and intracorporeal ligation.

We had no mortality. The follow-up is 48 months for the type E2 lesion, 26 months for the type D and 12 months fot the type D of the common bile duct. No clinical sign of secondary stenosis of the CBD is evident.

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OPEN CHOLECYSTECTOMY - ARE EFFICIENCY AND COST-BENEFIT IMPROVEMENTS POSSIBLE - FIVE YEARS' COMPARATIVE STUDY

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INTRODUCTION The aim of the study was to analyze efficiency and cost-benefit of open surgery in the management of cholelythiasis and to point out possible improvements and prospectives.

MATERIAL AND METHODS Two groups of patients were compared. Both groups consisted of 200 consecutively operated patients, from an institution where over 1000 open cholecystectomies are performed annually. Patients from both groups were admitted and operated in a three month period, from October to December, group A in 1989. and group B in 1994. There were 60-78 (30-39%) men and 122-140 (61-70%) women Mean age was 55,5-A and 48,4-B, age ranging from 23 to 78 . Mean hospital stay was 14,2 days -A and 10,6 days -B, ranging from 7 to 26 days. Average preoperative stay in group A was 4,8 days, while in group B it was 3,2 days. More than one third of the patients (35 %), from group A had preoperative stay longer than 3 days, while in group B that occurred in only 8 %. Average postoperative stay exceed 9,4 days in group A, and 7,4 days in group B A repeated US was performed in 82 pts. (41%) from group A, and in 58 pts. (29%) from group B. Average use of infusion therapy was: for group A -saline solutions 3,5 l and glucose solutions 3,2 l and for group B 2,3 l and 2,0 l, respectively. Thromboembolic prophylaxis was needed for an average 2,1 days in group A, and 1,1 days in group B. Most common complication was wound infection in A - 16 (8%) and B - 11 (5,5%) patients. No early postoperative deaths were observed.

DISCUSSION Considerable improvement in all analyzed parameters could be observed. Preoperative stay is still too long due to insufficient diagnostics, great number of repeated US, over 30%, and lack of organized admission policy. Standardized and reduced medical therapy should also be performed. Antibiotics, when used indiscriminately boost hospital costs. Improvements in the efficiency and cost benefit effects in group B resulted from better scheduling and controlled use of hospital resources.

CONCLUSION Standardized and accurate preoperative diagnostics, efficient admission policy, clear concepts in prophylactic and therapeutic approach and rational adjuvant therapy should be observed to ensure improvement in treatment efficiency and positive cost/benefit effects.

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SURGICAL TREATMENT OF BILIO-THORACIC COMMUNICATION: OUR EXPERIENCE

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Between 1964 and 1980, we operated upon 7 cases of biliothoracic fistulas. Out of these, 6 cases were due to hydatid disease and 1 was caused by a common hepatic abcess. Five of the seven cases were acute, while the other two progressed chronically. One was a bilio-pleural fistula, whereas the remaining six were bilio-bronchial fistulas. One of the ruptures occured in the left lung. Finally, one case was a reccurence of a bilio-bronchial fistula, following a pulmonary lobectomy. Our technique consists of two stages. During the first we perform a decompression of the billiary tree, by draining the bile duct. After 9-12 days we perform the second stage. This consists of a small thoracotomy, which allows trans-diaphragmatic drainage of the sub-diaphragmatic space of the hepatic abcess. In our material we had one postoperative death due to a pre-existing cardiac failure. In the remaining 6 cases a cure was achieved. The hospital stay ranged from 55 to 155 days. Eventhough, this is a rare condition, the decline in hydatid disease makes it all the less frequent, the problem still exists. The major problem is that the more radical approaches , such as concurrent hepatectomy and pulmonary resection, have a high mortality rate and do not eradicate the possibility of complications, such as permanent fistulae. We believe that decompression and drainage of the biliary tree is necessary because the basic pretense for formation of bilio-thoracic communication is an elevated intrabiliary pressure and the presence of inflammation. We believe that today, both stages can be prformed in the same setting. The second stage can be subtituted by closed drainage, with the help of thoracoscopy or CT assisted scanning.

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HEPATIC RESECTION FOR BILIARY CARCINOMA IN THE ELDERLY

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To determine the significance of extensive surgery for the elderly, we retrospectively evaluated the surgical results of hepatic resection for 41 patients (age ≥70 years; the elderly group) with biliary carcinoma and compared their outcomes with those for 158 younger patients (age <70 year; the younger group).

Since 1979, hepatic resection has been performed in 199 patients with advanced carcinoma of the gallbladder (93 cases) or the bile duct (106 cases). Of 69 elderly patients with biliary carcinoma, surgical resection was possible in 46 (67%) and 41 (59%) of them underwent hepatic resection. These rates were similar to those for the younger group (73%, 63%).

Major hepatic resection was done in 22 elderly patients (right trisegmentectomy 4, extended right lobectomy 13, right lobectomy 4, left trisegmentectomy 1). The remaining 19 patients underwent smaller hepatectomy than right lobectomy (extended left lobectomy 5, left lobectomy 3, central bisegmentectomy 1, right anterior segmentectomy 1, right posterior segmentectomy 1, sub segmentectomy 6, independent caudate lobectomy 2). Caudate lobectomy, pancreatoduodenectomy and/or portal vein resection were concomitantly carried out in 34, 10 and 5 patients, respectively.

Hyperbilirubinemia above 10 mg/dl and pulmonary complications occurred in 55% and 41% of elderly patients undergoing major hepatic resection, respectively. These rates were significantly higher than those for younger patients ($p<0.05$). Hospital mortality rate after hepatectomy was higher in the elderly group (27% vs. 11%; $p<0.05$). In the elderly group, the hospital mortality rate after smaller hepatectomy than right lobectomy was significantly lower than that after major hepatectomy (5% vs. 46%). The 1-year, 3-year, and 5-year survival rates after hepatectomy for 30 elderly patients excluding the hospital mortality were similar to those for the younger group (72%, 36%, 16% vs. 69%, 33%, 23%).

Morbidity and hospital mortality rates for elderly patients after hepatectomy were significantly higher than those for younger patients. Mortality after smaller hepatectomy than right lobectomy was acceptable even in elderly patients. Long term survival after hepatectomy for biliary carcinoma in the elderly group was satisfactory when compared with that in the younger group.

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CONGENITAL MALFORMATIONS OF THE GALLBLADDER, THE CYSTIC DUCT AND THE CYSTIC ARTERY

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Congenital malformations of the gallbladder, the cystic duct and the cystic artery are relatively common and related to position, form or number of these structures. A retrospective study was carried out on 57 cases during the last 25 years in our Department, in order to delineate the several types of these anomalies, the diagnostic evaluation and their surgical management. Our material is consisted mainly of 4 cases of bilobar gallbladder, one case of double gallbladder, 9 cases of intrahepatic gallbladder, 3 cases of gallbladder aplasia, 3 cases of double cystic duct, 2 cases of long cystic duct, 2 cases of short cystic duct, 2 cases with anomalous cystic artery and 26 other cases with various anomalies. There was concomitant cholelithiasis in 34 cases and choledocholithiasis in 9 cases. Clinical symptomatology included upper abdominal discomfort, jaundice, nausea and vomiting, hepatic colic or cholangitis. Diagnosis was established preoperatively with ultrasonography and intravenous cholangiography or was revealed incidentally at operation. Surgical management included simple cholecystectomy in 45 cases, T-tube insertion in 3 cases and cholecystectomy with T-tube insertion in 6 cases. No major complications occured intra- and postoperatively. Congenital malformations of the gallbladder, cystic duct and cystic artery should be carefully diagnosed and explored surgically in order to avoid serious complications during surgery of the extrahepatic biliary tree.

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DUODENOGASTRIC BILIARY REFLUX FOLLOWING CHOLECYSTECTOMY - 24-hr SPECTROPHOTOMETRY MONITORING (BILITEC 2000).

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Several clinical studies showed that Duodenogastric Biliary Reflux (DGR) increased following cholecystectomy. The role of this " alkaline reflux " has been controversial because of the problems with its measurement. Now the new 24-hr fiber-optic spectrophotometry monitoring system (BILITEC 2000) has become available to assesse bile concentration.

The aim of present study was to evaluate the incidence of gastric biliary reflux following cholecystectomy.

40 Patients with cholelithiasis were studied before and 6-8 weeks following ChC. Gastroduodenoscopy and 24-hour spectrophotometric bile monitoring using Bilitec 2000 system were performed in each patient. The results were computer analyzed using Oesophogram, Synectics Medical software.

Results: Biliary reflux was observed during gastroscopy in 50% of patients undergoing ChC. The incidence of DGR episodes increased significantly in 31 (76%) of 40 patients during 24-hour Bilitec monitoring. Total bilirubin absorbance increased from 12.1% before ChC to 34.3% following surgery.

Conclusion: The incidence of DGR and total exposure of gastric mucosa to biliary contents (bilirubin) significantly increased following cholecystectomy. The ambulatory 24-hour bilirubin absorption measurement system (BILITEC 2000) seems to be an easy and recommended method of DGR analysis.

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THE TREATMENT STRATEGY OF THE GALLBLADDER AFTER ENDOSCOPIC SPHINCTEROTOMY.

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Endoscopic sphincterotomy (ES) is increasingly used for patients with common bile duct stones (CBD) with a gallbladder in situ. There is controversy however about the different treatment strategies of the gallbladder: early elective (laparoscopic) cholecystectomy or a "wait and see" policy (gallbladder removal on indication). It has been suggested that treatment is adjusted according to patients characteristics. In young fit patients cholecystectomy is generally performed and for older frail patients the "wait and see" policy has been accepted.

The aim of this study was to analyse if therapeutic strategy of the gallbladder after ES is indeed influenced by patient characteristics as age and co-morbidity or by other factors as referral pattern (surgeon or gastroenterologist).

During Jan. - Sept. 1995, 67 patients (mostly referrals) with CBD stones and a gallbladder in situ underwent successfull ES and stone clearance in the AMC. There were 29 men and 38 women and the mean age was 57 years (range 23-79 years). Three patients developed acute cholecystitis within one week after ES and underwent cholecystectomy. From the remaining 64 patients, 37 patients (group A) were planned for elective cholecystectomy and for 27 patients (group B) a "wait and see"policy was selected by the referring physician. There was no difference in age between group A and B respectively 57 years (range 23-78 y) and 60 years (range 29-79 y). Four patients in group B had severe contra-indications for surgery. For the remaining patients in both groups co-morbidity expressed as the mean ASA-score was not different respectively 1.5 versus 1.8.

During follow up 32/37 patients from group A underwent cholecystectomy after a mean interval of 7 weeks (range 1-18 weeks). Three patients were operated acutely (cholecystitis) without complications and 29 electively with 3 complications (10%). The remaining 5 patients are waiting for surgery (mean 25 weeks, range 10-40).

From group B 5/27 underwent cholecystectomy (19%) on indication without postoperative complications. The remaining patients are without symptoms. Surgeons advised cholecystectomy in 81% and gastroenterologist in 53% ($p < 0.05$).

Conclusion: Patients characteristics as age and comorbidity did not appear to have much influence on treatment strategy of the gallbladder after ES. The choice of treatment seems to be more influenced by the referring doctor. A prospective evaluation of both treatment strategies seems to be indicated.

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A CASE OF BILIARY MUCINOUS CYSTADENOCARCINOMA

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Biliary cystadenocarcinoma and cyst adenocarcinoma are rare tumors which have a good prognosis after complete surgical removal, Correct pre-operative diagnosis depends on the imaging charicteristics of the tumors, Computed tomography, Ultrasonography, angiography and cholangiogram are useful diagnostic procedure in biliary cystic tumor but definite diagnosis cannot be made without histologic diagnosis. Cytologic examination of tissue obtained brushing the suspected tumor at the time of PTC or ERCP helps to differentiate other disease from carcinoma. The cysts are lined by a mucin-producing columnar cells with occation goblet cells, and are smooth, grayish-tan in color, with relatively few loculations. The fluid within the cysts is thick, mucoid, and viscous, often cloudy brown or hemorrhagic, and may contain necrotic material.

Before the surgery, cholangioscopy is necessary for deciding operation field. The prognosis of biliary cystic tumor seems to be much better than that of other solid gepatic tumors. If there is no evidence of metastasis, complete resection of these tumors is therefore, necessary for these possibly curable disease.

Resently, we experienced a 60-year-old woman complained of jaundice and generalized itching sensation, which was diagnosis as biliary mucinous cystadenocarcinoma. We decided operation field by cholangioscopy. and performed left hepatic lobectomy and T-tube choledochojejunostomy. So, we report this case with a review of relevant literature.

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THE ANALYSIS OF RESIDUAL STONES AFTER INTRAHEPATIC DUCT (IHD) STONES OPERATION

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This study purposes to classify the patterns of IHD stones involvements in relation with hepatic resection and to evaluate the availability of hepatic resection for the IHD stones treatment through studying the characteristics of residual stones. 116 patients of our hospital received operations for IHD stones from Jan., 1988 to Dec., 1994 and we kept the record of their residual stones. IHD stones are classified into two types: localized type and diffuse type. The former is defined by the occurrences of stones in one or two segments in one or each lobe; the latter is defined by the stones extensively scattered in one or both lobes. The localized type is again bisected into simple type and complicated type. The simple type has unimpacted stones without ductal stenosis in the 1st branch, while the complicated one has impacted stones with ductal stenosis in the 2nd or later branch. 85 (73.2%) cases had localized stones and 31 (26.8%) cases had diffuse stones (2.7:1 ratio). Among the localized stones cases, 25 (29.4%) were of simple type and 60 (70.5%) were of complicated type. The choledocholithotomy was performed on simple localized type, while the hepatic resection was performed on complicated localized and diffuse types. The hepatic resection of 31 diffuse cases was accompanied by drainage procedures. Post-operation examinations observed occurrences of residual stones in 3 (9.6%) cases of localized type (1 in simple type and 2 in complicated type) and 8 (25.8%) in diffuse type. After the hepatic resection, residual stones were mostly localized into one segment, and common sites of residual stones were as follows: 3 (27.2%) cases in B4, 2 (18.1%) in B5 and another 2 (18.1%) in B5 and B6. The causes of the residual stones were as follows: missed stones in 3 of simple localized cases and 2 (25%) complicated type and diffuse type cases, difficult approach in 4 (50%) cases and inadequete resection due to misdiagnosis in 2 (25%) cases. The conclusion is that simple localized type of IHD stones can be managed successfully by accurate resection of the hepatic segment, whereas residual stones in cases of complicated localized and diffuse IHD stones can be minimized by an adequete resection with drainage procedures under accurate preopative diagnosis.

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THE EFFECT OF PREOPERATIVE BILIARY DRAINAGE BY ENDOPROSTHESIS ON THE INFLAMMATORY CASCADE IN OBSTRUCTIVE JAUNDICE.

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Postoperative septic complications are more frequent in patients with obstructive jaundice (OJ) than in non-jaundiced patients. These complications are thought to be due to an increased susceptibility to endotoxin, leading to the induction of cytokines and the inflammatory cascade. Both the lack of bile in the gut and the obstruction are thought to play a role. Internal biliary drainage in experimental animal studies showed a clear reduction of the inflammatory response, with significant reductions in endotoxemia and, therefore, reduction of cytokine induction and restoration of cellular immunity. On the other hand, endoscopic drainage itself can result in a number of procedure related complications, such as a cholangitis. The beneficial effects on the inflammatory cascade have not been studied in the clinical setting.
The aim of this study is to determine the effect of preoperative biliary drainage by endoprosthesis on the components of the inflammatory cascade as risk factors for postoperative morbidity in OJ.
Patients (n=15) were included with obstructive jaundice due to a 'resectable' distal obstruction for which endoprosthesis placement by ERCP was possible. Parameters (mean ± SEM) were measured before stent placement (t=0), when the patients were jaundiced, and after 3 weeks biliary drainage (t=3). Drainage was adequate as measured by bilirubin levels at t=0 and t=3 weeks of respectively 244 µmol/l (34) and 50 (18) (p=0.002). Systemic endotoxin levels of 4.3 pg/ml (0.5) were not reduced after 3 weeks and were 4.8 pg/ml (0.5) (NS), nor were most cytokines, t=0 versus t=3: TNF 23.8 pg/ml (3.0) and 20.6 (4.3); TNF receptor p75 7.4 ng/ml (1.1) and 6.2 (1.4); p55 3.1 ng/ml (0.5) and 3.0 (0.6); IL-6 3.7 pg/ml (1.0) and 6.8 (3.0); IL-10 3.7 pg/ml (1.5) and 2.3 (0.9) (all NS). Only IL-8 was significantly reduced from 118 pg/ml (19.3) to 24.5 (7.2) (p=0.002) Bacterial cultures of bile became positive in all samples after 3 weeks stenting (p=0.001).
Conclusions: Preoperative biliary drainage by endoprosthesis, although adequate to reduce bilirubin levels and other routine obstruction related parameters, did not reduce endotoxin or most cytokine levels. This could be due to the fact that the infected bile (cholangitis) after endoprosthesis placement itself leads to the induction of an inflammatory reaction.

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CLINICOPATHOLOGICAL CLASSIFICATION OF PERIPHERAL CHOLANGIOCARCINOMA : COMPARISON WITH ARGYROPHILIC NUCLEOLAR ORGANIZER REGIONS

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We studied the clinicopathological features of nineteen consecutive patients with peripheral cholangiocarcinoma (CC) and classified four types according to the micro-and/or macroscopic appearance. Type 1 (n=3) indicated intraductal papillary growth with superficial spreading, and was characterized by massive mucin production and a comparatively better prognosis. Type 2 (n=4), the periductal infiltrating type, showed a limited stricture of the intrahepatic bile duct resembled extrahepatic bile duct carcinoma. Type 3 (n=10), the mass forming type with ductal infiltration, was the most common type of the peripheral CC and demonstrated the worst prognosis because of extensive tumor growth and distant metastases. Type 4 (n=2), the mass forming type without ductal infiltration, was characterized by intrahepatic metastases and abnormal serum alpha-fetoprotein level similar to that in hepatocellular carcinoma. To determine the degree of malignancy from the cellular activity of each type, we used the argyrophilic nucleolar organizer region(AgNOR) technique to examine various specimens. The mean numbers of AgNORs in CC were, type 1; 3.37 ±0.03(mean±SD), type 2; 4.00±0.67, type 3; 4.30±0.52, type 4; 3.91± 0.06, respectively, while that in normal bile duct (control) was 2.11±0.25. Although there were no significant differences among these types, the number of AgNORs correlated to the histological malignant potential and patients with specimens showing a high AgNOR count (>3.70) demonstrated a significantly worse survival rate than those with a low count (p=0.032)., Furthermore, the AgNOR count was a significant prognostic factor by Cox's multivariate regression analysis. In conclusion, the differences in these four types of peripheral CC could predict the extent of tumor invasion and curability of surgical procedures, and the number of AgNORs would be a useful prognostic predictor for peripheral CC.

