The malignant polyp – When to operate: The St Mark's experience

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ABSTRACT: The world literature on malignant polyps suggests that those removed endoscopically with recognized favorable histological features for conservative management have excellent prognoses without surgery. Many sessile or 'uncertainly removed' malignant polyps after endoscopic polypectomy also show no evidence of residual cancer, suggesting that referral for surgical resection is not invariably in the best interests of elderly or poor surgical risk patients. St Mark's experience of five year follow-up of 62 patients with malignant polyps judged 'completely excised' showed three cancer-related deaths (of uncertain primary) in 78- to 81-year-old patients. Of 18 patients with malignant polyps 'incompletely excised,' seven had no cancer found at surgery, 10 were well without surgery and one died from carcinomatosis following delayed surgery. These generally encouraging results are further evidence that 'knee jerk surgery' for malignant polyps is inappropriate. **Can J Gastroenterol 1990;4(9):549-553**

Key Words: *Malignant polyps, St Mark's experience, Surgery*

Le polype malin – Quand opérer: L'expérience de St Mark

RESUME: La littérature mondiale suggère que le pronostic des polypes malins excisés par endoscopie et dont les particularités histologiques reconnues autorisent un traitement conservateur, est excellent sans résection chirurgicale. De nombreux polypes sessiles ou polypes malins déclarés "excisés de façon incertaine" après une polypectomie endoscopique ne manifestent aucun signe de cancer résiduel. Ces résultats suggèrent que la résection chirurgicale n'est pas nécessairement dans l'intérêt des sujets âgés ou à haut risque. L'hôpital St Mark, qui a effectué le suivi de 62 patients atteints de polypes malins jugés "totalement excisés," rapporte trois décès attribuables au cancer; les patients étaient âgés de 78 à 81 ans et la taille des tumeurs primitives était incertaine. Chez sept des 18 patients atteints de polypes malins "incomplètement excisés," l'intervention n'a révélé aucun cancer; 10 se sont remis sans chirurgie et l'un est décédé des suites d'une carcinomatose après une intervention retardée. Ces résultats encourageants dans l'ensemble confirment que le recours automatique à la chirurgie dans le cas des polypes malins est inapproprié.

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CRITERIA FAVOURING CONSERVATIVE management following local excision of malignant polyps were originally worked out in the rectum by Morson and others at St Mark's (1). The rationale for a nonsurgical approach was particularly relevant in the rectum when the alternative consequence involved a lifelong stoma. The advent of flexible colonoscopy and the ability to remove polyps (including polyps with invasive carcinoma) anywhere in the colon inevitably resulted in the application of similar criteria to malignant colonic polyps. By 1975 Wolff and Shinya (2), on the basis of the histopathological expertise of Riddell and Morson (3) and their already considerable experience of colonoscopic polypectomy, gave a 'seal of approval' to the principle of conservatism in the management of malignant polyps. Since then a large number of other clinical series have supported this approach (4-19), as have editorials (20,21) and review articles (15,22,23).

The situations in the colon and rectum are not entirely comparable. The rectal tumours were mostly sessile, but were managed with proctological surgical techniques which allowed deep or even full thickness excisions which would be impossible for the colonoscopist working with only a polypec-

tomy snare. Proctological surgical techniques are too dangerous in the thin-walled colon (as opposed to the rectum below the peritoneal reflection). However, most colonic polyps are pedunculated and therefore easier to remove and assess histologically. Early endoscopic literature therefore stressed the importance of complete removal by limiting general policy to endoscopic resection of pedunculated malignant polyps. Some series (7,12) initially advised surgery for invasion of carcinoma into the polyp stalk. Only a few series including the authors' (19) and that of Christie (13) specifically included pedunculated polypoid carcinomas. Along with the early histological accounts (1,24), a comprehensive summary of the 'favorable' and 'unfavorable' histological criteria determining appropriate management of malignant polyps is given by Haggitt (25), with practical aspects of histopathology also covered by others (15,19,26).

On review of the overall results of management of malignant polyps, it is clear that, of the histological criteria employed, 'adequacy of resection' is by far the most important. Provided that the polyp head is correctly oriented (15,19) and multiple step sections (perhaps six to eight) are taken across the polyp, the pathologist can be confident in assessing the extent of invasion even if there is only a 2 to 3 mm margin above the level of cell necrosis which indicates electrosurgical transsection. Most authors consider that 'vessel involvement' is an important negative feature (26), although this is contrary to the St Mark's impression. It is possible that the main effect of vessels is to provide a channel for unobstructed local invasion, but with adequate numbers of sections the extent of this should be readily apparent. Poorly differentiated carcinomas have a well known tendency to metastasize early but, fortunately, poorly differentiated carcinomas account for only a small percentage of lesions overall.

