

Abdominal angina in a 43-year-old woman — Treatment with percutaneous transluminal angioplasty

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ABSTRACT: A patient with the clinical presentation of chronic abdominal angina is reported. The diagnosis was confirmed by angiographic studies which revealed stenosis of the celiac axis artery at its origin, as well as significant stenosis of the superior mesenteric artery near its origin. Transluminal angioplasty of the superior mesenteric artery was performed with success. After one year the patient is free from pain. This case demonstrates the efficacy of percutaneous transluminal angioplasty in this condition and the importance of careful history and physical examination in patients with chronic abdominal pain. *Can J Gastroenterol* 1988; 2(1):28-30

Key Words: *Abdominal angina, Transluminal angioplasty*

A 43-YEAR-OLD FEMALE WHO HAD a one-year history of right upper quadrant pain radiating into the back presented to the Foothills Hospital, Calgary. The pain came on immediately after eating and resulted in sitophobia with subsequent weight loss.

Previous investigations, at another institution, including upper GI series, endoscopy, ultrasound of the abdomen and a CAT scan of the abdomen, were negative.

The symptoms persisted and the patient ate decreasing amounts because food precipitated pain almost immedi-

ately on ingestion. In the six months prior to presentation the patient had lost 40 lbs in weight.

Physical examination was unremarkable except for epigastric tenderness and a loud to an fro epigastric murmur. Hematological and biochemical investigations were negative. Blood pressure was 110/80 mmHg. There were no physical signs of cardiovascular disease.

Abdominal angiography revealed blockage of the celiac axis trunk at its origin. The superior mesenteric artery was also stenosed and the pressure gradient across the stenosis was 100 mmHg. The inferior mesenteric artery was patent and supplied areas of the superior mesenteric artery. The inferior mesenteric artery also functioned as the primary arterial supply for those areas usually supplied by the celiac axis and its branches (Figure 1).

Transluminal angioplasty of the superior mesenteric artery was performed. After the dilatation, the pressure gradient across the segment was

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35 mmHg. After the dilatation the patient developed right flank pain which resolved in 24 h. The patient was well when discharged from hospital.

Two months later the patient reported that she was eating well, the pain had disappeared and she had gained 20 lbs. However, there was residual right flank pain and the patient had become hypertensive after the initial angiogram. Whereas previously, blood pressure was always recorded as normal, on many occasions at this time her blood pressure was recorded as 160/155-105 mmHg.

It was felt that there was the possibility of some renal artery damage sustained after the initial angiogram. However, renal angiography revealed a normal superior mesenteric artery and the collateral circulation of the inferior mesenteric artery was reversed. The pressure gradient across the superior mesenteric stenosis was now less than 50 mmHg. The angiogram showed patency of both renal arteries and no evidence of atherosclerotic disease (Figure 2).

Because of continuing right flank discomfort and suspected renal artery stenosis, in the presence of sustained hypertension, an autotransplantation of the right kidney was done. After this operation blood pressure normalized (average 120/80 mmHg). The pathology report confirmed the presence of fibromuscular hyperplasia of the segmental renal arteries.

DISCUSSION

Gruntzig and Hopff (1) first developed and described transluminal angioplasty for the treatment of abdominal angina. Other investigators have shown that balloon catheter dilatation of a stenosed vessel is often successful in treating abdominal angina (2-4). With percutaneous transluminal angioplasty few complications have occurred.

The present case was unusual in that the stenosis occurred in a 43-year-old female with no other evidence of atherosclerotic disease. The fact that the segmental renal vessels showed fibromuscular hyperplasia suggests that the stenosis of the superior

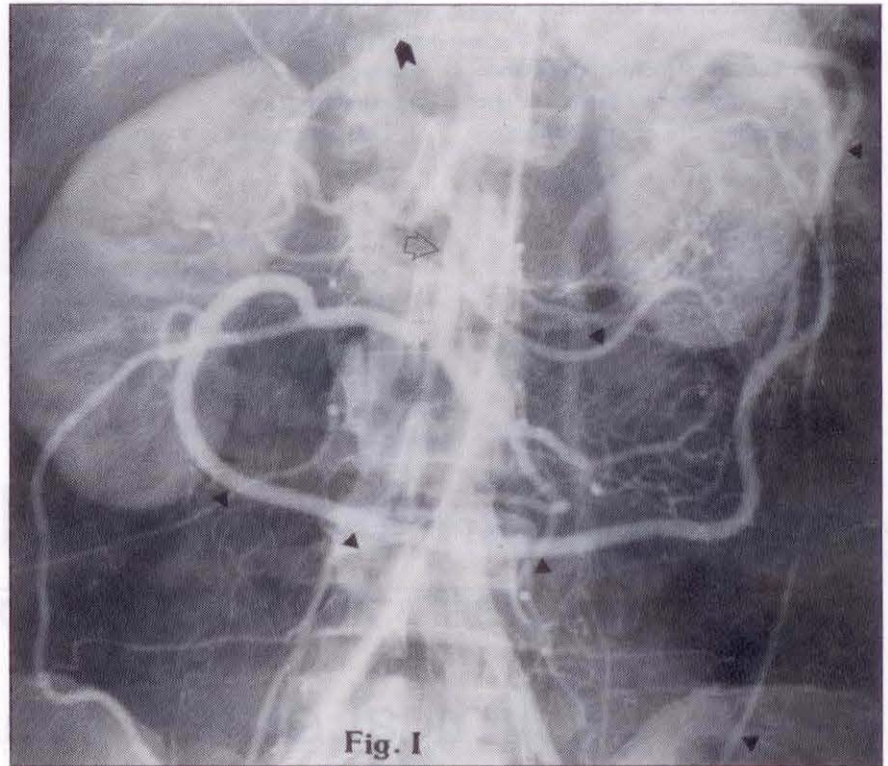


Figure 1) Initial angiogram showing complete stenosis of the celiac axis artery (black arrow) at its origin; subtotal stenosis of the superior mesenteric artery (open arrow) with a gradient of 100 mmHg across the stenosis. Blood flow to the gastrointestinal tract was principally from the inferior mesenteric artery (black arrowhead) via collaterals which flowed retrograde to the superior mesenteric artery, then via the duodenal arcades in a retrograde fashion to the celiac axis as an artery and its branches