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SURGICAL MANAGEMENT OF BENIGN BILIARY STRICTURES

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Over a period of 20 years, 587 patients underwent elective surgical treatment for benign biliary strictures (BBS). According to Bismuth's classification, type I–II of BBS occured in 35%, type III–V – in 65% of patients. Clinical presentations included obstructive jaundice, pain, fever. Bacterial contamination of the bile was universal. Endoscopic retrograde cholangiography and transhepatic cholangiography proved to be most effective among the diagnostic imaging techniques. (Presence of BBS and obstructive jaundice considered to be absolute indications for surgical treatment.) In patients with severe suppurative cholangitis and hepatic failure (3,2%) the treatment consisted of two stages: external biliary drainage and subsequent reconstruction. Bile ducts were repaired in 25,6% of cases, the rest of procedures were reconstructive. The insertion of transhepatic stent tubes (ITST) was used in 53% of operations. To prevent the development of stenosis and reduce the duration of ITST anastomoses were dilated through transhepatic route. Mean time of ITST with dilatation was 7 months versus 16 months in patients without dilatation. In 28 cases the reconstruction was performed using metallic net prostheses. On the whole, mortality rate was 4,.2%. During the follow–up, 6,4% of patients developed recurrence of BBS and required reoperation. Thus, satisfactory results can be achieved in more than 90% of patients with BBS.

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SURGICAL TREATMENT OF PATIENTS WITH BILE DUCTS CYSTS.

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The results of surgical treatment of 22 patients with bile duct cysts are presented. Age range was 16 to 62 yrs. According to Todani's classification 16 pts. had type I cysts, 1pt.- type IYA, and 5 pts.- type Y cysts. All but two patients had signs of the desease from childhood. Six pts. had previous nonradical operations for their cysts. Radical resection of cysts with subsequent hepaticojejunostomy was perfomed in 16 pts., hepatic resections - in 5 pts., and explorative laparotomy in 1 pt. One patient died postoperatively, and 4 had anastomotic leaks. Morphological examination showed malignant transformation of cysts in 5 pts./22,7%/. Early diagnosis and radical treatment of bile duct cysts are very important in view of the high rate of malignant transformation of biliary cysts.

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RISK FACTORS IN SURGERY FOR CALCULOUS CHOLECYSTITIS

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The abstract analyses experience of the N.N.Burdenko Elective Surg.Clin. in surgical treatment of cholelithiasis. A total of 5017 operations for planned order; 14,3% of patients who underwent operation 65 years of age and older.

Cholecystectomy was expanded to choledocholithotomy in 2.7% papillosphincterotomy in 1.7% separation of biliodigestive fistules in 0.6% of cases. Various combined operation were carried out on 558 patients. Intraoperative complications developed in 0.96% of cases; damage to the hepaticocholedochus (0.14%) and to the hepatic artery proper (0.2%) and its right branch (0.2%). Relaparotomy was performed in 0.86% of cases; for bile leakage (054%) and for bleeding (0.15%). Suppuration occurred in 3.9% of patients who were operation on. Total mortality was 0.25% (0.09% after planned and 5.7% after emergency operations). Fatal complications were encountered in 0.1% of patients under 65 years of age and in 1.18% of older patients. Fatal outcomes occured in 1.1% of 558 combined operations, one of which was cholecystectomy; in none of the cases could the fatal complication be connected with expansion of the intervention. As it can be seen from the above-discussed material, there are definite prospects for improving the results of cholecystectomy: an obligatory condition is conduction of the operation in a planned order and under 65 years of age.

Careful assessment of the operative risk factors for each patients on the basis of modern mathematical methods will help in solving the problem of the possibility of surgical treatment. Such objective assessment of the risk factors will make it possible to reduce the indices of fatal complications to minimal and to bring operative mortality to zero.

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DURATION OF THE EXTERNAL COMMON BILE DUCT DRAINAGE

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In recent decades the development of endoscopical methods of investigation and treatment of the bile ducts has decreased the role of the external common bile duct drainage(ECBDD), but in some cases it is inevitable. Mostly it is biliary obstruction and cholangitis caused by choledocholithiasis. The duration of maintenance of the ECBDD varies from 1 to 4 weeks. We analyzed two consecutive groups of patients from two departments of general surgery. In the first group there were 52 patients, in 37(71,2%) of them T tube was used for ECBDD and in 15(28,8%) cases a simple drain was inserted through choledochotomy or cystic duct. The second group consisted of 54 patients, 32(59,3%) of them with T tube and 22(40,7%) with a simple drainage tube. In all cases subhepatic drain was inserted during the operation, but in the first group it was taken out on the 2-4 th day after the operation and in the second it was extracted later than drain from the common bile duct. The ECBDD was maintained for 20,5 ± 2,1 days in the first group and 15,9 ± 2,3 in the second. Cholangiograms were performed in all cases before the removal of the ECBDD and the regression of jaundice was achieved. After the removal of the ECBDD we observed 1 complication(biliary peritonitis) in the first group (1,92%) and 10(18,52%) in the second (3 biliary peritonitis and pain, fever, leakage of bile through subhepatic drain in 7 cases). We suppose that the lower rate of complications in the first group belongs upon the maximum deposition of collagen during the process of healing in 21 day what correlates with the strength of the tissues surrounding the drainage tube. In conclusion, if cholangiography reveals no pathology, we propose 3 week period as the minimal duration for the ECBDD, after which the lowest complication rate can be expected.

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CHOLANGIO-DUODENAL INTERPOSITION OF AN ISOLATED JEJUNAL SEGMENT (CDI) AFTER CENTRAL BILE-DUCT RESECTION

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After central bile duct resection bilio-intestinal drainage is routinely performed by a Roux-en-Y-loop. Cholangio-duodenal interposition of an isolated jejunal segment offers the benefit of a potential endoscopic control and intervention of the bilio-intestinal anastomosis during the patient's follw-up.

Between 1989-95 in 33 cases (central bile duct carcinoma n=22, benign strictures or choledochal cysts n=11) the cholangio-duodenal drainage was reconstructed after central bile duct resection by interposition of a 15-25 cm jejunal segment.

In 18 cases the first endoscopic control was performed before being discharged. In 8 ot these patients the bilio-intestinal anastomosis could be investigated, in 10 cases endoscopy was incomplete because of a kinking of jejunal segments.

During the follow up 11 patients died due to the extrahepatic tumor recurrence. 3 patients with reconstruction of severe iatrogenic bile duct injury developed anastomotic strictures. 2 patients were treated by endoscopic pigtail drainage, one percutaneously.

Conclusions: Due to the publication of Shamberger et al. cholangio-duodenal reconstruction by jejunal segment interposition may be affected by a higher rate of cholangitis compared to the Roux-en-Y-technique. Only shorter segments (up to 15cm) provide the benefit of endoscopic follow-up. Subsequently we conclude that: 1. jejunal segment interposition as bilio-intestinal reconstruction should only be used in patients with high risk of anastomotic restenosis due to tumor recurrence (Klatskin-carcinoma) or risk of cicatricial stenosis; 2. only short segments should be used and 3. repeated laboratory investigations are necessary in order to detect biliary obstruction early.

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GASLESS LAPAROSCOPIC CHOLECYSTECTOMY USING A SIMPLE ABDOMINAL WALL LIFTING DEVICE

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Recent advantages of gasless laparoscopic surgery have been provided by expensive or intricate instruments. A retrospective study was carried out on our initial experience of 32 gasless laparoscopic cholecystectomies using a simple abdominal wall lifting device to ascertain the feasibility of complete surgery. The simple device is an 400-mm long and 10-mm wide flat bar acutely angled at the centre. The abdominal wall distention for laparoscopic procedures was obtained by positioning the device into the abdominal cavity through a 15-mm periumbilical incision and retracting the device to lift the right lower ribs. The operating field was easily created by lifting the abdominal wall with the bar and the ribs. In all cases from September 1994, the operating field was smaller than that under pneumoperitoneum especially in the obese body, but enough wide to perform cholecystectomy and bile duct exploration in 2 cases. Intracperative convertion to open surgery was needed in 2 cases, because of severe adhesion in one case and disorientation of biliary tract in another case. No complication related with this procedure was observed. We concluded that the simple abdominal wall lifting device would contribute to gasless laparoscopic cholecystectomy except for severeobese patients.

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EFFECT OF CHOLESTYRAMINE ON THE FORMATION OF PIGMENT GALLSTONE IN HIGH CARBOHYDRATE DIET-FED HAMSTERS

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High carbohydrate diet(high CHO diet) is known to increase the pigment gallstone formation in hamsters, but the mechanisms has not clarified yet. It is postulated that high CHO diet is poor cholecystokinin stimulator, therefore it causes relative bile stasis and increases the pigment gallstone formation. Bile salts exerts negative feedback action on cholecystokinin, and cholestyramine, bile salt sequestrant, results in enhancement of the release of cholecystokinin and pancreatic protein secretion with administration of amino acids. This study was designed to investigate the effect of cholestyramine on the formation of pigment gallstone and whether that effect occurred through cholecystokinin action. Forty seven hamsters were divided into three groups: group I(n=16) was fed on normal rodent chow(43% carbohydrate), group II(n=14) was fed on high CHO diet(65% carbohydrate), group III(n=17) was fed on high CHO diet containing 4% cholestyramine. Animals were sacrificed after 6 weeks and stones were observed grossly. Gallstones developed in 0% of group I, 42.9% of group II and 5.9% of group III($P<0.05$, group II vs III). To evaluate the chronic status of cholecystokinin level, the wet weight of pancreas and the average area of pancreatic acinar in microscopic high power field were measured, but there was no significant difference between group II and group III in pancreatic weight and average area of pancreatic acinar($P>0.05$). In gallbladder bile analysis, there was also no significant difference between group II and group III in cholesterol, phospholipid, total calcium, total bilirubin and bile acid level. In conclusion cholestyramine decreases the frequency of pigment gallstone formation in high CHO diet-fed hamsters, but it is not clear whether the mechanism of cholestyramine decreasing the gallstone formation is through the action of cholecystokinin.

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EVALUATION OF THE SO-CALLED "MINI-LAP" CHOLECYSTECTOMY IN THE TREATMENT OF GALLSTONE DISEASE

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The introduction of laparoscopic cholecystectomy with minimal access surgery had a tremendous impact on surgeons' way of thinking. "Mini-lap" cholecystectomy has been promoted as an exellent alternative procedure to conventional, and mainly laparoscopic cholecystectomy, because it offers minimal invasion without the disadvantage of very expensive equipment and the need of a special training.

Since 1985 we have performed 1061 cholecystectomies for gallstone disease. Until September 1992 the gallbladder had been removed using conventional technique. Then, the "mini-lap" method was introduced as an alternative to laparoscopic surgery for elective, uncomplicated cholelithiasis. The group of 41 patients undergoing this procedure, included 32 women and 9 men, whose age ranged from 19 to 73. Patients with symptomatic cholelithiasis were operated on through this access after the diagnosis had been confirmed by ultrasound imaging. "Mini-lap" was not performed in the cases hydrops, empyema or cholecystitis were suspected. Five centimetres long skin incision was performed along right upper transrectal line.

Cystic duct and cystic artery was ligated with surgical hemostatic clips (Surgiclip), and the gallbladder was removed retrograde with the exact hemostasis of the gallbladder bed by means of argon-beam coagulator.

Extrahepatic biliary ducts were manually controlled, the tube was placed into the foramen Winslowi for adequate drainage, and then abdominal wound was closed using automatic stapler device (Signet-12 or PPW55). The average length of hospitalization was 2,5 days. In the laboratory investigations we confirmed no deviations, and we noticed no early and late complications.

1. Small skin incision greatly improves the final cosmetic effect, comparable to laparoscopic cholecystectomy, and allows manual control of extrahepatic biliary tract.
2. Use of surgical hemostatic clips, argon-beam coagulator, and automatic skin stapler, significantly facilitates and shortens removal of the gallbladder.

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PRIMARY SCLEROSING CHOLANGITIS, ENDOSCOPIC DIAGNOSIS AND TREATMENT

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Primary sclerosing cholangitis (PSC) is characterized by multifocal strictures creating a "beaded" appearance of the biliary tree. The disease is located intrahepatically but the extrahepatic biliary tract is often affected. Diagnosis may be settled by endoscopic retrograde cholangiography (ERC). In PSC the incidence of cholangiocarcinoma is increased and the differential diagnosis may be difficult. ERC also offers therapeutic possibilities.

Methods. Seventeen patients, 13 men and 4 women underwent diagnostic and/or therapeutic ERC. Endoscopic treatment was attempted when dominant strictures in the hilum of the liver and/or the common bile duct were encountered. Co-axial dilatators, balloons and endoprosthesis were used.

Results. Twelve patients had ulcerative colitis. PSC was already diagnosed in 8. All patients had abnormal liver function tests and 9 had clinical symptoms. Endoscopic therapy was considered possible in 11. Co-axial dilatators were always used, in 7 also ballons. Endoprosthesis were inserted in 6. Bile duct width improved in 8, liver values in 3 and clinical improvment was noted in 4 patients. Cholangitis occurred in 4 patients and 2 had progressive jaundice. Cholangiocarcinoma was diagnosed in 6 (1 cancer in situ) and colon cancer in 2.

Conclusions. ERC is the diagnostic method of choice in PSC. Endoscopic therapy may be used in selected cases. Some immediate beneficial effects may be achieved but the results in the long run are uncertain. With a high incidence of cancer in PSC efforts must be focused on diagnosing these patients and to identify patients "at risk".

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STAGING OF KLATSKIN TUMOR BY US, DOPPLER-US AND CT: COMPARISON WITH OPERATIVE FINDINGS.

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The aim of radiological investigations is the preoperative assessment of the resecability of the tumor.
35 patients with pathologically proved Klatskin tumor underwent US, Doppler-US and CT. PTC and/or ERCP were performed in all patients, celiac and mesenteric angiography in 10/35. Imaging findings were compared with operative findings.
The level of intrahepatic biliary obstruction was correctly determined in 100% of patients with US and CT. Portal occlusion and wall infiltration were correctly diagnosed by US and Doppler-US in 4/4 (100%) and 15/18 patients (83%) respctively, by CT in 4/4 (100%) and 13/18 (72%) patients respectively. Hepatic artery involvement was detected by US and Doppler-US in 3/7 cases (43%), by CT in 4/7 cases (57%). Nodal, hepatic and peritoneal metastases were revealed by US and CT in 3/8, 2/3 and 1/3 patients, respectively.
US and CT compared with operative findings and PTC, demonstrated a sensitiviy of 100% of biliary involvement. Portal occlusion and wall infiltration were diagnosed by US and Doppler-US in 100% and 83% of patients, by CT in 100% and 72% of patients. Resecability was correctly diagnosed in 28/28 cases. US and CT may be valuable in the preoperative staging of Klatsikin tumor, specially in predicting ductal and portal involvement and contribute to avoid laparatomies in patients who can benefite from biliary drainage.

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PERIOPERATIVE SURGICAL COMPLICATIONS IN 150 VIDEOLAPAROSCOPIC CHOLECYSTECTOMIES

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Videolaparoscopic (VLS) cholecystectomy is fast becoming the procedure of choice for the treatment of symptomatic gallstones and gallbladder benign neoplasm.
We report our experience during the last three years about 150 VLS cholecystectomies performed in 100 women and 50 men aged from 18 to 78 years (mean 46.8), affected by cholelithyasis (146 cases), gallbladder polyposes (3) and adenomioma (1). 28 of the 146 cholelithyasis were cholecystitis; 7 patients were submitted to Endoscopic Sphincterectomy (ERCP-S) to remove choledochal calcolouses before surgery. Pathologic analysis revealed in a cholecystitis the presence of a little carcinoid tumor. We analysed the perioperative complications and their treatment. We observed 7 cases of bleeding, 4 discovered intraoperatively and 3 immediately after surgery. 6 of them were undergone to immediate laparotomy and a gallbladder fossa hematoma was treated conservatively. One patient had jaundice due to Odditis and was treated with ERCP-S. Two cases had ombelical wound infection. Conversion to open cholecystectomy was required totally in 14 cases. Results are similar to those reported in litterature. Adeguate surgical training, expertise and respect to the safety of the patient are mandatory. In our opinion, hemorragic complications are to be treated with laparotomy.

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ACUTE CHOLECYSTITIS: IMPORTANCE OF OPEN SURGERY IN THE LAPAROSCOPIC ERA

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Years ago, the urgent surgical indication of Acute Cholecystitis (AC) was in deep controversy with the defered indication. Today, we observe the same dilemma between the advantages of using the laparoscopic via opposite to open surgery.
We introduce the results obtained from an urgent surgical attitude in AC using the laparotomic via; this based on a prospective analysis obtained from patient fine records. From a total of 154 diagnosed patients in a chronological period of 4 years, 136 had a surgical treatment and 18 a medical one. The surgical exclusion criteria was anesthesic. The average age for both sex was 70,8 years old. Average post-operative stay was 7,72 days. No kind of major post-operational complications were observed. Average age of not operated was 76,55. Total average stay was 10,3 days. 2 cases of death between not operated. The results show that in spite of being AC a pathology of elderly patients and with a serious and important diseases, an urgent surgical attitude and the use of open surgery do not increase the morbi-mortality. Further comparative studies regarding age of patient and degree of evolution of operated AC, will prove the advantages, if any, of one via over the other.

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LAPAROSCOPIC CHOLECYSTECTOMY.
DOES IT EFFECT BILE REFLUX?

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This study evaluated the effect of laparoscopic cholecystectomy for cholelithiasis on bile reflux. Sixty six patients (43 females) fasted for 6 hours prior to intravenous injection of 80 - 100 MBq of the radio pharmaceutical agent 99Tcm-DIDA. After 30 minutes, scans were carried out using a mobile 300 mm diameter digital gamma camera with an on board computer. Patients were seated upright and a 1 minute control view of the abdominal field was obtained. After 300 mls of full cream milk, 1 minute serial abdominal views were taken over the next hour. Areas of bile reflux were seen as a dense focus of accumulation of activity in the left upper quadrant, distinct from liver and bowel and were mapped at the time of maximal definition and expressed as a percentage of the total abdominal activity recorded by the control scan.

