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Abdominal Angina - A Rare Cause of Chronic Abdominal Pain

Zia-ur-Rehman¹, Abdul Rehman Alvi² and Ziad Sophie³

Abstract

We report here a case of chronic postprandial abdominal pain and weight loss of more than one year duration. He was diagnosed to have abdominal angina (chronic mesenteric ischemia) on CT angiography. Open surgical revascularization procedure-right common iliac mesenteric polytetrafluoroethylene (PTFE) bypass graft achieved positive short and long-term outcome with follow-up of twenty two months.

Key words: Abdominal angina. Chronic mesenteric ischemia. Intestinal angina. Revascularization. Iliac-mesenteric bypass graft.

INTRODUCTION

CMI is a relatively rare cause of chronic abdominal pain with triad of postprandial pain and weight loss. It is considered to be a diagnosis of exclusion even in western countries where atherosclerotic vascular diseases are more common. It is caused by progressive atherosclerotic stenosis or occlusion of one or more mesenteric arteries. The incidence is low, constitutes only 2% of all surgical revascularization procedures for atherosclerotic lesions.^{1,2} Symptoms commonly include postprandial pain, nausea, and diarrhea. These patients develop a fear of eating and hence weight loss is also significant and a common presentation.² These complex symptoms should increase the index of suspicion when other common causes were excluded. Mesenteric angiography remains the gold standard of diagnosis to demonstrate the nature, site and extent of occlusion as well as the hemodynamic of collateral circulation and at the same time it can be used as a therapeutic option.^{1,2} In the setting of arterial insufficiency the blood flow can be restored by mesenteric bypass surgery or angiographic balloon dilation and stenting.³ To the best of our knowledge there is no report of CMI from Pakistan in the literature, this could be underreported or ignorance of clinician about this disease process could be a possible reason.

CASE REPORT

A 70-year-old gentleman, a tourist-guide by profession from northern areas of Pakistan, known case of hypertension and asthma, presented initially to the Gastroenterology clinic in December 2006 with complains of abdominal pain in epigastrium and central

abdomen for the last 1-2 months. The pain was postprandial and severe in intensity with no associated vomiting or diarrhea. There was associated anorexia (rather fear of eating) and weight loss.

On examination, he had high blood pressure of 180/80 mm of Hg and rest of the examination was within normal limits. His baseline investigations including complete blood count, coagulation profile, electrolytes, urea, creatinine, amylase, lipase, TSH, fasting lipid profile were all within normal limits. He then underwent upper Gastrointestinal (GI) endoscopy, which revealed pangastritis and patchy duodenitis with associated *H. pylori* on biopsy. He received treatment for eradication of *Helicobacter* pangastritis. There was no improvement in his clinical condition and he lost more than 20 Kilograms of body weight over a period of 14 months.

He was presented in the General Surgery Clinic in April 2007 with persisting symptoms and marked weight loss. Clinical examination was unremarkable except for signs of malnutrition and hypertension. He underwent further investigations and ultrasound abdomen was done which was found to be normal. Double contrast CT was reported to be normal, but discussion with the radiologist revealed extensive abdominal aortic atherosclerosis with involvement of superior mesenteric artery. The subsequent CT angiography (Figure 1) confirmed the diagnosis of complete occlusion of superior mesenteric artery at its origin. The distal flow was maintained through collaterals, 80% occlusion of celiac trunk was also noted. He underwent digital subtraction abdominal angiography to assess the extent of superior mesenteric artery occlusion and evaluation of iliac arteries and celiac trunk for planning surgical revascularization. His pre-operative cardiac echocardiography and carotid ultrasound colour duplex scan were done to rule out underlying vasculopathy and were found to be normal.

Elective laparotomy was performed through midline incision. There was extensive atherosclerosis of abdominal aorta extending into common iliac arteries and complete occlusion of SMA at its origin involving a

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2 cm segment. Reverse revascularization of SMA was established by PTFE graft between distal segment of right common iliac artery to peripheral segment of superior mesenteric artery (Figure 2). He was started on therapeutic heparin infusion in the post operative period switched to oral warfarine tablet on the 3rd day and INR was kept in therapeutic range of 2.5 - 3.5. He developed postoperative bowel ileus which was treated conservatively and was discharged on the 14th postoperative day. Patient was advised to continue on oral warfarine life long. He was found to be asymptomatic on 22 months follow-up with 20 kilograms gain in body weight.