In assessment of the adequacy of resection, the endoscopist also has a major role, the pathologist being entirely dependent on him to provide an adequate specimen, properly oriented (if necessary marking the stalk region with blue or black ink or a pin). Before snaring, the endoscopist can get some idea as to the possibility of malignancy by prodding the polyp and its stalk or base, since induration and immobility are suspicious (although not diagnostic) of the presence of invasion. In hard, irregular or ulcerated stalked polyps the endoscopist is wise to snare lower down the pedicle than normal so as to provide an adequate histological specimen. For broad-stalked or sessile polyps there is less room to maneuvre during removal. In sessile polyps, especially those removed piecemeal, neither the endoscopist nor the histopathologist can be certain of adequacy of removal.

The reflex response to the presence of malignancy has always been to operate – the policy of 'knee-jerk surgery.' In the management of malignant polyps the stakes are indeed high, literally a matter of life and death. There has therefore been strongly argued debate on the matter which is likely to continue. Wilcox and others in their review (22) point out that emotional considerations will inevitably cloud the issue, some patients being pathologically afraid of any possibility of residual cancer (and therefore for surgery whatever the odds) and others pathologically afraid of operation (and so prepared to take any gamble to avoid surgery). On objective grounds surgery rarely has anything to offer. The often quoted series of Colacchio and others (27), which showed a high surgical yield of resectable lymph nodes, is now considered inadmissible evidence (22) since it included nonendoscopically removed sessile malignancies; all other series show that provided the criteria for conservatism are met it is exceedingly rare for anything to be found at operation.

The configuration of the malignant polyp is, however, of some significance. Not surprisingly, nearly 5% of sessile malignant polyps removed endoscopically in different series show residual or recurrent carcinoma, compared to under 1% of pedunculated polyps (15). Fifty-eight per cent of sessile polyps showed 'unfavorable' histology for endoscopic conservatism, whereas 90% of pedunculated polyps had 'favorable' features (26). There is therefore greater risk in applying the same rules to sessile malignant polyps which are known to be successful for pedunculated lesions.

In the first place the endoscopist is often forced to remove sessile polyps piecemeal in several or even multiple fragments, which makes it impossible for the histologist to orient and interpret the results if there is malignancy in any of them. Endoscopically too, basal edema and tissue necrosis at the polypectomy site makes completeness of excision very difficult to evaluate. Tattooing with submucosal sterile diluted Indian ink solution, injected with a sclerotherapy needle near the site (28,29), leaves a telltale blue-grey stain which lasts for at least five to six years and probably longer. This makes follow-up reinspection and biopsy at two to three months very easy. If, as is frequently the case, there is no suspicion at the time of polypectomy that a polyp is malignant, it is necessary to recall the patient within 10 to 14 days for tattooing while visible surface ulceration still identifies the site. As most malignant polyps are in the rectosigmoid colon, flexible sigmoidoscopy alone gives rapid and accurate follow-up when a tattoo is present.

Sessile malignant polyp sites should probably be re-examined at three months, six months and one year, whereas the authors re-examine a pedunculated malignant polyp site at three months and one year only. Thereafter there is no convincing evidence in the literature to suggest that more than routine surveillance intervals are required, since having had a malignant polyp does not seem to confer any increased long term risk for subsequent (metachronous) adenomas or cancer (30).

One of the more obvious features of literature series also evident in the authors' early experience (31) is that even patients with unfavorable histological criteria or polyps judged doubtfully removed on endoscopic grounds prove usually to have no abnormality found if submitted to surgery. Although several cases in the authors' 1984 series

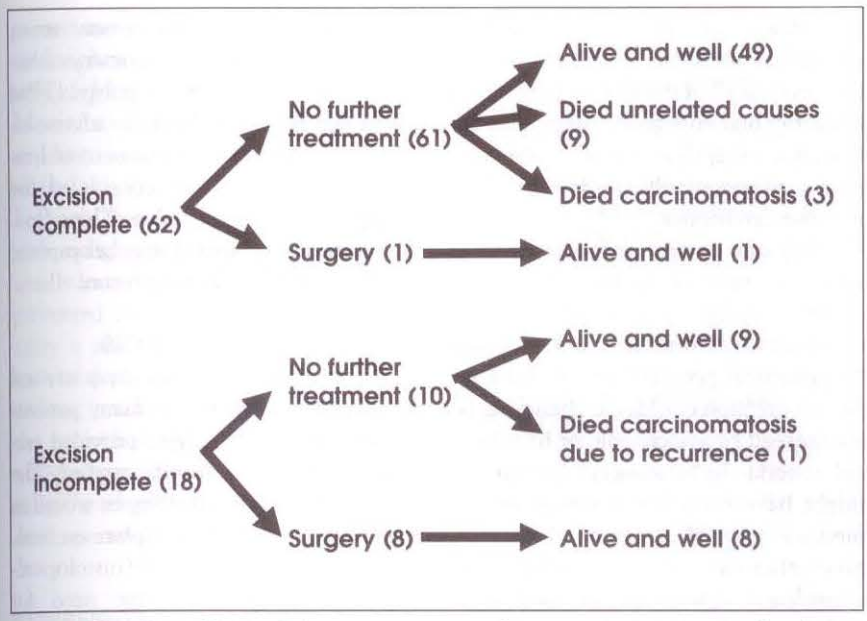

Figure 1) *Flow chart of histopathology, management and prognosis in 80 patients with malignant polyps. Numbers in parentheses are numbers of patients*