Patients underwent cholecystectomy after a median of 28.5 days (range 8-588 days) following the study and those who had an uncomplicated post-operative course were re-investigated with a milk-DIDA scan at a median time of 50 days (range 18-370 days) post-operatively. Fifty seven patients underwent laparoscopic cholecystectomy and 9 open cholecystectomies were performed.

Sixteen patients had bile reflux before cholecystectomy and 25 after. Thirty five patients had no bile reflux both pre and post cholecystectomy and of those who had no reflux before cholecystectomy 13 had positive reflux after cholecystectomy with a 4.3% median increase of reflux (range 1.2%-10.6%). Twelve patients recorded reflux on both occasions with 7 increasing post cholecystectomy (median 1.4%, range 0.4-8.7%) and 5 decreasing (median 1%, range 0.2-4.2%). Laparoscopic cholecystectomy did not have any significant effect on the amount of bile refluxed post operatively nor was there any significant difference with patients who had open cholecystectomy.

We conclude that cholecystectomy has no effect on bile reflux.

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GALLSTONE ILEUS: ANALYSIS OF 11 PATIENTS AND LITERATURE REVIEW.

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Gallstone ileus is rare but serious complication of Cholelithiasis.Out of a total 2643 biliary operations we had performed 11 operations for gallstone obstruction of the intestine - (0,42%).It is most common a geriatric surgical emergency - 8 of all the 11 patients were over 65 years of age.
Preoperative diagnosis was exact only in four patients. All the patients had clinical, laboratory and radiologic findings for acute intestinal obstruction and required emergency surgery.Cholecystoduodenal fistula was the most frequent type (found in 7 pts). Obstructing stones were located most common in the terminal ileum. In 8 patients enterotomy,stone removal and relieve of intestinal obstruction was performed. In 3 patients one stage operation was performed - cholecystectomy, removal of the impacted stone and fistula repair.
Enterolithotomy alone remains the mainstay of urgent operative treatment for gallstone ileus, but the additional performance of one stage cholecystectomy and reapir of internal biliary fistula is desirable if local and surgical conditions allow it.
Gallstone ileus, like the other complications of Cholelithiasis, remains a strong argument for early cholecystectomy in patients with symptomatic gallstones.

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Immunomorphological studies in gallbladder carcinomas

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We investigated 55 specimens of gallbladder carcinomas, 46 female and 7 male cases, and performed routine histopathological and immunomorhological examinations localizing CEA,p53, PCNA, Ki-67 and lectins PNA, UEA I in tumor specimens.Age of the patients ranged between 47 and 86 years old. We stated adenocarcinoma in 46 cases, mucus producing adenocarcinoma in 6 cases, carcinoma mucocellulare in 1 case and 2 cases of planoepithelial carcinoma. We also evaluated tumor cell grading for adenocarcinoma and stated 18 cases of G-1, 25 cases of G-2 and 9 cases of G-3. CEA, PNA, UEA I expression on cell membranes was characteristic for mature G-1 cancers, and their cytoplasmatic localization was characteristic for immature G-3 neoplasms ($p<0,05$). P-53 oncoprotein cytoplasmatic expression found in 12 cases was characteristic for immature G-3 adenocarcinomas($p<0,05$).We did not found correlation between nuclear expression of p-53 oncoprotein and type of tissue localization of PCNA and Ki-67 proliferation markers in relation to tissue maturity of gallbladder cancer. Conclusion: CEA,p53 and lectins PNA, UEA I could be immunomorphological maturity markers in gallbladder carcinoma.

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RESULTS AFTER OPEN COMMON BILE DUCT EXPLORATION FOR CHOLEDOCHOLITHIASIS

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A retrospective analysis of 96 patients for whom open common file duct (CBD) exploration was performed during the period 1991 - 1994, in the Urgent Abdominal Surgery department of the 1 st. Surgical Clinic of Kaunas Medical Academy. There were 28 male and 68 female. The age ranged between 23 and 90 years, mean age 63.8 years. The indications for the exploration of CBD were jaundice, cholangitis, acute pancreatitis, diagnosed stones that were not eliminated during endoscopic sphincterotomy (ES) and dilated CBD found during the operation. In 79 cases the stones in CBD were found and eliminated, and in 17 cases there were no stones. After the exploration of CBD operations were terminated performing in 2 cases (2%) primary CBD suture, in 13 cases (13.5%) primary CBD suture with drainage through cystic duct, in 46 cases (48%) CBD drainage through choledochotomy, in 19 cases (20%) CBD drainage through cystic duct, in 15 cases (15.5%) choledochoduodenostomy, in 1 case (1%) choledochojejunostomy . Postoperative mortality rate - 10.4%. Postoperative complications rate 25%. In 8 cases (8.3%) of all performed operations were found retained CBD stones, in 8 cases (8.3%) - wound complications, in 3 cases (3.5%) septic intraabdominal complications and in 5 cases (5.5%) - pulmonary complications.
Conclusions: There was rather high postoperative mortality rate 10.4%. Most of the patients were elderly ones and the CBD was not cleared during ES. In these cases more conservative approach must be applied trying to insert endoscopically CBD stents and this can help to reduce the mortality rate.

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CHOLELITHIASIS AFTER TOTAL GASTRECTOMY

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The purpose of this study was to evaluate whether total gastrectomy (performed for gastric cancer) leads to an increased risk of cholelithiasis. Also, should be consider a prophylactic cholecystectomy, after total gastrectomy with Roux-Y reconstruction. The exact mechanism by which gastric resection can cause cholelithiasis is not yet clear, although various pathogenetic hypotheses have been suggested. The most emphasized is gallbladder stasis and an alteration in the enterohormonal mechanisms, resulting from vagal denervation and the exclusion of the duodenum from the alimentary transit.
A total of 14 patients who had undergone total gastrectomy with Roux-Y reconstrucion (for gastric cancer), between 1989 and 1994 were studied. One (7,1%) of 14 patients had gallstones before surgery. To evaluate the prevalence of cholelithiasis, among other examinations, we did an abdominal ultrasound every 4 months. Cholelithiasis have developed in 6 (42,8%) patients followed after total gastrectomy. Four patients had expressive clinical simptoms, one patient had obstructive icterus and urgent operative treatment. The median time to the devolopment of gallstones was 11 months (range: 4 to 54).
In conclusion, after total gastrectomy, there is an increased risk of gallstones. That risk could be a reason for preserving (when possible), the duodenal passage, with jejunal interposition, after total gastrectomy. However, when a Roux-Y reconstruction is performed, a prophylactic cholecystectomy should be considered.

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COMBINED APPROACH TO BILE DUCT STONES. RESULTS AFTER ERCP FOLLOWED BY LAPAROSCOPIC CHOLECYSTECTOMY.

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AIM: To assess the efficiency, morbidity, and mortality of a combined approach, endoscopic and laparoscopic, to treat suspected common bile duct stones.
MATERIAL AND METHODS: Between April 91 and November 95, 1050 laparoscopic cholecystectomies were performed at our institution. Of these, 133 patients presented clinical, ultrasonic or biochemical anomalies suggesting choledocholithiasis and therefore ERCP was performed preoperatively.
RESULTS: Common bile duct (CBD) was considered normal in 59 patients. Stones were found in 64 cases, CBD was dilated but without calculi in 10 patients and in 2 patients cannulation of ampulla was not possible. Of 62 patient with confirmed CBD stones complete extraction was possible in 58. In 4 patients clearance was not possilble and were operated via laparotomy. Endoscopists performed papilotomy in 23 patients without calculi due to personnal criteria (dilatation of the CBD, inflammatory ampulla). Morbidity included mild pancreatitis (7), cholangitis (1), choleperitoneum (1) and CBD perforation (1). There was no mortality. In 121 patients ulterior laparoscopic cholecystectomy was performed.
CONCLUSIONS: 1. Using classical criteria (clinical, biochemical, ultrasonographic) accurate diagnosis of CBD stones was only possible in 47% of patients.
2. ERCP, in our experience cleared effectively CBD stones in 93.5% of patients with low morbidity and without mortality.

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PERCUTANEOUS CHOLECYSTOSTOMY FOR TREATMENT OF ACUTE DISEASES OF THE BILIARY TRACT.

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Between june 1989 and december 1995 were performed 61 percutaneous cholecystostomy (PC), 55 of them for treatment of acute diseases of the biliary tract (ADBT) in elderly or critically ill patients as an alternative to operative therapy. Twenty seven were men and twenty eight women. The average age was 64 years old (r 19-93 years). Indications were 46 acute cholecystitis (24 calculous (ACC) and 22 acalculous (AAC)) and 9 cholangitis. The PC was performed with transhepatic access guided in 53 cases by US and by CT in 2, Seldinger's technique was used in 47 patients and trocar technique in 8. In 7 cases the clinical course didn't improve after PC (2 gallbladder gangrene, 4 MOFS and 1 cholangitis). The morbidity was 11% including 3 bacteremias (one of them with hemodinamic and respiratory compromise), 1 hemobilia, 1 vagal reaction and 1 catheter dislodgment without bile leaks requiring cholecystectomy 48 hours after PC. The global mortality was 18% (10 patients) meaning 27% for AAC (6 patients), 12,5% for ACC (3 patients) and 11% for cholangitis (1 patient). There was no mortality related to the method. In ten patients with ACC the gallstones were treated by percutaneous cholecystolithotomy, 6 were operated (5 electively), 3 died and 5 didn't have definitive treatment. Fourteen patients with AAC were cured without surgery, 6 died and 2 required surgery for gallbladder gangrene. In the group of cholangitis one patient require complementary percutaneous biliary drainage and 4 died; definitive treatment include 2 percutaneous choledocholithotomy, 1 percutaneous drainage of obstructive pancreatic abscese and 2 elective surgeries.
These results indicate that PC is safe and effective temporary method in elderly and critically ill patients with ADBT, allowing to performed elective surgery or bringing a percutaneous access for treatment of the causing disease. In AAC the PC can be used as an inmediate and definitive therapy and cholecystectomy can be avoid.

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Choledochal Cysts, Study of Variable Presentations, And Value of Different Diagnostic Methods

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Twelve patients with different types of choledochal cysts 4 males and 8 females were included, age ranged between 7 and 40 years (mean age 25.8 years). All patients were presented with cholestatic jaundice and recurrent attacks of cholangitis, 5 were cholecystectomized before being referred because of persistent symptoms and jaundice. All patients were evaluated clinically. Also routine laboratory tests as well as liver profile were done .Ultrasound and CT scan were decisive in one patient only. Endoscopic retrograde cholangiopancreatography was decisive in all patients, type I choledochal cyst was found in 6 patients, type II in 2, type IVA in 2, type IVB in one, and type V Caroli disease in another one.

- Associated diseases were gall stones in 5 cystolithiasis in 9 and liver cirrhosis in 3.
- Chronic pancreatitis was diagnosed in one patient with Caroli disease had very bad general condition died in liver failure 6 patients were submitted to choledococysto –
- Jejunostomy (Roux-en-Y anastomosis), they did well. Another 3 patients were submitted to cystectomy and hepaticojejunostomy. Endoscopic retrograde cholangiopancreatography was the diagnostic procedure of choice.

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SELECTION OF OPERATIVE PROCEDURES FOR ADVANCED CANCER OF PROXIMAL BILE DUCT

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We investigated the operative procedures for cancer of the proximal bile duct. Eights patients (6 men and 2 women), ranging in age from 45 to 73 years (mean, 64±11.3 years) underwent operations in last 18 months. Patients with main tumor located at the right hepatic duct or common hepatic duct (4 patients) underwent extended right hepatic lobectomy and with main tumor located at the left hepatic duct or common hepatic duct (4 patients) underwent extended left hepatic lobectomy. All procedures included resection of both the caudal lobe and the extrahepatic bile duct. Vascular invasion of cancer was evident in 2 patients. One patient had invasion to the right hepatic artery and another 1 patient had portal invasion. These 2 patients underwent vascular resection, too. Concerning metastasis to regional lymph nodes, nodal involvement was evident in 5 patients out of 8 patients. Three of 5 patients had nodal involvements of the parahepatic artery and remaining 1 patient had paraaortic lymph node metastasis. In case of extended right hepatic lobectomy, we preserve the upper part of the left medial segment and perform right portal vein embolization (RPE) before operation to prevent postoperative hepatic failure due to shortage of the remnant liver. Out of 4 patients who underwent extended right hepatic lobectomy, RPE was performed on 3 patients and all patients were in good condition after operation but the remaining 1 patients without RPE died after operation due to hepatic failure.
In conclusion, hepatic lobectomy combined with caudal lobectomy and resection of the extrahepatic bile duct was necessary for advanced cancer of the proximal bile duct. Furthermore, extended lymphadenectomy had to be carried out.

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UTILITY OF BIOCHEMICAL TESTS AND NONINVASIVE IMAGING TO PREDICT A JUDICIOUS USE OF ERCP

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The use of ERCP has facilitated accurate diagnosis and treatment in patients with biliary tract disease (*Am. Surg.1993;59:525-8*)(*Am.J.Surg.1993;165:474-8*). The aim is to define, in biochemical tests and US data scans, a factor able to predict a most judicious use of ERCP and a better selection of patients (pts) to this purpose. In the past six months (may-october 1995), 79 consecutive pts, 47 females and 32 males, ranging in age from 40-90 (mean 64.9) with biliary tract disease were successfully studied by ERCP. In 49 (62%) cases an operative ERCP with sphincterotomy (ES) was performed: 35 (71.4%) stone extractions; 11 (22.4%) phlogistic papillary strictures; 2 (4%) choledocal tumours and 1 carcinoma of the pancreas. Complication rates were: 5 cases of haemorrage and 1 perforation. The sphincterotomy was matched with clinical presentation, US data scan (common bile duct dilatation), and various combinations of biochemical abnormalities (serum bilirubin, transaminases and amylase).The data were analyzed by Mantel-Haenszel test. According to literature, no patient with simple hyperamylasemia was studied by ERCP. No difference was noticed at the admission between 36 pts with increased serum transaminases and bilirubin undergoing ES and 19 pts undergoing diagnostic ERCP (respectively *P=0.2; P=0.4*), just as it wasn't in the case of 22 pts with increased serum transaminases and bilirubin at the moment of ES compared to 11 pts undergoing ERCP without ES (*P= 0.6*). Not significant were the relationships between simple increased serum transaminasemia and bilirubin and ES at the admission and at the moment of simple ERCP (respectively *P=0.98/P=0.41/P=0.86/P=0.29*) as well. The only significant difference was noted between 30 pts with CBD dilatation undergoing ES and those with CBD dilatation undergoing ERCP without ES (*P=0.000*). In conclusion, US scan will detect CBD dilatation as a factor of hepato-pancreatic disease suggesting the use of operative ERCP, with ES.

P403

SURGERY FOR ANOMALOUS ARRANGEMENT OF THE PANCREATICOBILIARY DUCTAL SYSTEM WITHOUT DILATATION OF THE BILIARY TRACT

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Pancreaticobiliary ductal diversion with excision of the gallbladder and dilated biliary duct has recently been accepted as the operative method of choice for anomalous arrangement of the pancreaticobiliary ductal system with dilatation of the biliary tract (AAPBDS with DBT), due to the risk of this disorder developing into carcinoma of the biliary tract as a result of the regurgitation of pancreatic juice into the biliary tract. However, for AAPBDS without DBT, the maximum diameter of the extrahepatic biliary duct being less than 10 mm, it remains undetermined whether pancreaticobiliary ductal diversion or cholecystectomy alone should be performed. We experienced 15 cases of AAPBDS and 6 cases of them were AAPBDS without DBT. A clinico-pathological study was carried out on 6 cases of AAPBDS without DBT to determine the preferred operative method for AAPBDS without DBT. The patients' ages ranged from 26 to 56 years and sex ratio of men to women was 1:5. All patients were diagnosed as having AAPBDS by ERCP or PTCD and the maximum diameter of the extrahepatic biliary duct ranged from 5 mm to 8 mm. A Roux-en-Y hepaticojejunostomy with excision of the gallbladder and biliary duct was performed for three patients. A gastrojejunostomy and a cholecystectomy with liver resection were performed for each 1 patient with advanced carcinoma of the gallbladder. A gastrojejunostomy was performed for 1 patients with advanced carcinoma of the gallbladder. Subsequent pathological findings showed hyperplasia of 3 cases and adenocarcinoma of 4 cases in the gallbladder, and hyperplasia of 2 cases and dysplasia of 1 case. Considering the dysplastic changes of the extrahepatic biliary duct, we conclude that pancreaticobiliary ductal diversion with excision of the gallbladder and extrahepatic biliary duct should also be performed for AAPBDS without DBT.

P404

ERCP IN DIAGNOSIS OF CARCINOMA OF THE AMPULLA OF VATER

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Carcinoma of the ampulla of Vater is much less frequent than carcinoma of the pancreas, gallbladder and extrahepatic bile ducts. It is high curable carcinoma, but diagnosis is often made late. The aim of this study was to analyse ERCP and histologic findings in our patients with ampullary carcinoma, preoperatively proved. There were 21 patients, 12 men and 9 women. The ages ranged from 36 to 76 years (mean, 57.2 years). According to Tasaka three macroscopic forms were observed: intramural protruding in 5 patients (23.8%), exposed protruding in 8 patients (38.1%) and ulcerating type in 8 patients (38.1%). Selective cannulation of the common bile duct was performed in 20 patients and bile duct dilatation was demonstrated in 16 patients (80%). This finding was associated with a defect in the ampulla in 6 patients. The normal bile duct was found in 4 patients. The cannulation of the main pancreatic duct was obtained in 12 patients. Dilatation of the main pancreatic duct and side branches were observed in 8 patients (66.7%). A stenosis of the main pancreatic duct was detected in only one case. Forceps biopsy were performed in 16 patients (exposed protruding and ulcerating type) without the aid of sphincterotomy. There were 13 well differentiated, 2 moderately and one poorly differentiated adenocarcinoma. Conclusion: ERCP is the main diagnostic procedure for carcinoma of the ampulla of Vater because it identifies the location of lesions endoscopically, opacifies the bilio-pancreatic ducts and allows confirmation by biopsy.

