

Case Report

Acute mesenteric ischemia with tuberculous mesenteric lymphadenitis in a young female

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ABSTRACT

We present the case of an 18 year old female with tuberculous mesenteric lymphadenopathy who came to hospital with peritonitis and acute mesenteric ischemia. An emergency exploratory laparotomy with resection of gangrenous small bowel and right colon with end-to-end anastomosis was performed. Subsequent evaluation for etiology of bowel gangrene was essentially normal. By exclusion, the most likely cause of acute mesenteric ischemia in this patient was of unknown etiology which is indeed rare. However, tuberculosis as a cause of mesenteric vasculitis and bowel gangrene needs to be explored.

Keywords: AMI, Idiopathic, Tuberculosis, Tubercular mesenteric lymphadenitis

INTRODUCTION

Acute mesenteric ischemia (AMI) is an uncommon event, accounting for less than 1 case for every 1000 hospital admissions.¹ Females are affected three times more frequently than males, between 60-70 years of age.² There are four major causes of acute mesenteric ischemia- arterial embolus, arterial thrombosis, mesenteric venous thrombosis, non-occlusive mesenteric ischemia.³⁻⁵ However, no etiology may be found in approximately 15% patients.

CASE REPORT

An 18-year-old female presented with one day complaint of sudden onset severe abdominal pain, associated with distension and vomiting. She denied any past history of abdominal discomfort, palpitations, dyspnea, fever, melena, hematochezia, weight loss or substance abuse. On examination, the patient was toxic with shock and peritonitis.

After initial resuscitation emergency exploratory laparotomy was performed. It revealed gangrene of the distal 2 feet ileum including ileocecal junction (Figure 1) with enlarged mesenteric lymph node mass at point of transition of healthy and unhealthy bowel (Figure 2). The rest of the abdominal viscera and major abdominal vessels were grossly normal. Resection of the gangrenous bowel (ileum and right colon) with single layer end-to-end anastomosis using 2/0 vicryl was done. The resected specimen was sent for histopathological examination.

The histopathological examination of intestine reported ischemic bowel gangrene, while lymph node biopsy was compatible with tuberculosis with caseation. Post-operative work-up for cause of gangrene viz. echocardiography, abdominal duplex scan, protein C, protein S and antithrombin III were essentially normal. The patient had an uneventful postoperative period and discharged 4th day on antitubercular therapy.



Figure 1: Gangrenous small bowel as seen on abdominal exploration.



Figure 2: Resected specimen with lymph node mass in mesentery.

DISCUSSION

Acute mesenteric ischemia (AMI) is an unusual event, amounting for less than 1 case for every 1000 hospital admissions.¹ Females are affected thrice more frequently than males, between 60-70 years of age.² Differentiation of acute mesenteric ischemia on the basis of aetiology is of great importance because of variation in disease progression, response to treatment and outcome. The four major causes of acute mesenteric ischemia and their incidence are:

- Arterial embolus (40-50%)- usually from cardiac origin.³
- Arterial thrombosis (25-30%)- frequently has history of abdominal angina and is associated with atherosclerosis.^{3,4}
- Mesenteric venous thrombosis (10%)- usually presents with 30days history.
- Non-occlusive mesenteric ischemia (NOMI-20%)- often affects elderly with systemic illness, on vasopressor support or digitalis.⁵

Thromboemboli tend to lodge in proximal superior mesenteric artery (SMA), just beyond the first jejunal branches, distal to the middle colic artery (50%), while a

minority (15%) may lodge at the SMA origin.^{6,7} In first case, proximal intestine and ascending colon are spared. Atheroemboli are smaller and occlude distal SMA, thus affecting localized bowel segments. Acute arterial thrombosis, however, superimposed on atherosclerotic vessel infarction is more confluent, affecting entire SMA territory. Superior mesenteric vein thrombosis is idiopathic in 20%, while 80% are secondary to some underlying condition such as pancreatitis, trauma, haematological disease, inflammatory bowel disease, diverticular disease, hypercoagulability, cirrhosis, cancer or rheumatoid arthritis.⁸

Mesenteric ischemia in patients <40 years in absence of cocaine use, however, is rare.⁹ In a post-mortem study of non-atherosclerotic, non-aneurysmal aorto-arterial thrombosis as a cause of acute abdomen or lower limb gangrene, symptoms were attributable to hypercoagulable states and changes in the aortic wall.^{9,10} Tumors like carcinoid and extensive intestinal ascariasis have also been reported as uncommon causes of intestinal gangrene.¹¹⁻¹⁴

In a study by Yasuhara H no aetiology was identified in 16% cases and interestingly, there was associated tuberculosis in about 20% of these cases.¹⁰ Tuberculosis can rarely induce a hypercoagulable state by increased levels of type 1 plasminogen activator inhibitor and tissue factor.¹⁵ Also, vasculitis is a well-established feature of CNS, lung and renal TB but barely described in intestinal tuberculosis.¹⁶⁻¹⁹ Few more studies have assessed the role of mesenteric vasculitis in the natural history of intestinal tuberculosis.^{20,21} Prospective study by Dasgupta A et al of 56 abdominal tuberculosis patients, who required surgery for obstruction or perforation, showed that mesenteric vasculature (medium and small vessels) is frequently involved by granulomatous inflammation, with intravascular organizing thrombus in upto 30% specimens with perforation. This implies that vasculitis plays an important role in the natural history of abdominal tuberculosis.²⁰⁻²² Another study observed changes in large, medium and small mesenteric vessels, in patients with histologically proven intestinal tuberculosis presenting with obstruction and perforation.²³ Presence of granulomas in or adjacent to the vessel wall (suggesting direct involvement), thrombus formation in large and medium vessels and subintimal fibrosis were also observed. In addition, perivascular cuffing was present in intramural and subserosal vessels.²² Based on the above findings, it was postulated that changes in the vessel wall may lead to gut ischemia, which may contribute to the development of ulcers, perforation, fibrosis, and strictures.²⁴ Endarteritis of submucosal vessels due to intravascular granuloma has also been reported earlier and may cause mucosal ulceration and perforation.^{19,22}

Preoperative diagnosis of AMI requires CT angiography, which has supplanted conventional angiography.^{26,27} However, angiography still plays an important role in

diagnosis as well as treatment of AMI.²⁸ Diagnostic laparoscopy is not recommended since it may miss areas of nonviable bowel. After initial resuscitation and stabilization of the patient, surgery is required for patients who have evidence of compromised bowel vascularity. Attempt at revascularization is recommended before resecting any intestine, unless frank necrosis, perforation or peritoneal soilage is present. In later cases resection of affected bowel and containment of spillage is advised. In few patients with massive bowel necrosis revascularization can be avoided.¹

CONCLUSION

It needs to be re-emphasized that acute mesenteric ischemia needs a high index of suspicion for diagnosis, especially in a patient with no risk factors, as with delayed diagnosis prognosis becomes increasingly grave and morbidity and mortality increase proportionately. In the event of bowel infarction due to acute mesenteric ischemia of any cause, bowel resection is inevitable, but this has to be followed up with thorough biochemical and pathological investigations to determine the cause of bowel infarction and also to decide the necessity of long term anticoagulation therapy.

A young patient presented to us with bowel gangrene due to acute mesenteric ischemia of unknown aetiology associated with co-existing tuberculous mesenteric lymphadenitis, the role of which as a contributing or confounding factor towards vascular compromise needs to be defined.

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