showed local residual carcinoma on the operative specimen, none had involved lymph nodes; however, one of the patients without nodes subsequently died of metastases. This emphasizes the uselessness of surgery if distant metastases are already present; surgery is also a dangerous waste of time if no residual cancer is found. There is piquancy in the fact that several of the patients reported as dying postoperatively when submitted to surgery for malignant polyps had no carcinoma in the operative specimens (10,13). Christie (10) thus points out that while "an incompletely removed malignant polyp can be lethal, colectomy can also be lethal" and supports conservative management of sessile polyps meeting histological criteria; he also suggests avoidance of surgery in unfit patients even if they do not meet the criteria for endoscopic removal. Such support for a nonoperative policy coming from experienced colorectal surgeons, endoscopists and surgical groups such as those of Christie (10), Shinya (2) or St Mark's should encourage others tending toward the 'knee-jerk surgery' approach to think again. Since the matter can only be proved conclusively by large scale controlled trials, which would be difficult to achieve in view of the relative infrequency of polyps, a reasonable compromise is for all centres to publish their long term follow-up results, which too few have done.

RESULTS

Reviewing endoscopically removed malignant polyps at St Mark's, the five year follow-up results include 80 patients with 81 polyps up to the end of 1984 – 34 men of mean age 67 years, (range 26 to 81), and 46 women of mean age 60 years (range 24 to 80). Seventy-two of the polyps were pedunculated and nine were sessile or broad-based. Distribution was as follows: cecum one, ascending colon one, transverse colon two, descending colon seven, sigmoid colon 58 and rectum 12. Sixty of the malignant polyps demonstrated residual adenoma (16 tubular, 32 tubulovillous and 12 villous); the remainder were polypoid adenocarcinomas. Seventy-nine of the carcinomas were well or moderately differentiated (including six mucinous carcinomas). Only two were high grade, one a poorly differentiated adenocarcinoma and the other a signet ring cell carcinoma. Nine of the polyps were removed piecemeal (five pedunculated and four sessile), and the remaining 72 obtained as a single specimen. The mean maximum diameter for all polyps was 17 mm (range 7 to 35); the range for the nine sessile polyps was 8 to 25 mm. The largest pedunculated and sessile polyps removed in one piece were 35 and 15 mm maximum diameter, respectively. The histopathology, details of management and prognosis are summarized in Figure 1.

Sixty-three polyps from 62 of the patients were judged to be completely excised. One patient had several additional adenomas distributed throughout the colon, and therefore immediately underwent total colectomy as a prophylactic measure; there was no residual tumour in the resection specimen. The remaining 60 patients were managed conservatively. Follow-up, based on review of hospital outpatient records or direct enquiry to the primary care physician, revealed that 50 of the patients, including the colectomy patient, were alive and well without evidence of recurrence five or more years later. Nine had died of unrelated causes. Three elderly patients (73, 77 and 80 years of age at the time of polypectomy) who originally had well or moderately differentiated malignant polyps removed endoscopically, were certified as dying of carcinomatosis (respectively at five years, four years and 18 months post polypectomy). The eldest had refused any follow-up examination after initial limited colonoscopy, the others had normal follow-up colonoscopy one and 29 months later, respectively. None had a post mortem examination and there was no proof that the cause of death was related to the original polyp.

The polyps in 18 patients were considered incompletely excised. For clinical reasons only eight of these (including both patients with high grade tumours) underwent surgical resection. No residual tumour was present in seven of the resection specimens; the other resection specimen (from the patient with signet ring cell carcinoma) contained a small deposit of carcinoma in a lymph node close to the polypectomy ulcer, but was otherwise free of tumour. The remaining 10 patients were followed up endoscopically. Seventeen of these 18 patients with incompletely excised

polyps were alive and well at least five years later. One patient with a 25 mm sessile polyp incompletely excised by piecemeal polypectomy and showing well differentiated mucinous carcinoma on histology was initially not submitted to surgery when three week re-examination showed no residual tumour at the polypectomy site. However, at one year follow-up there was definite evidence of recurrence and a sigmoid colectomy was performed. The resection specimen showed mucinous carcinoma similar to the original tumour spreading through the wall into the subserosa without lymph node involvement (Duke's B). The patient died seven months later of widespread metastatic disease; whether surgery at first diagnosis would have been curative is an imponderable.