P405

LAPAROSCOPIC BYPASS OF PERI-DUODENAL TUMOURS

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The majority of patients with irresectable peri-duodenal tumours are treated endoscopically. Laparoscopic surgical techniques now allow surgical bypass of peri-duodenal tumours. Twenty-nine patients with:- ERCP or stent failure (10), irresectable tumour at laparoscopy (9), gastric outlet obstruction (7) or preferred surgery (3) had:- 13 cholecyst-jejunostomies (CCJ), 8 gastroenterostomies (GE), 2 choledocho-jejunostomies (CDJ) and 5 CCJ and GE. Laparoscopic cholangiography confirmed 1 cm + clearance of cystic duct, common duct junction from tumour in 19/21 patients, 2/21 had CDJ (1 open and 1 laparoscopic). Three patients required early re-operation - leak from CJJ 1, leak from GE 1 and twisted GE 1. Two patients died within 30 days of surgery. Three of eight GE only patients developed jaundice requiring treatment - 1 ERCP stent, 1 percutaneous stent and 1 laparoscopic CCJ. No biliary bypass patients required re-intervention for recurrent jaundice. Twenty-one of 29 patients have died during follow-up survival, 75 - 525 days. Laparoscopic bypass is a useful technique for palliating some patients with peri-duodenal tumours.

P406

LAPAROSCOPIC CHOLECYSTECTOMY VERSUS MINI-CHOLECYSTECTOMY AND CLASSIC CHOLECYSTECTOMY

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Laporoscopic cholecystectomy is a currently worldwide applied method of treating biliary calculosis. In our hospital it was introduced in clinical practice at the beginning of 1994. The goal of our study is to show the relationship of laparoscopic cholecystomy(LC) versus mini-laparotomic cholecystectomy (MLC) with incision of 5-7cm, and classic cholecystomy (CC) with incision of 12-15cm.
From the beginning of 1994 up to July 1995, during the period of 18 months at our Department 591 cholecystectomies were carried out, of which 60 LC, 56 MLC and 475 CC.
The treated patients with calculosis in the gallbladder were:455 with chronic inflammation, 134 with acute inflammation of which: 44 phlegmonous, 45 gangrenous, 28 empyema and 14 hydropic. The ratio female versus male was 4:1 respectively.
Analysed results show significant differences in length of incision, operating time, operative difficulties (scale 1-10), hospital stay, return to regular activities,wound cosmeses, incidence of wound infections, possibility of incisional herniae and visceroparietal adhesions.
We can conclude that LC is an improved method of choice in treating non-complicated cholecystolithiasis, MLC has a better cosmeses effect, while CC is appropriate with inflammations with pericholecystic changes.

P407

COMPARISON OF BILIARY STENTING BY PERCUTANEOUS TECHNIQUE VS COMBINED-ENDOSCOPIC APPROACH

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The purpose of this study was to compare biliary stenting by percutaneous transhepatic placement (PTP) with combined percutaneous and endoscopic technique (CP). A retrospective analysis of 48 patients with PTP and 65 with CP between 1991 and 1994. Most patients had insertion of plastic endoprosthesis. Results showed 85% of PTP and 94% of CP patients had successful stent positioning across strictures. 76% of PTP and 58% of CP patients had a >20% reduction in bilirubin within 5 days. 59% of PTP and 38% of CP patients required narcotic analgesia post-procedure. 27% of PTP and 33% of CP patients suffered significant sepsis. 27% of PTP patients and 34% of CP patients suffered stent blockage, at mean of 14 and 10 weeks respectively. 12% of PTP and 33% of CP patients with hilar strictures had stent blockage. Conclusions reached were that PTP and CP have similar overall stent blockage rates, but CP performs less well for hilar lesions. PTP has a higher drainage success rate, but causes more pain than CP.

P408

LAPAROSCOPIC AND ENDOSCOPIC MANAGEMENT OF COMMON BILE DUCT STONES AND OBSTRUCTIVE JAUNDICE

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Laparoscopic cholecystectomy (LC) has proved to be effective method of treatment of cholelithiasis. In a period of 1993-1995 LC was performed in 1570 patients, and among them were 94 with common bile duct stones (CBDS) and obstructive jaundice. Diagnosis of CBDS was established preoperatively by means of ultrasound examination and endoscopic retrograde cholangiopancreatography (ERCP) in 75 (80%) cases, in others ERCP was not performed (17) or failed (2). When the presence of CBDS was confirmed by ERCP, endoscopic papillosphincterotomy with subsequent lithiasis extraction or mechanical lithotripsy and nasobiliary drainage followed. LC was carried out 2-5 days later. External biliary drainage via cystic duct was used in only 5 cases. One patient developed cystic duct stump leakage due to clips and required reoperation. In 6 patients CBDS were detected durlng LC and trans-cystic CBD exploration and removed by laparoscopic (4) or open (2) choledocholithotomy. No complications were observed. In 13 patients CBDS were indentified within 6 months following LC. Endoscopic papillosphincterotomy was performed successfully in all cases exept one, which required open choledocholithotomy. The mean hospitalization time was 4,9 days. There was no mortality. In conclusion, results of LC and ERCP in patients with CBDS and obstructive jaundice compare favorably with those of conventional procedures with respect to mortality, complications and length of hospital stay.

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BILE DUCT INJURY DURING CHOLECYSTECTOMY IN THE ERA OF LAPAROSCOPY

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The development of laparoscopic cholecystectomy (LC) has been associated with a rise in the incidence of bile duct injury (BDI). The aim of this study was to assess the changes in the presenting features and management of BDI in the era of LC.
Methods: All BDI cases (primary or secondary referal) treated at our center since january 1979 have been included for analysis.
Results: Between 1979 and 1989, 31 patients (average : 2.8 per year) were treated for BDI after cholecystectomy vs 35 patients from 1990 to mid-1995 (average : 6.4 per year). Of these most recent 35 patients, 16 (46%) have had an open cholecystectomy (OC) and 19 (54%) have had a LC. In 9 (26%) patients, the BDI was discovered during the operation: 6 (38%) during OC and 3 (16%) during LC. The presenting features in the 26 patients in whom BDI was not discovered at the time of surgery were as follows :

	n	Septic syndrom	Biliary fistula	Biliary ascites	Emergency reoperation
OC	10	1 (10%)	3 (30%)	1 (10%)	3 (30%)
LC	16	7 (44%)	3 (19%)	7 (44%)	9 (56%)

Of the 16 (46%) patients undergoing an angiography, 9 (56%) had a lesion of the hepatic artery or of the portal vein; 4 (38%) after OC vs 5 (71%) after LC. The type of biliary lesion according to Bismuth's classification was identical in the both groups. Endoscopic treatment was not attempted in any case after OC but was attempted in 5 (26%) cases after LC. Roux-en-Y hepaticojejunostomies was performed in 11 patients (69%) after OC and 12 (63%) after LC.
Conclusion: this study confirms an increase in the incidence of BDI in patients undergoing laparoscopic cholecystectomy although 50% are still related to open cholecystectomy. Bile duct injury after laparoscopic cholecystectomy are diagnosed later, notably through septic and peritoneal complications, and are more frequently accompanied by vascular lesions.

P410

BILIARY MOTILITY DISORDERS AND FOOD ALLERGY

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Dyskinesia of gallbladder, chronical hepatobiliary and gastrointestinal diseases are often connected with allergy to food products. It was found in 203 of 380 observed patients with food allergy. Primary food allergy,especialy in children's age enables development of chro-nical digestive diseases in future. Secondary food allergy was observed in 202 patients.
The permeability of hepato-intestinal barrier to protein-ovalbumin was invèstigated by radio-immune method. Before and in 4 hours after the load (3 damp eggs) it was studied the concentration of ovalbumin, IgG-immune complex and antibodies to ovalbumine in blood serum. The permeability of barrier and speed of absorption of antigen in food allergy was increased.
Chronic uncalculous cholecystitis was observed in 69% patients, calculous cholecystitis - 2%, biliary dyskinesia -in 18.7%, chronic hepatitis -in 11.3% of cases. We used next methods of treatment: dietetic correction (elimination and hyposensibile diets, special products without allergens), antihistamine medicaments, chromoglicat natrium, physical therapy (acu-,laser-and electropuncture, hyperbaric oxygenation, laser blood radiation, plasmapheresis, enterosorbtion and others). The microbic hyposensibilization and health resorts therapy were effective in patients with combination of chronic cholecystitis and food allergy. Allergic mechanism of cholecystitis and motilic disorders calls for attention during the treatment of these patients.

P411

Laparoscopic treatment of mine bile duct stones.

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In the past, if a common bile duct stone was identified during open cholecystectomy, the common duct was explored. Is to verify if this time-honored approach should be carry on during the laparoscopic era.
In the period between February 1992 and June 1995, 1041 consecutive laparoscopic cholecystectomies were performed. 87 patients were found to have cholecysto-choledochal calculosis and 82 patients were treated using the mini-invasive technique. 39 patients underwent ERCP and laparoscopic treatment sequentially. Two patients were explored through the cystic duct wile 41 patients through the direct laparoscopic choledochotomy. Two patients were treated with a bilio-digestive anastomosis. Five patients after a laparoscopic exploration, were converted to open surgery.
Direct laparoscopic choledochotomy requires additional dissection to define the anterior common duct wall and cystic duct-common duct junction. Then, a longitudinal incision is made in the common duct for a distance of about 1 cm, and exploration can proceed. With the direct laparoscopic exploration of choledochus, an exploration of intrahepatic bile ducts can be performed also.
At the conclusion of the exploration, a T-tube is placed and the duct is securely closed with intracorporeal suturing techniques. If an ERCP-PSTE was carried out preoperatively, the duct can be closed without placing a T-tube.
Out of the 41 patjents treated, 21 underwent an ideal choledocholithomy with the closure of the choledochotomic breach, while in 18 patients closure was performed on T-tube. One lesion had been provoked on the posterior wall of the duct with the tip of the blade. In two patients a bilio-digestive anastomosis was performed.
In the 21 sutured patients the drainage indicator was removed on the seventh day and they were dismissed on day nine. In the patients who was subjucted to Kehr's closure, the intracholedochal drainage was removed 13 days after the operation.
One elderly patient died on 7th day for a lung blood-clot. In one patient we performed a new laparoscopic exploration for a bile leakage and in two patients was performed a postoperative ERCP for residual stones.
Endoscopic-laparoscopic treatment can be considered the best method in cases of cholecysto-choledochal calculosis since the patient can return to normal life a few days after the operation. Laparoscopic cholecystectomy revolutionised the world of surgery and therefore it is of fundamental importance that carefull thinking be adapted to this revolutionary phenomenom, so as to offer a truly useful operation to the patient: the treatment of choledochal calculosis is an integral part of this "rationale" and it therefore has to be dealt with only once traditional techniques and laparoscopic techniques are both fully mastered.

P412

LAPAROSCOPIC CHOLEDOCHOTOMY - SHOULD WE AVOID T-TUBES AND CLOSE THE DUCT PRIMARILY?

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Prior to the advent of laparoscopic cholecystectomy there was debate about the merits of a post choledochotomy T-tube. As experience with laparoscopic bile duct exploration has increased most surgeons advocate T-tube drainage of laparoscopic choledochotomies. During experience of 210 laparoscopic bile duct explorations we have questioned this concept. Seventy-one patients had a completed laparoscopic procedure with choledochotomy. A T-tube was placed in 46 patients, the duct closed primarily in 18 patients, choledocho-duodenostomy (CDD) fashioned in 4 patients and the duct closed over a double pigtail stent in 3 patients. Eight of 46 (15%) of T-Tube patients had significant T-tube related morbidity with 3 requiring further laparoscopy. One of 19 primary closure patients required laparoscopy and a further suture on the second post-operative day for a bile leak and 1/18 leaked bile for 4 days. No stented or CDD patient suffered morbidity. Post-operative stay for primary closure was 2 (1-4) days compared with 4 (1-21) days for T-tube closure ($p < 0.05$, Mann -u- Whitney). Primary closure of the choledochotomy with or without a stent is now our preferred treatment.

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CHANGES IN LIVER CIRCULATION FOLLOWING THE REVERSE TRENDELENBURG POSITION DURING CO_2 PNEUMOPERITONEUM

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The effects of the reverse trendelenburg position (rT) on liver circulation were studied under CO_2 pneumoperitoneum. Six female pigs were anesthetized with halothane, and the portal venous flow and hepatic arterial flow were measured by ultrasonic volume flow meter after laparotomy. Abdominal wall was then closed and the intraabdominal pressure was increased step by step. Pneumoperitoneum reduced portal venous flow and hepatic arterial flow and increased systemic arterial pressure. rT associated with pneumoperitoneum further decreased the portal venous flow, but increased systemic arterial pressure and hepatic arterial flow. These responses are augmented in proportion to the slope of rT. When the magnitude of rT was fixed, increasing intraabdominal pressure did not affect hepatic blood flow. On the other hand, rT with open laparotomy decreased both portal venous flow and hepatic arterial flow, and it was found that reduction in the flows by rT with open laparotomy was evident than in rT with closed laparotomy. These findings suggest that rT, which provides an improved operative view, can be safely used in the case of laparoscopic cholecystectomy during pneumoperitoneum.

P414

IMPROVEMENT OF EXTRACELLULAR WATER DEPLETION MARKERS AFTER ENDOSCOPIC DRAINAGE IN OBSTRUCTIVE JAUNDICE.

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Experimental obstructive jaundice (OJ) has been associated with extracellular water (ECW) depletion and paradoxical increase in atrial natriuretic peptide (ANP) plasma concentrations. ECW depletion predisposes to acute renal failure. To investigate whether non-surgical biliary drainage results in reduction of plasma ANP and repletion of the ECW, endocrine markers of volume depletion were determined in 19 patients with obstructive jaundice before and after endoscopic biliary drainage. There were 10 women and 9 men with a mean age of 66 yrs (range 38-86). Six had benign conditions and 13 had periampullary tumors. Patients were kept on a fixed i.v. solution regimen and enteral nutrition intake. Plasma ANP, Aldosterone (Ald) and Renin (Ren) concentrations were measured by radioimmunoassay before and on the 3rd to 7th day after endoscopic biliary drainage. ECW was determined at the same time using tetrapolar bioimpedance. Serum bilirubin and fractional sodium excretion were also measured. Before biliary drainage, 94% of the patients had an elevated ANP(>60 pg/ml) and mean Ren and Ald concentrations in the upper limit of normal. After biliary drainage, serum bilirubin decreased (15±6 vs. 5±3 mg/dl, P<0.01) and this was associated with decreases in ANP (114±45 vs. 79±45 pg/ml, P<0.01), Ren (54±77 vs. 20±20 μu/ml, P=0.13), Ald (170±93 vs. 98±67 pg/ml, <0.01) and fractional sodium excretion (0.59±0.29 vs. 0.84±0.66, P=0.1). ECW increased from 20±3% body weight to 22±4% body weight (P<0.05). The present study reports for the first time that plasma ANP is increased in patients with OJ. After biliary drainage there is an increase in ECW and a parallel decrease of the endocrine markers of volume depletion. These findings are relevant to the perioperative management of patients with obstructive jaundice.

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P415

ROUTINE DYNAMIC INTRAOPERATIVE CHOLANGIOGRAM (RIOC) AND INTRAOPERATIVE ULTRASONOGRAM (RIUS) DURING LAPAROSCOPIC SURGERY FOR COLELITHIASIS

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Aim of this study was to prospectively investigate the role of RIOC and RIUS during laparoscopic cholecystectomy (LC). From December 1990 to November 1995 1348 unselected consecutive patients underwent LC with RIOC. In 87 more cases ductal stones were suspected or proven. Factors that were critical to the safety and efficacy of RIOC were: midclavicular trocar perpendicular and close to the cystic duct, complete dissection of Calot's triangle prior to RIOC, use of cholangiogram clamp and contrast solution at 125 mg/ml Iodine, dynamic study with filling of the entire biliary tree, no more dissection after IOC. In 90 cases laparoscopic RIUS was also performed with a 7.5 MHz rigid probe from the umbilical trocar. In 48 patients IOC was not performed because the fluoroscope was not available. Of the remaining 1300 patients, in 39 (3%) IOC was unsuccessful due to failed or improper cannulation (28), no passage of dye (9), low cystic duct-CBD junction. IOC was feasible in 1261 cases (97%) in an average time of 5 minutes 20 seconds (range 3-15 minutes). No CBD lesions were observed. Metal clips were too close to the bile ducts and were removed in 15 cases. Anomalies of surgical importance were identified in 29 cases (2.3%) and unsuspected CBD stones in 68 (5.3%). Of the 90 patients who underwent IOC and IUS, suspected CBD stones were identified in 2 and silent stones in 6 (by both exams in 4, by IUS only in 2). IUS was limited by adhesions from previous surgery in 3 cases. Hepatic angyomas were discovered in 2. Median time for IUS only was 5 min. RIOC after complete blunt dissection in the area of Calot's triangle is a safe and effective method to reduce the incidence of major ductal lesions and identifies silent CBD stones. IUS is more readily available, provides parenchymal informations and may be complementary to IOC to correctly interpret radiologic artifacts, but in our experience is not a substitute for IOC.

P416

LONG-TERM RESULTS AFTER SINGLE STAGE LAPAROSCOPIC TREATMENT OF GALLSTONES AND COMMON BILE DUCT (CBD) STONES

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From April 1991 to November 1995 151 patients underwent single stage laparoscopic treatment of gallstones and CBD stones (females 95, males 56, mean age 55.1 years, age range 12-94 years, 40 patients over 70 years of age), in 102 through the cystic duct (no biliary drainage in 75, trans-cystic drainage in 27) and in 49 after choledochotomy (T-tube in 48). Operative mortality occurred in 1 patient (0.6%). Two patients died for unrelated causes (thrombocytopenia and uncompensated cirrhosis, 2 years and 1 month after discharge, respectively). Of the remaining 148 patients, 37 (25%) are presently lost to follow-up, leaving 113 patients available (75%), with a mean follow-up of 19.8 months (range 1-55 months), which included physical examination, laboratory exams and ultrasound. Follow-up of more than 12 months is available in 81 cases. Residual CBD stones were observed in 10 cases (6.7%) which were discovered at completion cholangiogram in 2, at pre-dismissal cholangiogram in 5 and at follow-up in 3 cases. Residual stones were removed 4-5 weeks postoperatively by ES in 1 case and by endo/fluoroscopic techniques through the biliary drainage sinus tract in 6 (with ESWL in 1). Residual (recurrent?) stones were removed by ES in 3 cases after 4-8 months, respectively. In 1 case, with prior hemigastrectomy, an asymptomatic 5 mm residual CBD stone was discovered 18 months after laparoscopy and has been left untreated. Vague abdominal pain with dyspepsia but no altered liver tests has been observed in 30 cases (26.5%); 81 patients (71.6%) are presently completely symptom-free with normal liver tests. A single, self-resolving episode of biliary colic was reported by one patient, with normal liver tests. Stipsis was reported in 5 cases. Laparoscopic single stage treatment of gallstones and CBD stones is a safe and effective procedure that provides definitive cure of biliary lithiasis with no long-term morbidity.