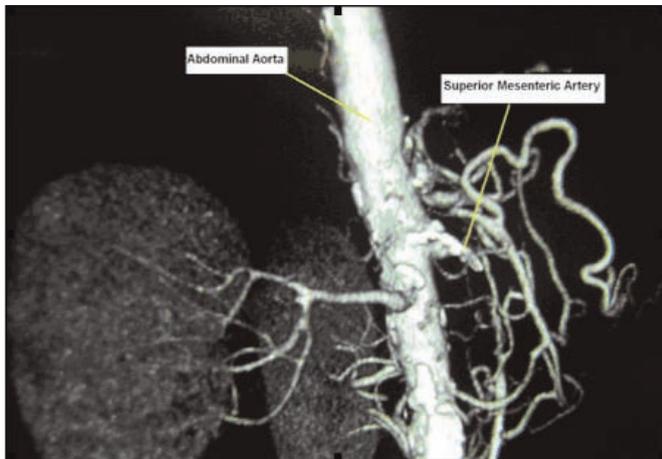


Figure 1: CT angiography showing complete occlusion of superior mesenteric artery at its origin.

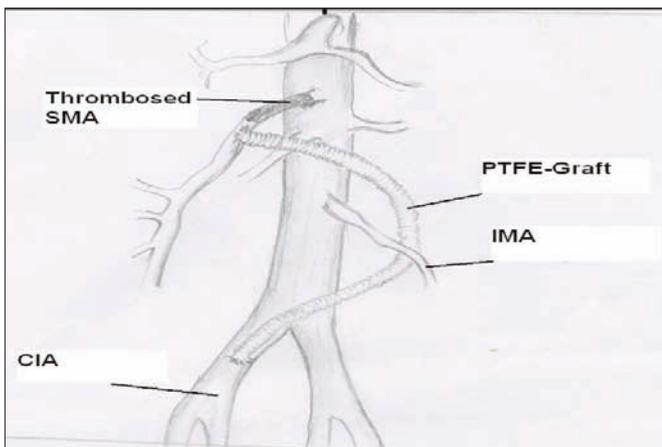


Figure 2: PTFE right common Iliac to mesenteric retrograde bypass graft. (SMA=Superior Mesenteric Artery, IMA=Inferior Mesenteric Artery, CIA=Common Iliac Artery).

DISCUSSION

Mesenteric ischemia occurs when visceral tissue received inadequate blood flow. Increased splanchnic blood flow after meal from 10% of cardiac output at rest up to 30%.⁴ CMI remains a rare occurrence, accounting for less than one in every 1000 hospital admission; therefore, it is the diagnosis of exclusion after eliminating more common causes of chronic abdominal pain.²

CMI is most commonly characterized by the clinical triad of recurrent postprandial abdominal pain, weight loss, sitophobia, but can have an atypical presentation causing diagnostic dilemma.^{3,4} Traditionally, angiography was the gold standard for the diagnosis of CMI, but it is an invasive procedure and its availability is only possible in tertiary care setting. The development of 64-slice multidetector CT scan with facilities for angiographic reconstruction is relegating angiography to more of therapeutic role. Several reports have established the role of MRI angiography in making the diagnosis of CMI but the availability and expertise for interpretation is not widely available in this country. Duplex ultrasonography, combining B-mode with Doppler waveform analysis could be a diagnostic tool in the hands of an experienced sonologist, but most of the time it is a useful screening device.²

Surgical revascularization of mesenteric arteries has been the primary treatment of CMI. However, controversies persist regarding superiority of antegrade versus retrograde bypass graft and single versus complete revascularization. The literature supports ante-grade bypass graft from celiac trunk to SMA.⁵ In a retrospective review, the long-term results of retrograde PTFE graft were evaluated over 35 months and considered to be an effective revascularization.⁶ In a prospective study, the long-term outcome of surgical bypass graft (N=15) was compared with percutaneous angioplasty (N=14) over five years and the surgical bypass was found superior, suggesting that percutaneous angioplasty should be reserved for high risk individuals.⁷

Until recently, open revascularization has been the method of choice for the relieve of symptoms related with CMI. Because of associated co-morbidity open surgery is reported to be associated with major morbidity (15-33%) and mortality of 0-17%.⁸ As an alternative to open surgical bypass the less invasive radiological procedure PTA was first reported by Furrer *et al.* in 1980.⁷ Since then, there are many studies reported in literature regarding the effectiveness of PTA with and without stenting and PTA was mostly done in old patients and those who were at high risk for open bypass surgery.^{7,8} However, in recent years, PTA with stent placement as a powerful modality and competitive alternative to open surgical bypass revascularization.^{7,8} This view is supported by literature that with improvement in endovascular interventional equipment and with availability of more experience of interventional radiologist patients, PTA will be an alternative equal to open bypass procedure. Three years follow-up in 23 patients who underwent PTA with 77% short-term and 100% long-term success. Two patients required open bypass, 2 underwent repeat PTA with no mortality.⁸

The diagnosis of CMI on CT angiography was confirmed in this 70 years old male, who was symptomatic for more than 14 months. He underwent open retrograde PTFE graft and the best long-term result was achieved. PTA was not an option in this case because of extent and severity of disease, although the facilities and expertise for PTA is available in this institution. There should be high index of suspicion in patients with triads of symptoms and as a diagnosis of exclusion. CMI needs to be confirmed on CT angiography or DSA. The choices of treatment depend on the severity of disease, available facilities and expertise in vascular surgery and endovascular radiology.

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