COMMENTARY ON ST MARK'S RESULTS

These follow-up data confirm that excellent results are possible if a carefully controlled policy is pursued for endoscopically removed malignant polyps. Sixty-three polyps were considered completely excised, including five sessile (up to 15 mm across) and 58 pedunculated lesions (up to 35 mm across). All five patients with sessile polyps were alive and well five years later, supporting the findings of Christie (13) that endoscopic polypectomy is adequate treatment for completely excised pedunculated and sessile malignant polyps alike, provided they do not contain high grade carcinoma.

The three deaths from carcinomatosis in elderly patients with apparently completely excised well and moderately differentiated tumours could have been related to noncolorectal primaries or synchronous or metachronous colorectal tumours. Elderly patients with colorectal index lesions are a population at risk for either of these possibilities (32). Two of the three patients survived four and five years post polypectomy; the third, who died 18 months later, was initially referred from another hospital and had only a limited initial examination (to the splenic flexure) and thereafter refused follow-up. Recurrence cannot be excluded in these, as post mortem examinations were not carried out. However, if all of the elderly patients in the series had undergone surgical resection, it is likely that several might have died postoperatively, including those without carcinoma.

Only one patient definitely died of recurrent tumour in this series; the original polyp was sessile with a diameter of 25 mm, and was removed by piecemeal polypectomy. Completeness of excision could not, therefore, be guaranteed by endoscopic or histological criteria. In retrospect this patient might have been better served by immediate surgical resection. However, nine other patients whose polyps were considered incompletely excised (eight pedunculated, one sessile) were treated conservatively and were alive and well five years later. Moreover, seven of the eight patients treated surgically because of incompletely excised polyps (five pedunculated, two sessile) had no residual tumour in resection specimens.

Tumour seen histologically at the plane of excision may well be destroyed by diathermy. Although conservative management of incompletely excised malignant polyps clearly involves some increased risk (24,33), these generally encouraging findings are relevant in planning the management of elderly patients or those with other contraindications to surgery, and appear to apply to sessile malignant polyps (up to perhaps 25 mm across) as well as pedunculated lesions of any size.

Only two patients in the series had high grade tumours and would have been submitted to surgery regardless of the adequacy of excision. The finding of a tumour deposit in a lymph node in one of the resection specimens emphasizes the need for surgical management in this situation, in keeping with the findings of others (15,31).

Besides incompleteness of excision and high grade carcinoma, vascular invasion by carcinoma into the stalk or submucosa is considered by some authors to confer increased risk of recurrence (2,15,24,26,34). The evidence for this is poor, due to small numbers and the frequent confounding factors of high grade tumour or incomplete excision. In the present series, venous invasion was demonstrated histologically in 30 of 81 polyps (37%) and was shown to have no adverse effect on prognosis. Assessment of lymphatic invasion was considered too subjective to be of value. These findings are the subject of another paper to be published in the near future.

CONCLUSIONS

Endoscopic polypectomy is safe and effective treatment for many patients with malignant polyps, provided certain criteria are strictly applied. The polyps should, if possible, be snared in one piece to ensure complete excision, judged endoscopically and histologically; this emphasizes the need for meticulous laboratory technique and good cooperation between pathologist and endoscopist (19). In general, conservative endoscopic management can safely be advised for patients meeting the criteria with pedunculated polyps of any size, and for sessile lesions up to about 15 to 20 mm which can therefore be removed in one piece or in a few easily orientable portions. Conservative management of patients with larger sessile polyps (which require multiple piecemeal polypectomy), and other incompletely excised polyps entails increased risk. However, it seems to the authors, as to Christie (13), that the slight risk of conservatism is justified in the elderly and others with contraindications to surgery because the long term results are excellent (presumably because tumour seen histologically at the excision margin is destroyed by diathermy). The advent of endo-ultrasonography may in future make it easier to assess the presence or absence of submucosal tumour.

Patients with high grade carcinoma in a malignant polyp who are fit for surgery should undergo resection regardless of the adequacy of local excision due to their high risk of having metastases. The presence of venous invasion in St Mark's Hospital experience appears to have no adverse effect on prognosis, although others have considered vessel involvement to be a negative prognostic factor (26).

The encouraging results in the

present series and others in the literature emphasize the fact that the clinical state of the patient is in many cases as relevant to the decision between conservatism and surgery as the histological findings.

Death from metastasis in patients with malignant polyps is uncommon, usually long delayed and not invariably prevented by operation; surgical mortality is also uncommon, but on the basis of probability may kill patients without residual cancer suddenly. In the individual elderly patient with a malignant polyp removed endoscopically, the simple message is "if in doubt, don't operate."

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