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CO_2 PNEUMOPERITONEUM VS GASLESS LAPAROSCOPIC CHOLECYSTECTOMY

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Gasless laparoscopy can be performed safely without side effects of CO_2 pneumoperitoneum particularly in elderly and preexisting conditions such as cardiopulmonary dysfunctions. A prospective study was conducted to evaluate the effectiveness of this technique. 30 consecutive symptomatic cholelithiasis were treated by gasless laparoscopy and 30 with CO_2 pneumoperitoneum. There was no significant difference in the incidence of sex, age and number of acute cholecystitis in each group. This study was conducted by single surgeon with experience of over 1500 Laparoscopic cholecystectomies.

Planner lift system was used in all the cases. Periumbilical 1-2 cms incision was made and through this laparofan was inserted and abdomen was lifted by motorised laparolift. Valveless trocar sheaths were used. The same periumbilical entry was used for laparoscope. Totally four ports were made as described in standard Laparoscopic cholecystectomy. Ports were needed to be placed at low level compared to CO_2 pneumoperitoneum.

Problems : 1) Less intraperitoneal laparoscopic space. 2) Movements of intraperitoneal structures with varying respiratory phase. 3) Additional ports are frequently needed for effective exposure. 4) Possibility of high incidence of thermal injury.

Advantages of gasless laparoscopy : 1) Use of conventional instruments 2) Suction and irrigation do not affect the laparoscopic space. 3) Extraction of gall bladder is easy through epigastric port. 4) No change in cardio respiratory status.

Conclusion : Gasless laparoscopic cholecystectomy can be safely performed and so is the preferred procedure of choice in high risk patients. Due to technical difficulties this may be considered as an alternative to pneumoperitoneum for others.

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PANCREATICODUODENECTOMY FOR NEUROGENIC TUMOUR OF COMMON BILE DUCT - RARE TUMOUR OF BILE DUCT.

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Tumour of neurogenic origin is very rare in the bile ducts. A case of schwannoma in the distal common bile duct is reported.

In March 1994, 23 year aged female had obstructive jaundice - found to have dilated common duct of 4 cms in diameter with mass lesion in the distal duct proximal to ampulla evaluated by ultrasound and ERCP. Pre-operative histology could not be established.

US, CT scan, MRI revealed no evidence of spread. Pylorus preserving pancreatico duodenectomy was carried out. Fleshy growth was seen arising from one side of the common duct just proximal to the ampulla. No satellite nodules. No evidence of lymphnodes. Histology proved to be schwannoma.

Schwannoma, a rare tumour of bile duct origin has been reported.

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LAPAROSCOPIC REMOVAL OF IMPACTED E R C P BASKET - FIRST CASE REPORT

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Endoscopic sphincterotomy and clearance of stones is the preferred procedure for common duct stones. Impaction of ERCP basket is one of the rare complication and laparotomy is being done to remove the basket. In April 1994, a case of impacted ERCP basket was successfully removed first time by Laparoscopic method.

With CO_2 pneumoperitoneum, common duct is exposed and Laparoscopic choledochotomy was performed using microscissor. ERCP basket was disimpacted and delivered into the peritoneal cavity using right angled forceps along with two stones and delivered out through the trocar. After completion of cholecystectomy, T-tube was placed in the common duct and choledochotomy was narrowed with vicryl stitches.

Impaction of ERCP basket is a rare complication and first case of successful laparoscopic removal of impacted ERCP basket has been performed.

P420

REVIEW OF BILIARY-ENTERIC ANASTOMOSES

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Procedures involving biliary-enteric anastomoses for benign and malignant disease were retrospectively reviewed over a 9 year period. A total of 133 patients were treated, of whom 44 (33%) were tertiary referrals. Benign disease accounted for 61 patients {cholelithiasis (n=25), chronic pancreatitis (n=10), sclerosing cholangitis (n=8), other (n=18)} whereas 72 had malignant disease {pancreatic carcinoma (n=43), cholangiocarcinoma (n=13), periampullary carcinoma (n=9), other (n=7)}. The mean age of those with benign disease was 58.2 years, and of those with malignant disease 62.5 years. Operative procedures performed were choledochoduodenostomy (n=47), cholecystjejunostomy (n=25), choledochojejunostomy (n=22), hepaticodochojejunostomy (n=25), hepaticodochoduodenostomy (n=2), Whipple's (n=10), and local excision (n=2). There was no significant difference in hospital mortality between those with benign or malignant disease (1.6% *vs* 8.3%). Early morbidity occurred in 14.8% of those with benign disease, compared to 20.8% of those with a malignant condition. Late morbidity occurred in 19.7% of those with benign disease, compared to 22.2% of those with a malignant condition. There was no significant difference in mean postoperative stay between those with benign or malignant disease (12.2 days *vs* 15.6 days). The median survival for those with malignant disease was 8 months (range 1-60 months). Biliary bypass procedures are suitable for benign and malignant disease. There was no significant difference in mortality, morbidity or length of postoperative stay between these two groups of patients.

P421

SURGICAL COMPLICATIONS AFTER ENDOSCOPIC PAPILLOTOMY-EPT

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In a retrospective study we have analysed 30 patients having surgical complications after EPT in the period from 1982 till the end 1995. The mean age of patients was 61 year and there were two thirds female patients. In a 4 years period we have surgicaly treated 10 cases of choledochoduodenal perforations, 12 cases of conservatively uncontrolable bleeding and 8 cases with incarcerated or broken Dormia basket. In the postoperative period we have lost 3 patients due to retroperitoneal sepsis after choledochoduodenal perforation. All patients with incisional haemorrhage survived after surgical haemostasis. The incarcerated or broken Dormia baskets were all succesfully removed and all patients recovered uneventfuly. The diagnosis of perforation was based either on discovered extravasation of the contrast media or on the presence of gas bubbles in the surroundings of the duodenum.

Conclusions: EPT is a relatively safe procedure if performed by an experienced endoscopist. Surgical complications are rare and only in exceptional circumstances (age, delayed diagnosis) fatal. Conservative treatment of choledochoduodenal perforation is very risky and the treatment of choice should be an early operative revision and reconstrucction.

P422

RESIDUAL CALCULOSIS OF BILE DUCTS

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Despite the great progress in preoperative and postoperative biliari diagnostics, residual calculosis of bile ducts remains important problem in biliary surgery.

In surgical clinic in Niš, in period from 1985 to 1994 registered 63 patients with residual calculosis (RC) of hepaticocholedochus (HCH), after operations of the gallblader and bile ducts. After cholecystectomy (3325) registered 42 cases or 1.2% and after operations on HCH (240) registered 21 cases or 8.75% RC.

The autors analyzed causes, methods of treatment and outcomes of RC. They emphasized value of the preventive procedures (preoperative diagnosis, intraopesative cholangiography, cholangioscopy, and ultrasonography, choise of operative procedure, surgeons expirience) for decrease of incidence of this unagreable complication.

Residual calculosis treated by reoperations in 42 cases (66%) and endoscopic papillotomy in 21 cases (33%). Reinterventions were in form of choledochotomy, extraction of calculi and T drainage, biliodigestive anastomosis or sphyncteroplasty. Endoscopic pappilotomy performed in high-risque patients, calculosis of distal parts of HCH and evidence of papillary stenosis.

Specific complications were: leakage of biliodigestive anastomosis, reccurent cholangitis after biliodigestive anastomosis in one case and pancreatitis after one sphyncteroplasty. It was not mortality. RC remains important problem in biliary surgery, because of many problems in prevency and treatment. Reoperations are difficult and require great expirience in biliary surgery. Endoscopic papillotomy is metod of choise in selected cases.

P423

GALLBLADDER MOTILITY IN VARIOUS FUNCTIONAL DISORDERS ESTIMATED BY INFUSION CHOLESCINTIGRAPHY

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The aim of the study is the assessment of the gallbladder (GB) contractile function in 8 controls (Cs), 6 patients with hypotonic/atonic GB (HD), in 6 patients with GB cholecystitis and calculosis (CC), and especially in the postgastrectomy patients: 10 early (EPG) and 10 late (LPG) after total gastrectomy as well as 4 after Billroth I (partial) resection (B1).

The study was performed with Rota camera and Micro Delta computer during (3 h, 10 ml/h) infusion of 150 MBq, 0.25 mg/ml 99m-Tc-EHIDA, preceeded by a loading dose, with two eggs given in 120. min. After generation of the liver and GB TA curves, corrections for the decay and liver radioactivity in the GB region was made. In CS, emptying time (ET) was X=37.8min +/- 11.4), ejection fraction (EF) X=76.7% +/- 17.9) and ejection rate (ER) X=2.3%/min+/-0.8. On the contrary, in HD, only filling phase was registered till the end of the study. In comparison to CS, in CC, ET was prolonged (47.4min +/- 22.5, p<0.01), EF lower (X=47.2% +/- 6.9, p < 0.01) and ER decreased (X=1.1%/ min+/-0.4, p <0.01) showing impaired GB motility, caused by fibrosis, thickening of the GB wall and lower number of CCK receptors. In EPG, ET (X=27.3min +/- 10.9) didn't differ from CS and LPG, while EF (X= 28.7% +/- 10.9) and ER (X=1.1%/min+/-0.5) were decreased (p< 0.01). However, in LPG, ET (X=39.6min +/-20.0), EF (X= 73.3% +/-11.3) and ER (X=1.8%/min+/-0.6) didn't differ (p> 0.05) from CS. Also, in B1, ET (38min+/-8.5), EF (73.7%+/-10.7) and ER (2.02%/min+/-0.22) didn't differ from CS and LPG.

In conclusion, after total gastrectomy with vagotomy and excluded duodenal transit, impairement of the GB motility early and recovery of the physiological contractile function late after operation might be attributed to the establishment of the hormonal mechanisms (CCK). In the patients with partial gastrectomy, without vagal denervation and preserved duodenal tranzit, GB motility remains undisturbed.

P424

EFFECT OF COMBINATION THERAPY WITH IMMUNOSUPPRESSORS AND UDCA IN THE TREATMENT OF PRIMARY BILIARY CIRRHOSIS.

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Primary biliary cirrhosis (PBC) is a chronic cholestatic liver disease in which intra-hepatic bile ducts are progressively destroyed. The disease is associated with profound, but yet not fully characterized, immunological disturbances. Presently, the most widespread drug used to treat this disease is ursodeoxycholic acid (UDCA) which has been shown to ameliorate symptoms and improve serum liver enzymes by increasing the hydrophilic/hydrophobic ratio of the total bile acid pool. It has also been suggested that immunosuppressive therapy may be useful in treatment of this disease. Aim of this study was to evaluate the efficacy of joint therapy in the treatment PBC using UDCA in combination with immunosuppressive drugs.

Nine patients (8F:1M) with diagnosis of PBC (stage I-III) made according to the usual biochemical, serological, clinical and histological criteria were enrolled for the study. Each patient was treated randomly with 3 different therapy combinations: 1) UDCA 900mg 2) Azathioprine (AZA) 50mg + UDCA 900mg, 3) Methylprendisolone (MP) 8mg + UDCA 900mg. Each treatment combination was administered for 4 weeks with a wash-out period of 4 weeks in-between. Before and after each treatment period serum ALT, AlPh, γGT, bilirubin and IgM were tested. Statistical analysis was performed using Friedman's nonparametric test.

The combination UDCA with immunosuppressors was able to improve, with respect to UDCA alone, serum markers of cholestasis and transaminase levels as well as reducing IgM levels.

mean ± SE	ALT	AST	AlPh	γGT
Basal	83	70	872	267
UDCA	55	48	717	165
AZA + UDCA	51	38*	535*	125
MP + UDCA	43	21*	436*	95
p<0.01 vs basal	0.01	0.01	0.01	0.01

* p<0.05 vs UDCA;

In conclusion this study indicates a possible role for the use of immunosuppressive therapy in the treatment of PBC in association with UDCA.

P425

BILIOENTEROSTOMY IN BENIGN BILE OUTFLOW DISTURBANCIES

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In a retrospective study (Jan 1992 to Oct 1995) we analysed the outcome of 52 patients (pts)(16 m, 36 f;avarage age 74 years, range 37-90 years) who underwent bilioenterostomy for a benign bile outflow problems. In 42 pts choledochoduodenostomy and in 10 pts choledojejunostomy was done. In 39 pts cholecystectomy was done as well, 13 pts have had cholecystectomy done before. The median ASA value for the entire grup was 3. The indication for surgery were: bile duct stones (28 pts) obstruction caused by chronic pancreatitis (15 pts), stenosis of the papilla of Vater (5 pts) juxtapapillary diverticule (2 pts) "cystic" bile duct dilatation (1 pts), iatrogenic lesion of bile duct(1 pts). Jaundiced were 39 pts and 13 were not. EPT was tried in 7 pts without success. Total bilirubin (TB) levels (mmol/l), alcaline phosphatase (AP) and gama gt (GT) (nkat/l) levels were measured before the operation(1), on 7-10 th postoprative day (2) and once in the ollow up(3). The avarage levels were: TB 1 =118 (14-668), AP 1=5.6 (0.7-18), GT 1=5.1 (O.4-26), TB 2=38 (7-110), AP 2=2.4 (0.8-6),GT 2=2.1 (0.2-9), TB 3=12 (4-22), AP 3=1.6 (1.1-2.6), GT 3=0.8 (0.2-1.7). Jaundice disappeared 5-18 days after operation.The avarage hospital stay was 10 days (8-20). There were 5 minor complications (7.3 %) and no one died. No pts have become icteric again or had cholangitis in the follow up (2 months to 3.8 years). We consider the surgical derivation of bile in above mentioned indications in old pts as easy, short, safe and efficient method, with acceptable rate of morbidity and mortality.

P426

IATROGENIC LESIONS OF THE BILIARY TRACT: DIAGNOSTIC AND THERAPEUTICAL OPTIONS

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Iatrogenic biliary lesions after Laparoscopic Cholecystectomy (LC) has an increased incidence varying from 0.3 to 0.7% versus the low incidence of 0.1 to 0.2% seen with Open Cholecystectomy (OC). The prognosis is strictly correlated with the moment of discovery of the lesion which rarely reveals itself during the operation. To prevent or reduce the incidence of the injuries we favour, in case of doubt, the use of a selective perioperative cholangiography or an ERCP after the operation. Aim of this study is to analyse the incidence and risk factors of these bile duct injuries and to evaluate the management of these injuries.

Material and Methodes- Since 1982, 66 pts, divided in two groups, were observed. Of the 17 pts comprising the first group (25%) the lesion was revealed immediately or early, with the planed diagnostic work up; in 7 cases after cholecystectomy, in 3 after hepatic resection and in 2 after gastric resection. The treatment was: a biliary duct plasty in 8 cases, an HepaticoJejunoStomy (HJS) at the biliary confluence in 7, a CholedochoDuodenoStomy in 1, and in the last one with a Smith derivation. In 49 pts (second group: 75%) the lesion was detected later. Site, extension, and grade of the lesion were established with PTC and/or ERCP.

Results- Three pts (17.6%) in the first group dead postoperatively due to pulmonary embolism, myocardial infarct, and hepatic insufficiency, respectively. The FU (1-14 yrs) showed good results in 12 pts (85.7%) and the death of the Smith procedure after 2 years for secondary biliary cirrhosis. In the second group, 4 pts (8.1%) needed a new anastomosis; 2 because of a biliary fistula and 2 for a stenosis occurred after 1 year and 4 years from the first repair. The clinical FU revealed a good outcome in 45 pts (91.8%). Two pts (4%) with biliary cirrhosis died after 7 and 1 years. Three pts present recurrent angiocholitis.

Conclusions- Selective perioperative cholangiography or postoperative ERCP are fundamental to prevent or reduce iatrogenic injuries. Only an expert surgeon can offer a good prognosis, which is most favorable in cases of immediate repair. HJS must be performed at the biliary confluence and extended to the left hepatic duct, so to avoid reinterventions and therefore a poor outcome of the patients.

P427

CARCINOMA OF THE MIDDLE AND LOWER BILIARY TRACT: STAGING AND INDICATIONS FOR CURATIVE RESECTIONS

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Primitive carcinoma of the Middle and Lower biliary tract is a rare tumor characterized by; late clinical presentation, very extensive diffusion and a severe prognosis. Early diagnosis and radical excision with curative intent greatly influence survival. The purpose of this study is to demonstrate that only surgical exploration and perioperative studies are ables to provide a correct assessment of resectability. **Material and Methods-** From 1982, 21 pts with primitive carcinoma of the Middle and Lower third of the Common Bile Duct (M=6 pts; L=15 pts) were observed. The preoperative work up, carried out in all cases through US, CT and PTC or ERCP, established the site of the tumor, staging and resectability. One pt, with tumor in the Lower third, due to severe cardiac compromise (ASA IV), was not operated. At operation, exploration, intraoperative US (which provides greater sensitivity than angiography), and frozen section of the resected margins modified the preoperative staging in 10 pts (50%), 2 in the Middle third and 8 in the Lower third. Resectability was confirmed in 16 cases (80%: R.I. M= 83.3%, R.I. L=78.6%). Five pts with tumor of the Middle third (3 St.I, 2 St. II) were treated with simple excision of the tumor. The only pt with diffuse metastasis (St. IVb) was drained with a trans-tumoral T-tube. Eleven pts with tumor in the distal third (4 St.II, 1 St.III, 5 St.IVa,1 St.IVb) were considered resectable and therefore underwent Pancreato-Duodenectomy(PD). The remaining 3 pts, who were considered inoperables (2 for diffuse metastasis, and 1 because of advanced age) were treated with a palliative Bilio-Digestive Anastomosis. **Results-** Middle third: the only pt with palliative surgery died in 2 days. Three pts (2 St.I, 1 St. II) in spite of favorable staging died from relapse at 13, 14, and 19 months (m.s. 15 mo); the others 2 pts (1 St.I, 1 St.II) are alive at 73 and 120 months (m.s.96 mo).-Lower third: no operative mortality. Average survival of the 3 pts treated with palliation was 6 months; 8 pts treated with PD died (m.s. 20 mo) while 3 pts (2 St.II, 1St.IVa) are alive at 29, 48, 156 months (m.s.77 mo). The only pt not operated (ASA IV) survived 5 months with an external biliary drain. **Conclusions-** Definitive staging and correct indications for curative resection are only possible using intraoperative studies following the preoperative diagnostic work up. To evaluate the outcome only the definitive histologic examination is able to recognize a tumor of the pancreatic head. Results suggest that with the increased surgical aggressivity survival may be prolonged with good quality of life, and that survival obtained with surgical and non surgical palliative measures are comparable.