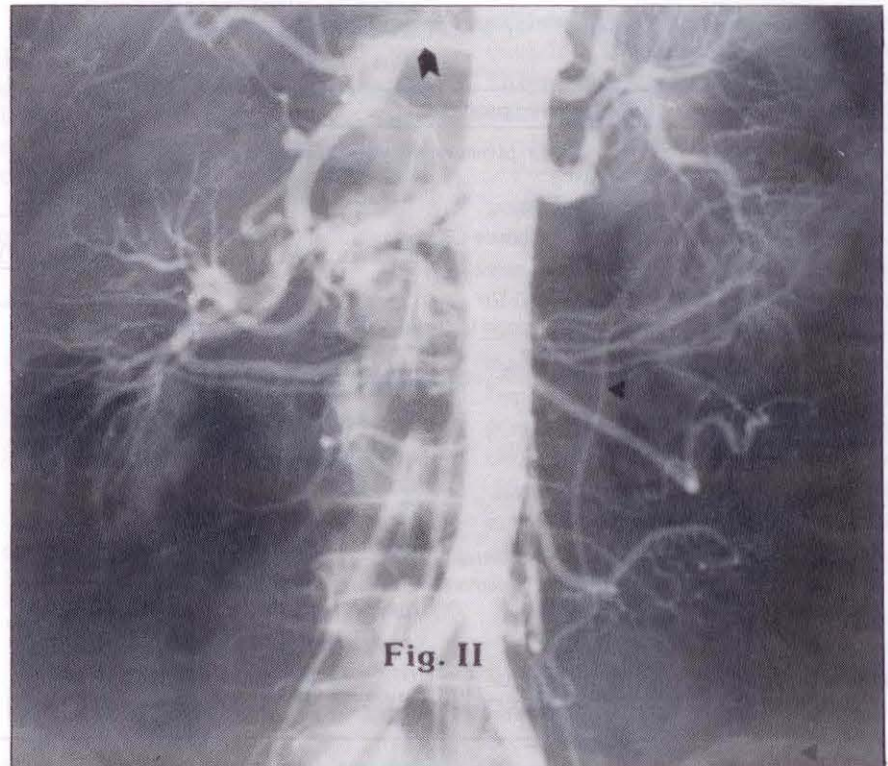


Figure 2) Angiogram following percutaneous transluminal angioplasty reveals a normal calibre of the inferior mesenteric artery (arrowhead) which now carries a normal volume of blood. The superior mesenteric artery (arrow) fills in a normal antegrade manner (gradient is now 30 mmHg) but the celiac axis still fills in a retrograde fashion

mesenteric artery was also due to that condition.

Alternative treatment of this condition is a vascular bypass graft, but this has a mortality rate of approximately

20% (5,6). Most of these patients, however, had severe generalized vascular disease, reflected in the high surgical mortality rate.

This case serves as a reminder of the

importance of a careful history and physical examination in patients with chronic abdominal pain and the value of angioplasty as treatment for the condition.

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Clinical quiz – Answers

SMALL INTESTINE

1. Causes of vitamin B₁₂ deficiency and pathogenic processes induced

Cause	Pathogenic process
Strict vegans	No ingestion of milk or animal products
Achlorhydria	Elderly Postoperative Inability to liberate CBL
Complete lack of IF	Pernicious anemia Total gastrectomy
Exocrine insufficiency	Human R protein (stomach) Achlorhydria food buffering compete for CBL
Bacterial overgrowth	
Parasitic infestation (tapeworm)	
Diseased or resected ileum (100 cm)	Loss of absorptive surface
Congenital abnormalities	Lack of or abnormal IF Ileal defect (receptors) Ismelund Grasbeck
Other	Gastrinoma Hypersecretion of HCl, prevents IF CBL in ileum

2. Causes and pathogenesis of intestinal pseudo-obstruction syndrome

Cause	Pathogenesis
Diabetes	Autonomic polyneuropathy
Laxative abuse	Damaged myenteric plexus
Idiopathic	Tissue infiltration
Scleroderma	Tissue infiltration
Amyloid	Tissue infiltration
Eosinophilic gastroenteritis	Tissue infiltration

3. Renal and urinary complications of Crohn's disease

Complication	Mechanism
Perirenal abscess	Contiguity of deep disease of descending colon
Enterovesical fistula	Ileum or sigmoid colon due to anatomical relationship of these segments Gives rise to recurrent urinary infection and resistance to usual antibiotic treatments
Pyelonephritis	Septicemia
Ureter obstruction (uni- or bilateral)	Contiguity of severe diseased segments of inflammatory mass. May lead to hydronephrosis and pyelonephrosis
Nephrolithiasis (23-35%)	Oxalate stones and hyperoxaluria fat malabsorption increases the availability of dietary oxalate absorption from the colon
Nephrotic syndrome	Amyloidosis



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