P428

PRESENTATION AND DIAGNOSIS OF DUODENAL DIVERTICULAE

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Most duodenal diverticulae(DD) are discovered accidently at endoscopy.This study evaluates the relationship between the site of the DD and associated diseases and it's impact on management.Out of 540 endoscopic examinations DD were found in 26 patients.M to F ratio was 1:2.25 with a mean age of 56 years. Five had anterior bulb diverticulae(BD)and 21 had second part diverticulae(SPD).In 4 patients with BD,chronic active ulcers were found.Out of 21 with SPD 4 had only moderate biliary dilatation and papillary dysfunction,11 had choledocholithiasis(8 cholecystectomised)with small choledocho-duodenal fistula in 2. The remaining 6 patients had GB,and CBD stones (3 presented with acute biliary pancreatitis) The Vater's papilla with rudimentary intramural CBD(ICBD) was at the edge of the diverticulum in 6,at the floor with long dilated ICBD in 7,in between two diverticulae with bulging ICBD in 4, and paradiverticular in 4 patients.The management included endoscopic sphinctrotomy with/without stone extraction and choledochoduodenostomy.This study demonstrates the association of DD with bulb ulcers, biliary lithiasis,papillary dysfunction and biliary pancreatitis.

P429

CHOLEDOCHAL CYSTS IN ADULTS AND CHILDREN: PRESENTATION, DIAGNOSIS AND MANAGEMENT

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Eighteen patients(4 children,14 adults) with choledochal cysts were studied.Fourteen were F and 4 M,with a median age of 26 years(range: 4 months-40 years). The clinical presentation in 17 patients included abdominal pain and recurrent attacks of cholangitis.The remaining one(14 months) presented with cyst rupture. Five patients had previous cholecystectomy.The diagnosis was made in all patients by endoscopic retrograde pancreatography.According to Todani classification, 10 (56%) patients had type I cysts,2 had typeII,2 had type III,2 2 had a type IVa cyst,one had type IVb, and one had type V cyst. Associated diseases included cystolithiasis in 16,cholelithiasis in 3,liver cirrhosis in 3,and chronic pancreatitis in one The management in the children group included cystectomy with Roux-en-Y hepaticojejunostomy (HJ) except one who died of liver failure. In adults:of the 7 type I cyst,cystectomy with HJ was feasible in 4,while partial excision and choldochocystojejunostomy was done in the remaining 3.For type II,excision of the cyst with closure of the choledochous over a T-tube was done.For type III,endoscopic deroofing of the choledochocoele was perfformed.For types IVa,b,cystectomy and HJ was done. All patients had resolution of their symptoms. Two patients had late cholangitis.

P430

Analysis of Iatrogenic Injury Biliary Duct: Review of The China Literature

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Ten patients were led iatrogenic injury of extrahepatic bile duct between 1980 to 1995 at our hospital. We collected 617 cases of the China literature combine with 10 cases following analysis.
Morbidity: the sequence of original operation.(Number indicating patient No.) cholecystectomy 463, gastrectomy 45, common bile duct (exploration, lay up " T " tube not proper, puncture) 81, liver trauma 12, choledoch-cyst 5, abdominal tumor 4, ERCP 3, gallbladder duct trauma 3, chemical lesion 1.
Injury Position and Type:
common bile duct 184, common hepatic duct 145, combining site 146, right hepatic duct 27, right and left hepatic ducts 8, accessory hepatic 4, not clear 3.
Operation:Emergency 189, Elective 426.
Type: Transection and part trauma, Suture ligation.
Cause: Calot's triangle: 1. Anatomic Variation. 2. Inflammtory adhesion ambiguousness 3. Bluring management of fundamental conception.
Operator: 1. Blind stop bleeding and ligation. 2. Despise cholecystectomy and sober. 3. Pursue operative velocity. 4. Operation opportunity selecting unsuitable. 5. Operation method selecting unsuitable.

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CHOLEDOCHAL CYST DIAGNOSED WITH ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY

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The choledochal cyst is a rare development anomaly, in the majority of cases congenital, of the biliary tract. Hence this review of diagnosing this rare disease in our material of ten years is made, to point out the importance of endoscopic retrograde cholangiopancreatography. The method is very effective scanning the size, form, position and content of the cyst, a fact of great importance when planning surgical treatment as the only possible cure. An analysis is presented out of the results of 2672 ERCP-s carried out during the past ten years. Only three choledochal cysts, or 0,1 pro mille of the examined patients, has been diagnosed. Al patients were female of various age groups (8,19 and 36 years).

P432

COMPLICATIONS OF LAPAROSCOPIC CHOLECYSTECTOMY WITH SPECIFICATION OF DIAGNOSIS AND REPAIR OF IATROGENIC BILIARY DUCTS INJURY

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Performing of laparoscopic cholecystectomy (l.ch.) was accompanied by the increased number of intraoperational complications, especially extrahepatic biliary ducts injures. The aim of this study is to present four year experience of the authors in performing l.ch. and to point out the complications which occured. In the years 1992 - 1995 there were 1200 l.ch. performed. Patients with acute inflammation of gallblader and inflammatory changed surroundings as well as patients who had earlier undergone an operation on their epigastrum were not qualified to be operated on using l.ch.. In 4 cases there were postoperative complications which required another operation:
- in one case there was a classical iatrogenic injury of the common bile duct, diagnosed on the third day after the l.ch., repaired by hepatico-jejunoanastomosis,
- in one case injury at one point of the common bile duct wall took place undoubtedly performed by electrocautery,
- in two cases 3 months after l.ch. inflammatory infiltration proved to be probably the result of burning with diathermy.
In one case transection of the common bile duct occured diagnosed intraoperatively. It required conversion and repair operation. End to end anastomosis splinted by T tube was performed. In one patient during the operation right pneumothorax took place, and in one case puncture of the aorta with Veress needle occured (with no consequences). L.ch. requires from a surgeon both excellent knowledge of anatomy and its variations of hepatoduodenal ligament as well as being especially critical while operating. In our opinion l.ch. is the method of choice in the treatment of gallblader stones and it does not have to be accompanied by iatrogenic bile ducts injury which constituted 0,16% in our Clinic.

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BREATH-HOLD MR CHOLANGIOPANCREATOGRAPHY (MRCP) WITH FAST ADVANCED SPIN ECHO TECHNIQUE (FASE) IN THE DIAGNOSIS OF MALIGNANT OBSTRUCTION OF THE LOWER BILIARY TRACT

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OBJECTIVE : To determine whether MRCP can provide useful images in distal bile duct obstruction.
SUBJECTS AND METHODS : MRCP was performed in 55 patients with suspected pancreatobiliary diseases. In 14 patients lower biliary tract obstruction was confirmed by direct cholangiography. These included 8 pancreatic carcinomas, 2 bile duct carcinomas, 1 carcinoma of the papilla of Vater and 3 chronic pancreatitis. MRCP was performed with Toshiba 1.5T System VISART using QD Spine Coil. The sequence parameters were TR/TE=∞/250ms, one shot, echo train length of 202, slice thickness=40mm, matrix=384×384, FOV=35×35cm. Frequency selected fat saturation pulses were employed. Acquisition time was 3 seconds.
RESULT : Excellent images of pancreatobiliary tract were obtained in all patients by MRCP. Pancreatic carcinomas appeared as main pancreatic and common bile duct strictures. In bile duct carcinomas localization and patterns of bile duct obstruction were clearly visualized. In carcinoma of papilla of Vater filling defect was observed both in the distal common bile duct and main pancreatic duct. In chronic pancreatits smooth tapering stenosis of the common bile duct was depicted. In 3 patients with unresectable malignancy, endoscopic biliary dranage was performed and MRCP was useful to evaluate patency of the stent.
CONCLUSION : MRCP is a noninvasive technique with excellent accuracy in the diagnosis of bile duct obstruction and its causes.

P434

BILIARY IMAGING BY SPIRAL CT CHOLANGIOGRAPHY

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Following intravenous injection of biliary contrast, Spiral Acquisition Computerised Tomography allows the acquisition of volumetric data enabling three dimensional reconstruction and multi-angle projections of the biliary tree. Scans were acquired using a Picker PQ2000. Oral biliary contrast (Sodium Ipodate 3g) was given 14 hours and 3 hours before scanning to fill the gallbladder. 150mls of Meglumine Iotroxate (50mg/ml) · [Biliscopin, Schering AG, Germany] was infused intravenously over 60 minutes before scanning followed by 20mg of Buscopan. An initial spiral scan was performed through the upper abdomen to localise the biliary tree using a collimated slice thickness of 10mm with a pitch of 1, allowing a coverage of 21cms. A second scan was then performed with a collimated slice thickness 2-3 mm with a pitch of 1 to1.5 during a single breath hold. The axial images were indexed at 1mm. The data collected were used to reconstruct the biliary tree using surface shading (3D) and multi-planer reconstruction methods.
Scans were performed in 30 patients, 7 of whom had previously undergone failed ERCP. Satisfactory scans showing complete biliary anatomy including cystic duct insertion and anatomical variations of hepatic ducts were obtained in 29 patients (97%). Pathology was demonstrated in 4 patients - common bile duct stones (2), benign common bile duct stricture (1) and papilliary stenosis in a patient with scleroderma (1). All patients with both abnormal and normal scans have had the findings confirmed by alternative means or by uneventful clinical follow-up. All patients tolerated the procedure well. SCTC is an attractive non-invasive method of biliary imaging producing high definition pictures of the biliary tree.

P435

CHOLELITHIASIS FOLLOWING GASTRECTOMY OR COLECTOMY FOR CANCER

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PURPOSE: The aim of this study was to clarify clinical findings of cholelithiasis following gastrectomy or colectomy for cancer of the stomach or the colon. *METHODS:* We examined 235 cases with gastrectomy and 151 cases with colectomy for cancer. Gastrectomized cases were composed of 160 cases of subtotal gastrectomy (SG), 66 cases of total gastrectomy (TG), 9 cases of other types of gastrectomy (OG). Colectomized cases were composed of 26 cases of right hemicolectomy (RH), 57 cases of transverse colectomy or left hemicolectomy or sigmoidectomy (TLS), 42 cases of proctosigmoidectomy (PS) and 26 cases of abdominoperineal excision of rectum (AP). Cholelithiasis was diagnosed when the findings of stones or sludge were detected in the gallbladder or bile ducts on ultra sonograms or computerized tomograms. *RESULTS:* Postoperative gallstones or sludge were detected in 25 cases (10.7%) of gastrectomized cases, and in 12 cases (7.9%) of colectomized cases. The incidence of cholelithiasis was significantly ($P<0.01$) higher in cases of TG than in cases of SG, and significantly ($P<0.01$) higher in cases of Roux-en -Y anastomosis than in cases of Billroth-I anastomosis. The incidence of cholelithiasis in cases of AP was higher than in cases of other colectomies, but the difference not statistically significant ($P>0.05$). Biliary surgery were performed in 6 gastrectomized cases with cholelithiasis and in no colectomized case with it. *CONCLUSIONS:* Cholelithiasis occurs in about 10% of cases with gastrectomy and in about 8% of cases with colectomy for cancer, and appears to be the major complication after TG and Roux-en -Y anastomosis. However cholelithiasis following colectomy may be not the major complication.

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LONG TERM EFFECTS OF LOST INTRAPERITONEAL GALLSTONES

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As laparoscopic cholecystectomy (LC) has gained wide spread popularity, different types of complications are encountered. One of them is the spillage of gallstones into the abdominal cavity during surgery.

An animal model has been used to investigate the long and the short term effects of this complication. Gallstones taken from 20 LC patients were placed into the abdominal cavity of 20 rats. The stones were analyzed for biochemical nature and cultures were obtained. The rats were kept alive in two groups for 3 and 6 month periods. Nine patients (45%) had pure cholesterol stones and 4 patiens (20%) had bilirubin stones and 7 had (35%) mixed stones. Cultures obtained resulted negative. At the end of the study during laparotomies it was observed that the stones were sealed with omentum. Any gross pathology, abscess formation was not seen except in a rat, in the group 6 month, which had a necrotic omentum and abdominal wall sinus formation. Pathological studies revealed different degrees of lymphocytic response between the groups. Inflammatory cell response was seen in lesser degree in the cholesterol groups and mesothelial cell proliferation was seen as a late response As a result, lost intraperitoneal gallstones did not cause harmfull sequela in the long term period and there was no gross histopathological difference between the 3 and 6 months groups. Due to these results it is concluded that agressive manipulations for the spilled gallstones should be avoided during LC.

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BILOMA & BILIARY FISTULA POST-HEPATORRAPHY FOR LIVER TRAUMA

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During 1986-1994, 6250 patients were admitted to the A&E Unit of the University Hospital KL, with 175 patients requiring hepatorraphy. 11 patients developed either a biloma, biliary fistula or both. Patients' ages ranged from 15-40 years with a mean ISS of 23. 7 patients suffered penetrating injury & 4 were victims of blunt trauma. The right lobe was injured in 10 patients, with 1 patient sustaining left lobe injury. All liver injuries were either grade 3(7 patients) or grade 4(4 patients). No patient sustained extrahepatic biliary tract injury. Bilomas & fistulas were diagnosed 14-30 days post-injury(mean 24 days) by CT and HIDA scans. All were managed by CT-guided percutaneous drainage. 1 patient also required percutaneous transhepatic cholangiography with biliary stent placement due to bile-stained ascites. Fistulas persisted from 5-120 days (mean 44 days). No patient required further operative intervention and all fistulas closed spontaneously without complication.

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SELECTIVE ERCP AND ENDOSCOPIC PAPILLOTOMY (EPT) IN ACUTE LITHIASIC PANCREATITIS (ALP)

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ALP may be accompanied by papillary obstruction (PO) in most cases (67%), and it is spontaneusly resolved within the first 48 hs.(Br.J.Surg.79:Suppl S120,1992). Persistent PO (PPO)is present in a minimum percentage (5-10%). There are the only ones that should be treated endoscopically or surgically in a relatively early way (48-72hs). METHODS: From 1987 to 1995, patients (n=197) having ALP have been studied and treated prospectively. At admission patients were divided into 2 groups: Group 1:mild and moderate cases (n=179) and Group 2: severe cases (n=18). Group 1: patients underwent medical treatment for 6±1 days and then a complete and definite biliary surgery was performed (89%). EPT prior to surgery was done only when evidence of PPO (n=13), and as the only treatment in 3 cases. Group 2: in patients admitted at Intensive Care Unit, sistemic and local complications were treated. EPT was performed in cases of PPO (n=5) and as the only treatment in 1 case. Definite biliary surgery performed in 15 patients (84%) with a mean of 9.9±5.1 days after admission. RESULTS: Group 1: the mean hospitalization time was 8±2 days. Morbility was 8.9% and mortality was null. Group 2: the mean hospitalization time was 24±15 days. Morbility was 38% and mortality was 16%. There was no direct correlation between PO and mortality. We think that performing an early EPT, without a justified PO , does no modify the course of ALP, but may complicate the illness. Selective ERCP and EPT were appropriated for the treatment of ALP.

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INTERACTION OF OCTAPEPTIDE OF CHOLECYSTOKININ , VASOACTIVE INTESTINAL PEPTIDE AND SUBSTANCE P ON DYNAMICS OF BILIARY SYSTEM AND CARDIOVASCULAR SYSTEM

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AIM:

This study was designed to determine the effects of the octapeptide of Cholecystokinin (CCK-OP),vasoactive intestinal peptide (VIP) and Substance P (SP) on dynamics of biliary system and cardiovascular system.

GROUPS:

(1) CCK-OP was infused at 10 ng/kg/min (n=13). (2) CCK-OP was infused at 20 ng/kg/min (n=15). (3) VIP was infused at 50 ng/kg/min (n=14). (4) VIP at 50 ng/kg/min conjioning with CCK-OP at 20 ng/kg/min was infused (n=11). (5) SP was infused at 100 ng/kg/min (n=15). (6) SP was infused at 200 ng/kg/min (n=12).

METHODS:

A pressure-monitored perfusion cather was inserted into left ventricle. Left ventricle stroke pressure (LVSP) and ± dp/dt max were obtained. A catheter was passed into the common bile duct and the Sphincter of Oddi (OS) through duodenum, motility of OS and pressure in the common bile duct were recorded during 30 minutes perfusion.

RESULTS:

Both CCK-OP and SP significantly stimulated dynamics of biliary system, increasing pressure in common bile duct ($p<0.05$),increasing phasic wave frequency and motility index of OS ($p<0.05$). CCK-OP and SP significantly inhibited dynamics of cardiovascular system,decreasing LVSP and ± dp/dt max ($p<0.05$), with CCK-OP being more potent. VIP alone showed a little effect on decreasing pressure in common bile duct, and no significant effect on OS and cardiovascular system. In conjunction with CCK-OP , VIP produced inhition on the effect of CCK-OP on biliary system,but not cardiovascular system.

CONCLUSION:

These studies indicate that it may be an important nteraction between dynamics of biliary system and cardiovascular system. We conclude that gastrointestinal peptides may play great roles in the interaction between biliary system and cardiovascular system.

P440

SURGICAL MANAGEMENT OF CARCINOMAS OF THE BILE DUCTS (PERIAMPULLARY TUMORS INCLUDED)

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Resectability rates and long-term survival rates of patients with carcinomas of the bile ducts remain low because of the difficulty of early diagnosis and the proximity of these tumors to vital structures. Until recently palliative percutaneous, endoscopic, or surgical biliary drainage was considered to be acceptable treatment in terms of operative death and long-term survival when compared with more aggressive methods. Then we retrospectively analyzed the outcome of 51 patients who underwent surgical treatments for primary carcinoma of the bile ducts (periampullary tumors included) in our institute between 1981 and 1995. The diagnosis was confirmed by reexamination of preserved tissue specimens. The 11 female and 40 male patients (mean age, 65 years) underwent follow-up for a maximum of 14 years (mean, 2.7 years). Resectability rates were 68% for extrahepatic bile duct and 79% for periampulla, respectively. The 5-year mortality rate in resectable cases was significantly higher compared with in palliative cases (55% vs 0% ; $p<0.05$).The curability rate in cases of periampullary, lower- and middle-third tumors was higher than that of the upper-third tumors (79% or 73% vs 46%). According to the TMN classification, the curability rate in cases of stage I was higher than others. The judgment of resectability of tumors by preoperative evaluation was so difficult that we decided it at operation in many cases. Thus we usually performe operations except for the cases with definite invasion to large vessels. Recently, in resectable cases of the upper-third cholangioma, we try to performe cholangioplasty using stents, and/or post operative intraluminal radiation to residual cancer for QOL of patients. In conclusion, resection of tumors makes worthwhile long survival in cases of the bile duct cancers.

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MANAGEMENT OF ASSOCIATED BILE DUCT STONES IN THE ERA OF LC. G.Simutis, M.D., A.Bubnys, M.D. Clinic of Abdominal Surgery, Vilnius University Santariskiu Hospital, Lithuania.

The advent of laparoscopic cholecystectomy (LC) has challenged the management of associated gallbladder (GB) and common bile duct (CBD) stones used before. A combined endoscopic-laparoscopic (two-stage) approach was approved. The aim of this report is to evaluate our experience with this approach.

We prospectively collected data on 1473 patients (pts) who underwent cholecystectomy from December 1992 to June 1995. Selective endoscopic retrograde cholangiographies (ERCH) were employed with a 91% success rate in 136 pts with "high" risk for CBD stones preoperatively and seventy-five pts were found to have CBD stones. A significant correlation was observed between suspected stones by ultrasound and stones found by ERCH ($p<0,01$). Endoscopic choledocholithotomy was successful in 60 pts. Laparoscopic or conventional intraoperative cholangiographies were performed for 12 pts in which ERCH was unsuccessful. Open surgery was considered as the second option for 15 pts in which ERCH clearance failed. In 76% of pts with simultaneous cholecystolithiasis and choledocholithiasis two-stage approach was used successfully, with a complication rate 6,6% and a mean hospital stay of 8,2 days.

Long-term follow ups (mean follow-up 12,4 months) were performed in all pts managed by two-stage approach. No recurrent biliary disease was observed. In group with "low" risk for CBD stones retained CBD stones were revealed during LC and postoperatively in one and 4 pts respectively. Stones were successfully removed with ERCH.

The results obtained suggest that a two-stage approach is clinically effective for pts with simultaneous cholecystolithiasis and choledocholithiasis although it requires adequate selection of pts but not requires additional expenses.

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BILIARY BIOPSY USING A PULLBACK ATHERECTOMY CATHETER

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Transluminal or percutaneous cytology from biliary strictures can be obtained although false negative rates are high. Guided core biopsies can be difficult to obtain but are helpful not only in the diagnosis of malignancy but also for obtaining specific histology in the case of benign strictures.

The Pullback Atherectomy Catheter is a wire guided device designed for the removal of arteriosclerotic plaques in peripheral vascular disease. We have used this catheter for obtaining biopsies in the biliary tree in patients with biliary strictures. Eight patients with obstructive jaundice underwent percutaneous trans-hepatic cholangiography following failure to cross strictures from below at ERCP. After passage of a guide-wire across the stricture, biopsies at the strictured site were obtained. Satisfactory cores of up to 1cm x 2mm were obtained in all patients. Seven patients underwent stenting. Histological diagnoses were adenocarcinoma (4), malignancy of uncertain cell type (1), inflammation (1) fibrosclerosis (1) and normal epithelium (1). In the patient where the biopsy yielded normal epithelium subsequent trucut biopsy at laparoscopy proved a clinical diagnosis of pancreatic carcinoma. Biopsies taken the pullback atherectomy catheter gave a definitive diagnosis in 7 patients with a sensitivity of 87%. The pullback atherectomy catheter is a useful device for obtaining biopsies of the biliary tree when conventional techniques have failed or where core tissue of strictures is required.

P443

EXTRAHEPATIC BİLE DUCT AND GALLBLADDER CARCINOMA

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Primary adenocarcinoma of the extrahepatic bile duct (EHBD) is an uncommon malignant tumor leading to progressive biliary obstruction, sepsis, secondary biliary cirrhosis and hepatic failure. The incidance of gallbladder carcinoma (GC) varies in different parts of the world. Early diagnosis of gallbladder and EHBD carcinoma are rarely achieved because of a lack of spesific signs and symptoms.

The data concerning 27 patients operated on for EHBD carcinomas and 31 for GC were collected retrospectively. This study did not include patients with carcinoma of the ampulla vater or intrahepatic cholangiocarcinoma 42 patients were men (72%) and 16 women (28%) mean age was 60.1 years.

EHBD carcinomas were classified an upper -middle or lower-third tumors according to the American Joint Committee on cancer. Distrubition of EHBD carcinomas: 12 patients had upper-third, 4 middle-third, 3 lower-third and 8 diffuse. Also GC were divided according to Nevin classification: There were 13 patients in stage 5, 8 in stage 4, 8 in stage 3,1 in stage 2 and 1 in stage 1.

In the diagnosis of EHBD carcinomas, US were performed in 27, PTC in 19 and CT in 6 patients. The most common diagnostic procedures were US and CT in the diagnosis of the GC.

The curative resectability rate was 0% and palliative resectability rate was 75 % in the patients with EHBD carcinoma. Curative resections were done 22.5% of the patients with GC. The mean survey was approximately 9 months in the GC and 6 months in EHBD carcinoma.

As a result of this study; the prognosis is poor in EHBD carcinoma and GC. The most effective factors on the prognosis are early diagnosis and extended curative resections.

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LAPAROSCOPIC CHOLECYSTECTOMY - ANALYSIS OF INTRA AND POSTOPERATIVE COMPLICATIONS

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Laparoscopic cholecystectomy (LH) has been performed in 286 selected patients with symptomatic gall bladder calculosis. This represent one fifth of all cholecystectomies operated in our clinic from October 92. In 33(11,5%) cases LH was performed in complicated cholecystitis. More frequently intraoperative complications in 36(12,5%) cases were **bile leak** due to accidental perforation of wall of gall bladder. **Spillage of stones** occurred in 9(3,1%) cases, and in one case had been reason for conversion. **Bleeding from cystic artery** happened in 6(2%) cases. **Enlargement of umbilical incision** had been necessary in 17(6,3%) cases because the difficult extraction of gall bladder. One case (0,34%) of **transection of common bile duct** was recognized on operation and "end to end" suture over T tube was created after conversion. A case with **suture of small bowel to the umbilical incision** was noticed on the end of operation. Only one patient had to be reoperated after LH due to biliary peritonitis from **incompletely occluded cystic duct**. Two cases of **postoperative bile collection** were recognized (confirmed by HIDA) and successfully treated with punctions and drainage. Two **retained common bile stones** (0.74%) were evacuated endoscopicaly after papillotomy. Five (1,8%) **infections of umbilical wound** after operation needed management - early removing of skin clamps. Two **postoperative hernias** (0.74%) occurred in late postoperative period. Conversion rate was 19(6,6%).No mortality occurred in our serie. Usually we discharge patients after successfully LH on second postoperative day.
Our modest experience with LH confirm advantages of this operation, but in the same time warn for many pitfalls in the path of successful intra and postoperative management of the patients.

P445

ESTROGEN RECEPTORS IN GALLBLADDER CARCINOMA

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Malignant tumors of the Gallbladder are in increasing.The percentage of signet ring cell carcinoma is not frequent,but it has the special features which are not known well.Because that,we study them:
Cancer tissues of 3 patients with signet ring cell carcinoma were fixed with 10% neutral formalin.The paraffin sections were stained with HE,PAS,HID-AB and PAP (using the primary antibody of estrogen receptor-ER).
The patients are only women,between 30 and 40 -year old,with predominantely sialomucins, with diffuse infiltration and with poorer outcomes.The most important finding is the demonstration of ER in the nucleus of the cancer cells.
The authors discuss estrogen dependet prolife ration in cases with signet ring cell carcino ma as well as the possible endocrine therapy of these patients in the near future.

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COMPLICATIONS OF LAPAROSCOPIC CHOLECYSTECTOMY
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From 1991 to 1995, 2700 patients have been qalified to laparoscopic cholecystectomy/LCH/. 1712 female and 988 male from 12 to83 years of age.Among 2700 patients have been found 1080 cases of acute cholecystitis,and 1610 chronic cholecystitis,10 cases carcinoma of gallbladder, Among 1080 cases of acute cholecystitis have been found 423 cases of empyema gallbladder and 657 cases of hydroma gallbladder.15% of our patients required creation of CO_2pneumoperitoneum so"open" way due to peritoneal adhesions having got different abdominal operations previously.In the rest of our patients the CO_2 pneumoperitoneum have been typicaly with Véres needle.8% of our patients CO_2 pneumoperitoneum have been done to the greater omentum,68 ofLCH have been changed on classical cholecystectomy due to anatomical changes and identyfication difficulties and /or great inflamation changes wall of gallbladder or in the duodenohepatic ligament.7 patients common bile duct have been injured,53 patients of gallbladder wall have been injured with bile discharge and calculi have been lost.Those patients required washing out and sucking out the bile and the calculi wos picking up to the special container.70%our patients required draining of peritoneal cavity. We have had 45 cases of bleeding from abdominal wall,53 cases of bleeding from place gallbladder resected.2 cases of dudenum lesion.Open cholecystectomy have been performed 14 time in those cases.Bleeding after abdominal troacar puncture wos provide mattres suturae made under camera control or Foley catheter hemostatic compresion

P447

IMMUNOHISTOCHEMICAL DETECTION OF MIB-1 IN CARCINOMA OF THE EXTRAHEPATIC BILE DUCT
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We investigated the value of immunohistochemical detection of MIB-1 as a prognostic marker in carcinoma of the extrahepatic bile duct (EHBD).
MATERIALS AND METHODS: Surgical specimens from 47 patients with EHBD cancer were immunostained with MIB-1 (IMMUNOTECH S.A.) against Ki-67 nuclear antigen, using the avidin-biotin peroxidase complex technique.
RESULTS: 1)Survival rate of the patients with low MIB-1 labeling index (LI<32%) has been better than the patients with high MIB-1 LI (LI>32) ($p<0.05$). 2)MIB-1 LI was significantly higher when lymph node metastasis was positive (43.7±23.9%) than negative (25.1±16.8). 3)No significant differences were observed according to the TNM staging, histologic type, lymphatic invasion or venous invasion.
CONCLUSION: The results indicate that MIB-1 might be a prognostic indicator in patients with EHBD carcinomas.

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SURGICAL TREATMENT OF CANCERS OF THE EXTRAHEPATIC BILIARY TRACT IN THE ELDERLY
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Cancers of the extrahepatic biliary tract are rare, but they pose great problems from the diagnostic and therapeutic points of view. Surgical resection offers the only prospect of cure for patients with this type of cancer. The purpose of this study is to clear the optimal surgical treatment of cancers of the extrahepatic biliary tract in the elderly. From January 1975 to December 1993, 32 surgical resections out of 48 patients were performed. 16 patients were excluded for surgery. We review a series of 7 surgical resection of cancers of the extrahepatic biliary tract performed in patients 75 or older than 75 years of age (aged group). A retrospective comparison was conducted with a group of 25 surgical resection of those performed in patients younger than 75 years of age (young group) during the same time period. The elderly patients were ranged from 75 to 86-year-old (mean age, 79.0 years). In the aged group there were 5 tumours in the upper common bile duct and 2 tumours in the lower, and 13 in the upper and 12 in the lower in the young group. 5 resections of bile duct only(including hepatic duct) and 2 pancreatoduodenectomy were undergone in the aged group, whereas 12 resections of only bile duct, 2 resections of bile duct with partial hepatectomy and 11 pancreatoduodenectomy were undergone in the young group. Perioperative factors affecting survival (operation time, blood loss in operation and hospital stay) were compared between two groups, but there were no significant differences. The overall operative mortality was none in this series. The operative morbidity was 14% (1/7) in the aged group and 52% (13/25) in the young group. In the aged group, the operative morbidity was significantly lower than that in the young group ($P < 0.05$). Three and five year survival rates were 51.4, 51.4% in the aged group and 26.1, 11.2 % in the young group, without significant differences. It was concluded that age is not a contraindication to surgical resection of cancers of the extrahepatic biliary tract which offers the only hope for long-term survival.

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ENDOSCOPIC BILIARY ENDOPROSTHESIS FOR UNEXTRACTABLE COMMON BILE DUCT STONES.
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Endoscopic sphincterotomy fot removal of stones from the common bile duct is an established procedure. Large stones, however, can be unavailable for basket trapping and/or extraction in some cases. In this patients , which are at high risk of surgery , endoscopic insertion of biliary endoprosthesis seems to be an alternative approach to dissolution therapy or ESWL. During the last 5 year , among 2143 ERCP-s 505 examinations demonstrated common bile duct / CBD/ stones in our institution. In 51 of these cases, an endoprosthesis was inserted into the CBD after extended endoscopic sphincterotomy because of failure of extraction of the large stones. Also ursodeoxycholic-acid treatment was initiated thereafter. Mean age of patient was 76 yrs / range 49-92 yrs/ , 33 females and 18 males. Acute complications after procedure were : mild bleeding not requiring transfusion, anf 1 perforation treated surgically some days after prosthesis placement. Late complications until now included: peritonitis in 1 case, and recurrent jaundice due to drain clogging in 6 patient. These patient were treated with replacement of endoprosthesis. Remaining patient are well since the procedure and in 11 cases controlled about 6 months after endoprosthesis placement endoscopy verified significantly smaller or no stones in the common bile duct and in 3 cases even the endoprosthesis has disappeared. Conclusion: endoscopic insertion of a biliary endoprosthesis is a safe and effective treatment for the huge CBD stones in high risk patients in whom endoscopic sphincterotomy and attempts to remove the stones are not succesful. In more than 20 % of cases dissolution of stones with ursodeoxycholic acid may be expected.

P450

THE DILEMMA OF HOW TO DEAL WITH A GALLBLADDER CARCINOMA IN LAPAROSCOPIC SURGERY

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INTRODUCTION: If a gallbladder carcinoma (g.c.) is removed by laparoscopy, there could be the danger of carcinoma cell spread and metatasizing. The present retrospective study ought to be of help in decision-making if the diagnosis of a g.c. is made after a laparoscopic cholecystectomy (.l.che.).
PATIENTS AND METHODS: Between 1992 and 1995 six pat. suffering from g.c. were operated by laparoscopy. The tumor diagnosis was not made prior to the intervention. During the same period 1288 l.che's were performed. The incidence of g.c. was 0.47% (6/1288). The tumor stages were pT1 n=3, pT2 n=1, pT3 n=1, pT4 n=1. In four patients the operation was terminated by laparoscopy. In two cases we had to revert to open che. The postoperative development was uneventful in all cases.
RESULTS: Two cases no treatment - both alive and no recurrence. Two cases required an additional resection and lymphadenectomy of the hepatoduodenal ligament - both alive and no recurrence. One case no treatment, metastases at the port sites after six months, death at eight months. One case was liver metastases, chemotherapy, alive two months after surgery.
DISCUSSION AND CONCLUSION: The diagnosis of a g.c. should be verified before surgery so as to 1. avoid tumor trauma by laparoscopy, 2. subject the patient to open surgery. If che. is carried out by laparoscopy despite the incidence of a g.c., a second surgical intervention ought to be performed which should include an additional liver tissue resection as well as a hepatoduodenal lymphadenectomy. Resection of the port sites is also required.

P451

ACUTE CHOLECYSTITIS: DIRECT DISSOLUTION OF GALLSTONES WITH ORGANIC DISSOLVENTS AS AN ALTERNATIVE THERAPY.

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Surgical treatment is the most widely therapeutic aproach used in acute cholecystitis; however on high risk patients it should be interesting to performance alternative therapies to improve the prognosis.
METHODS: Ten patients aged between 70 and 80 years old with acute cholecystitis were estudied. In all patients, a percutaneous transhepatic drainage during 5-8 days was used. After resolution of acute inflamation, direct contact disolution with methyl tert-butyl ether (MTBE) was performed. Results and complications were compared with 20 patients with non complicated gallbladder stones treated with MTBE.
RESULTS: 1.- All ten patients were asymtomatic in a period of 5 to 8 days after cholecystostomy. 2.- Gallbladder stones were dissoluted in 100% of the cases. 3.- Complications of the procedure were similar in both groups.
CONCLUSIONS: Cholecystostomy and direct dissolution with organic disolvents is an excellent therapy in patients with acute cholecystitis and with increased surgical risk.

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LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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From 01.Jan.1994 to 15.Nov.1995 138 patients (118 female and 20 male) with a mean age of 58 years suffering from acute cholecystitis underwent gallbladder operation. In 60 cases (43 %)conventional Cholecystectomy and in 78 cases (57 %) Laparoscopic Cholecystectomy was performed, but in 6 of them (4,3 %) the operative approach has to be changed to open Cholecystectomy in case of severe inflammatoric adhaesions and technical difficulties during preparation of Calot's triangle. Intraoperative technical difficulties occured in 24 other Laparoscopic Cholecystectomy patients, but they needed no conversion to open procedure. Mean operating time in laparoscopic Cholecystectomy was 96 min. It is 30 min longer if compared to Laparoscopic Cholecystectomy uncomplicated gallstone disease cases (66 min).
Postoperative complications occured in 14 cases(10,1 %) (Wound infection in 6, develop of cardiac complaints in 4 , postoperative hernia in 2, icterus in 2 cases).
There were no patients who needed later laparatomy because of complications and no per-or postoperative cases of death.
30 patients (21,7 %) had significant concured pathology (M.ischaemicus, M.Hypertonicus, Diabetes mellitus, Rheumatoidarthritis, Bronchial asthma), and they stayed in hospital 10,4 days. Other acute cholecystitis patients, who were operated on laparoscopically, spent in hospital 5.2 days.
These results show the possibility of Laparoscopic Cholecystectomy as a secure operative approach to acute cholecystitis with nearly the same postoperative advantage than laparascopic operation for uncomplicated gallstone disease.

P453

INTRAHEPATIC LITHIASIS SECONDARY TO IATROGENIC BILE DUCT INJURY. A PLEA FOR THE PERMEABLE CHOLANGIO-DIGESTIVE ANASTOMOSIS.

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Our work proceed from the case of a 58 years old female patient who underwent an open cholecistectomy for lithiasis with an iatrogenic injury of the main bile duct during the operation.The billiary repair was performed at once by cholangio-jejujnostomy with Roux en Y loop. After one year, the patient became icteric, jaundice due to biliary obstruction, that lasts permanently. 3 years after first operation was admitted in our clinic for cholangitis and persistent infection with bacillus Proteus. We found intraoperatively the stenosis of cholangio-digestive anastomosis and disseminated intrahepatic lithiasis. The type of billiary stenosis was Type III according Bismuth's classification. The operation consisted in abolishing of the previous anastomosis, an extended intrahepatic desobstruction followed by cholangio- jejunostomy (with Roux en Y loop) using the left hepatic duct according Hepp - Couinaud's technique. The disappearance of jaundice became complete only after 3 month. The reported case is a plea for the permeable cholangio-digestive anastomosis. Two main factors are thought to be responsible for the formation of intrahepatic stones : bile stasis and bacterial infection. An inadequate billiary drainage due to the first repair was responsible for the occurring of the bile stasis which aids growth of intrahepatic calculi and aggravates bacterial infection in situ. The prognosis of these cases depends on the level an extent of the stenosis, inefficient previous tentative of the biliary repair and not at the least on the experience of the operating surgeon. The permeable anastomosis and the adequate biliary drainage are the key of the success in the repair of iatrogenic lesions of the bile ducts.

P454

ENDOSCOPIC ULTRASOUND IN THE DIAGNOSIS AND STAGING OF GALLBLADDER CARCINOMA

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Objective : To evaluate the accuracy of endoscopic ultrasound in assessing the diagnosis and staging of carcinomas of the gallbladder.
Subjects and methods : During a period of 3 years, endoscopic ultrasound (EUS) has been performed in 469 patients suspected of having carcinoma of the gallbladder. Examination has performed using Olympus UM-20 with 12 MHz radial transducer. In 29 patients carcinoma of the gallbladder was histologically verified by operation. Eleven patients were men and 18 were women, age ranged 42 to 85 years with average of 62 years. EUS images and pathological findings were compared, and diagnostic accuracy of EUS was evaluated.
Results : In 28 of 29 patients EUS accurately demonstrated carcinoma of the gallbladder. A superficial carcinoma was depicted by EUS. Five tumors were limited to the mucosa, 3 to the propria muscle layer, 16 to the subserosal layer and 5 invaded beyond the subserosal layer. Depth invasion was correctly diagnosed 14 of 29 (48%) by EUS. Depth invasion was overestimated in 6, and underestimated in 9. In those patients EUS failed to demonstrate 3 layer structures of the gallbladder wall.
Conclusion : EUS is highly accurate in the detection of carcinomas of the gallbladder. Also EUS provides useful information on depth invasion of carcinomas.

P455

CHOLANGIOCARCINOMA IN PATIENTS WITH OPISTHORCHIASIS

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Cholangiocarcinoma is very common in endemic area of the liver fluke *Opisthorchis viverrini*. Survival after surgical treatment of this cancer in association with opisthorchiasis was prospectively studied in thirty patients, all resided in endemic area of the fluke. The median age was 52 years (range 32-69 years) and twenty five patients were male. Seven patients had their tumours removed, four with concomitant liver resection. Twenty two patients underwent palliative biliary bypass procedures using the segmental duct. Laparotomy and biopsy of metastatic lesion was done in one patient. Patients were followed up to 2 years or until death. The 1-YSR after tumour resection was 85.7%, and 2-YSR was 42.9%. Following palliative proecedure, 1-YSR was 26.1%, all patients died within two years. The median survival was 8 months. Survival after surgical treatment of cholangiocarcinoma in patients with opisthorchiasis is rather similar to that reported among those without associated liver fluke infection.

P456

THE EFFECT OF REVERSING OBSTRUCTIVE JAUNDICE ON BOWEL-WALL PERMEABILITY IN THE RAT

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Introduction
Patients who undergo operations to relieve obstructive jaundice (OJ) have an unusually high incidence of septic post-operative complications, such as multisystem organ failure. A possible trigger may be the development of a defect in the gut barrier, allowing bacteria or bacterial toxins to enter the tissues. We hypothesised that the bile produced after a period of OJ may damage the bowel wall and alter bowel permeability.
Methods
Experiment 1. A Thiry-Vella loop (TVL) was created, and a silastic tube inserted into the bile duct, the distal end of which was inserted into duodenum. The tube was blocked for 1 week to allow OJ to develop. It was then unblocked and the TVL instilled with labelled Escherichia coli. Twenty-four hours later bacteria in the distant organs (liver, spleen and mesenteric lymph nodes) were counted.
Experiment 2. A length of silastic tubing was interposed between the bile duct and the duodenum. It was blocked for 7 days and then released, and 24 hours later the permeability of the gut to radio-labelled endotoxin and EDTA was measured.
Results and Conclusions
No evidence was found for increased bacterial translocation or bowel permeability following return of bile to the bowel lumen.

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ACALCULOUS CHOLESTEROSIS OF THE GALLBLADDER

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The pathophysiological and clinical significance of hyperplastic cholecystoses has not been completely understood. Cholesterosis, the commonest of hyperplastic cholocystoses, may occasionaly give rise to symptoms by itself.
Between February 1978 and December 1995, at the Surgical Department of Ioannina Medical School, 3382 cholecystectomies had been performed. Cholesterosis was found in 399 cases (11.8%) and among them there were 37 cases without stones (acalculous) in the gallbladder or in the choledochal duct, a frequency of 9.3%. The material comprises 294 women and 105 men (men to women ratio of 1:2.8) and the average age was 56 years (range 17 - 93 years). The diagnosis was, mainly made by ultrasonography.
The clinical symptomatology for the 37 cases without calculi in the gallbladder was as: pain 33 (89%), dyspeptic symptom 27 (73%), jaundice 14 (38%) and fever 4 (11%). Cholecystectomy was performed in all cases and in 4 of them choledocholithotomy was also performed.
Cholesterosis was found both macroscopically (strawberry gallbladder) and microscopically in all cases. Cholesterosis polyps were noticed in 15 cases. In 2 gallbladders there were also found adenomyomatosis.
While the finding of cholesterosis is not itself an indication for cholecystectomy, in many cases may give rise to symptoms and serious complications such as jaundice which are indistinguishable from those of biliary lithiasis. Cholecystectomy is the only therapeutic approach.

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MANAGEMENT OF THE KLATSKIN TUMORS

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Carcinoma of the hepatic duct and hepatic duct bifurcation(Klatskin tumor) are being seen with increasing frequency and present unique problems in management. These tumors tend to be very slow growing, and death occurs as a result of biliary obstruction rather than metastatic disease. Therefore, palliative procedures had been advised. Between march 1989- June 1995 period, 13 patients with carcinoma of the bifurcation of the hepatic ducts were treated. There were 8(61%) male and 5(39%) female, mean age was 54.3 year. Jaundice was the most presenting symptom among patients, followed by abdominal pain, weight loss and pruritis. Serum liver function tests were slightly elevated only in 3(23%). According to Child-Pugh Score, 6(46%) patients were in grade B and others in grade C. The site and extent of the obstructive lesion was best obtained by transhepatic cholangiography(100%) and abdominal CT(46%). The types of procedures were performed three categories: potentially curative resection in 1(8%), palliative surgical bypass in 4(31%) and operative intubation and drainage of ductal obstruction by U-tube or internal stent insertion in 8(61%). Seven (53.8%) patients were lost in early postoperative period. All patients except one were unsuitable for curative resection. Resection of the tumor is the only hope of cure; but palliative procedures are compatible with prolonged survival time.

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THE ROLE OF CT WITH INJECTION OF CONTRAST MATERIAL INTO BILIARY TRACT FOR EVALUATION OF ANATOMICAL CORRELATION BETWEEN BILIARY TREES AND THE PORTAL VEIN

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CT with injection of contrast material into the biliary tract provides informations of the anatomical correlation between biliary trees and the portal vein. In this study, we evaluated the efficacy of this method in assessing surgical procedure for bile duct carcinoma. Among 5 patients with hilar or diffuse bile duct carcinoma who had undergone percutaneous transhepatic biliary drainage (PTBD) due to obstructive jaundice, right or left lobectomy of the liver with or without pancreatoduodenectomy was designed in 4 cases and pancreato-duodenectomy with resection of extrahepatic bile duct in one case by conventional cholangiography. CT scan of the entire liver was performed after injection of contrast material into the biliary tract through the PTBD tube (CTPTB). In the images of CTPTB, the biliary tracts were demonstrated as high density ducts, and the portal vein was displayed as a low density structure, compared with the liver parenchyma. Therefore, it was easy to assess the anatomical correlation between bile ducts and the portal vein by CTPTB. In these patients, the transection line of the bile duct and the number of bilioenteric anastomosis was predicted, based on the location of the portal vein branches. According to the preoperative prediction, surgical procedure was excuted. Because bile ducts within the Glissonian sheath are embedded in connective tissue, separation of bile ducts alone in the hepatic hilum is difficult. Therefore, during surgery of the bile duct carcinoma in the hepatic hilum, there is difficulty in confirming position of segmental branches of bile duct in the hepatic hilum. The transection line of the bile duct including surrounding the connective tissue may be determined, based on the location of the portal vein branches after skeletonization. CTPTB provides preoperative information on anatomy of biliary trees, based on location of branches of the portal vein. Thus, it is useful to predict the consequence of dissection of hilar bile duct for determining the surgical procedure for bile duct carcinoma.

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BILIARY INTESTINAL DRAINAGE PROCEDURE IN PRIMARY HEPATOLITHIASIS

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Primary Hepatolithiasis (PHL) is the most refractory condition to treat surgically among the various benign biliary tract diseases. Some cases have the postoperative complications such as recurrent stones and cholangitis. In this study, in order to examine the effect of the biliary intestinal drainage procedure (BIDP) on the postoperative complication and outcome, sixty nine patients with PHL treated surgically in our hospital from 1986 to 1995 were reviewed. The patients were divided into a BIDP group (n=24) and a non-BIDP group (n=45). In a BIDP group, choledochojejunostomy were performed in 16, choledochoduodenostomy in 5 and papilloplasty in 3 cases. In a non-BIDP group, hepatectomy were performed in 31, operative extraction of the stones in 10, percutaneous transhepatic cholangioscopic lithotomy (PTCSL) in 4 cases.

Postoperative biliary complications in PHL

	hepatic resection	cases	residual and/or recurrent stones	cholangitis	liver abscess
BIDP (n=24)	(+)	12	8 (66.7)	4 (33.3)	4*(33.3)
	(-)	12	6 (50.0)	5 (41.7)	3*(25.0)
non-BIDP (n=45)	(+)	31	4 (12.9)	0	0
	(-)	14	2 (14.3)	0	0
Total		69	20 (29.0)	9 (13.0)	7 (10.1)

*with cholangitis

Ascending cholangitis were occurred in 9 (37.5%) and liver abscess in 7 (29.2%) of 24 cases, respectively, in BIDP group. However, no complications were occurred in non-BIDP group regardless of presence of hepatic resection.

It is suggested that the biliary intestinal drainage procedure is unreasonable procedure in PHL, especially, with residual stones or stenosis of the intrahepatic bile duct.

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PROBLEMS RELATED TO T-TUBE INTUBATION OF THE CBD FOR CHOLEDOCHOLITHIASIS

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Intubation of the CBD with T-tube is the most common procedure after choledochotomy for choledocholithiasis.In this work we present our 15-year experience in treating 711pts who underwent choledochotomy(M:45%,F:55%).The main indications for CBD exploration were: dilated CBD (26,5%),multiple small stones in gallbladder (24,5%),known choledocholithiasis(19%) or obstructive jaundice (18%).T-tube was placed in 408 pts (57,4%). Choledochoduodenostomy was also performed (33%) or primary closure of the CBD (5%).During the immediate postoperative period we had 75(10,5%) complications related to the kind of operation.Of them 24 were T-tube related: accidental removal (6), obstruction (5), bile leakage (6), bile peritonitis on T-tube removal (6).Other complications included: retained stones (25),small bile leakage(13),mild postoperative pancreatitis (9), subhepatic collection(4). Minor complications not related to the kind of operation were noted in 126 cases (17,7%) . Reoperation was performed in 16 pts:retained stones(6),T-tube obstruction(1),bile peritonitis (5) , wound dehiscence(4). Retained stones were also treated with ERCP(12p).Total mortality was 2,1%.It is concluded that : (a)T-tube intubation of the CBD is accompanied by serious complications which need special attention and treatment.(b)ERCP is a very useful method for pre or postoperarive extraction of CBD stones eliminating the need for choledochotomy and T-tube intubation. (c)Bile duct operations need special attention and fine surgical technic to avoid serious postoperative complications.

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SKELETONIZATION RESECTION COMBINING CENTRAL HEPATIC RESECTION AND CLINICOPATHOLOGIC STUDY FOR HILAR CHOLANGIOCARCINOMA

There were 98 cases of extrahepatic bile duct cancer in our hospital between October 1984 and April 1995. Among them, there were 56 cases of hilar cholangiocarcinoma, accounting for 57% (56/98). Since 1990, skeletonization resection combined with central hepatic resection was performed in 16 cases of hilar cholangiocarcinoma, in which age was from 55 to 78 years with a mean of 59 years. Resectable rate was 28.5% (16/56). After resection, the anastomoses between hepatic duct stomata and Roux-en-Y jejunal loop was performed with transanastomotic silicon stent. There was no operative mortality.

Tumor specimens of 16 cases were available for histologic study and immunohistochemistry of carcinoembryonic antigen (CEA). Bile of patients were available for CEA test and clonorchiasis examination.

The results of 16 cases of clinicopathologic study and clinical follow-up showed poorly differentiated adenocarcinoma in 7 cases (45%), well differentiation in 8 cases (50%), malignantly adenomatoid hyperplasia in 1 case (5%), Colonorchiasis eggs in bile and specimens in 5 cases (31%). CEA of bile was clear elevation in 16 cases, with a mean of 81 ± 10.6 ng/ml (normal < 15 ng/ml). Immunohistochemistry of CEA was in 100% positive demonstration. Lymph node metastasis was in 3 cases (19%). Perineural invasion was in 4 cases (25%). Postoparative follow-up was made in 16 cases with average survival of 20.3 months. The longest survival was 42 months in 2 cases, who are alive up to now.

In conclusion, the character of hilar cholangioccarcinoma in Guangzhou area is that tumors have relatively large with poor differentiation (45%). Carcinogenic cause should be related to clonorchiasis infestation of the liver. Poor differentiation and diffuse demonstration in CEA staining are significant effects of influencing the prognosis. Skeletonization resection combining central hepatic resection is good choice. Resection with transanastomotic silicon stent can be to prolong survival of patients. CEA test in bile preoperatively is quite useful in the diagnosis of cholangiocarcinoma.

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ANALYSIS OF GENE ALTERATIONS IN HUMAN GALLBLADDER CARCINOMA

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Considerable evidence has shown that gene alteration plays an important role in the development and progression of a variety of tumors. However, genetic change in gallbladder carcinoma has not yet been clarified. In this study, we analyzed alterations of p53, APC, DCC, RB and K-ras genes and microsatellite instabilities (MSI) in 25 gallbladder carcinomas to investigate the role of genetic alterations in their carcinogenesis, and to study correlations with clinicopathological factors.

Tissue samples were taken from 25 patients with gallbladder carcinomas (9 males :16 females, mean age 65 years, range: 38-79 years). Genomic DNAs were prepared from freshly frozen surgical materials. We examined loss of heterozygosity (LOH) at the p53, APC, DCC and RB gene regions by a polymerase- chain-reaction (PCR)-based analysis. In addition, the p53 and APC gene regions for allele loss were assessed using an automated fluorescent DNA sequencer. Five microsatellite markers were used for the determination of MSI by PCR. Screening of sequence variations of the p53 and K-ras genes was perfprmed by PCR-single strand conformation polymorphism (SSCP) analysis in 18 of the 25 cases. Allele loss was detected at the p53 (55%, 6/11; LOH/informative case), DCC (43%, 6/14), APC (31%, 5/16), and RB (13%, 1/8) loci. Two cases (8%) showed MSI. P53 gene alterations (exon 5-8) and the K-ras gene (exon1) detected by PCR-SSCP analysis, were found in 47% (7 /18) and 0% (0/18), respectively. A higher frequency of LOH at the DCC locus was seen in the cases with lymph node metastasis than in those without lymph node metastasis.

Gene alterations of p53, DCC and APC, rather than RB, K-ras gene alterations and microsatellite instabilities, probably play an important role in carcinogenesis of gallbladder carcinoma. These findings suggested that LOH at the DCC locus gene may be related to the degree of lymph node metastasis.

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LOWER THIRD BILE DUCT CANCER: EXPERIENCE ON 28 CASES

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Currently distal bile duct cancers are jointly reported with the others tumours of the periampullary region. In order to focuse on the own characteristics of this neoplasm, we separately analyzed 28 cases of resected lower third bile duct cancer
In the 1989-1995 period we performed 28 pancreatoduodenectomy (PD) for distal bile duct cancer, out of 182 PD for malignancy (15.4%). Male/female ratio was 2.6; mean age was 62.5 yrs. Obstructive jaundice was the first clinical presentation in all patients. Diagnostic investigations included ultrasounds and CT scan in all cases, ERCP or PTC in 50% of cases. In 16 patients PD was performed with pylorus preservation; in 10 cases intraoperative radiation therapy (IORT) was added; 7 patients received postoperative chemotherapy (CT). Final diagnosis was based on both macroscopic and microscopic appearance and was reviewed in all cases. Survival curves were calculated by the Kaplan-Meier method.
In 54% of patients a mass in the pancreatic head was shown by US and/or CT scan (mean size 3.1 cm). Final diagnosis was preoperatively suspected in 43% of cases.Operative mortality was 3.4% (1 case of sepsis). Major complications were 13.7%, minor complications 31%. Median survival was 22 months (m.), with a 13% 5yr survival rate. Median survival was 30 m. in node negative patients and 17 m. in node positive (p=0.08). No difference was observed between patients undergoing pylorus preservation or classical Whipple procedure, nor between patients undergoing IORT and/or CT or without adjuvant treatments.
In conclusion lower third bile duct cancer is difficult to preoperatively differentiate from pancreatic head cancer; it shows a severe prognosis, not significantly different from pancreatic cancer.

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THE TREND OF THE GALLSTONE DISEASE IN CHINA OVER THE PAST DECADE

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This is the second national survey on 3911 surgically treated cases with gallstones collected from 33 hospitals of 5 provinces and 2 main cities of China and was aimed at reevaluating the trend of the cholelithiasis in China and comparing with the first survey completed 10 years ago.
The results showed that cholelithiasis remained one of the most common surgical disease and accounted for 11.5% of overall hospitalized patients in general surgery at the same period of time and it occurred mostly in females over 50 years of age with female male ratio of 2.57. 80% of the patients with single positioned gallstones had their stones in gallbladder (GBS) and was mainly cholesterol stone (CS) in nature while pigmented(PS) bile duct stones (BDS) were found only in 10% of the cases which made the GBS/BDS ratio and the CS/PS ratio a significant diference as 7.36:1 and 3.4:1 respectively when compared with the results of 1.5:1 and 3.4:1, 10 years ago. A significant decreased incidence of biliary ascariasis (2.41% Vs 16.1%) and biliary bacterial infection rate (54.6% Vs 71.4%) as well as the dietary changes from low protein, fat, high vegetable to the opposite were found directly relevant to the above alterations.