

CASE REPORT

Superior Mesenteric Artery Occlusion: A Case Report

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ABSTRACT

Background: Acute mesenteric ischemia (AMI) is a dreaded surgical condition, that still remains a reason for concern despite advances in laboratory investigations and imaging modalities, because of its nonspecific clinical presentation.

Case description: In this case report, we describe a 57-year-old gentleman who presented with acute abdomen and septic shock 24 hours following symptom onset. Emergency exploratory laparotomy was done and the patient was found to have extensive bowel gangrene of superior mesenteric artery (SMA) territory.

Conclusion: Patients with abdominal pain out of proportion to clinical signs, vomiting, and diarrhea should arouse a clinical suspicion of mesenteric ischemia. Early diagnosis is the most imperative to the successful management of AMI.

Keywords: Acute mesenteric ischemia, Bowel gangrene, Superior mesenteric artery thrombosis.

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BACKGROUND

Patients are known to rapidly deteriorate, and a high level of suspicion is required among the surgeons for diagnosis.¹ Even early diagnosis warrants the survival of only 50% of the patients within the first 24 hours, and when the time exceeds, the mortality increases to more than 70%.² In this case report, we describe a 57-year-old male with extensive bowel gangrene due to SMA occlusion.

CASE REPORT

A 57-year-old gentleman presented to the surgical emergency with complaints of severe diffuse abdominal pain for the past 24 hours. The patient had initially gone to a general clinic where he was symptomatically managed and referred to seek a specialist opinion. An X-ray of the abdomen taken at that time showed few air-fluid columns (Fig. 1). The patient was received in our center in a state of decompensated shock with abdominal distension and rigidity.

On examination, the patient was found to be tachypneic, with tachycardia and hypotension. X-ray of the abdomen showed massively dilated bowel loops with multiple air-fluid levels (Fig. 2). ABG showed metabolic acidosis with blood pictures revealing leukocytosis. The patient was resuscitated and taken up for emergency exploratory laparotomy.

Intraoperatively, the patient was found to have extensively dilated and gangrenous bowel loops in the SMA territory extending from the second part of the duodenum, occupying the whole of the small bowel till the right half of the transverse colon filled with toxic fluid (Fig. 3). The patient was thrombolysis in suspicion of SMA thrombosis, gangrenous bowel segment was resected, tube duodenostomy was done and the distal stump was closed, remnant colonic end was brought out as a mucous fistula. The abdomen was then closed after placing drains. Postoperatively, the patient was kept under mechanical ventilation in the critical care unit. Unfortunately, the patient succumbed to sepsis and shock within 24 hours of the postoperative period.

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Fig. 1: Initial X-ray abdomen, minimal air fluid level

DISCUSSION

The superior mesenteric artery provides the primary arterial supply to the small bowel and the right colon.¹ SMA occlusion is a



Fig. 2: X-ray of the abdomen shows dilated bowel loops and multiple air-fluid levels



Fig. 3: Resected gangrenous bowel segments

potentially fatal and severe condition. Occlusion can be thrombotic or embolic. An embolus is commonly found lodged distal to the middle colic and jejunal branches affecting the distal bowel and colon and sparing the proximal small bowel whereas SMA thrombus is commonly located more proximally,³ leading to more severe gangrene. The underlying pathophysiology of AMI is the inability to meet the metabolic demands of the bowel due to insufficient perfusion.⁴

Patients who present with AMI are usually in the 6th or 7th decade of life⁵ and females are more commonly affected.⁶ Almost all cases present with complaints of abdominal pain and the character of the pain depends on the reason for occlusion.⁷ AMI in its early stages is often misdiagnosed for other conditions such as bowel obstruction, pancreatitis, diverticulitis, or appendicitis, so a high level of suspicion is the most imperative to making a diagnosis.⁶ AMI has the classical feature of severe constant pain which is out of proportion to the clinical signs.⁸ The delay in physical signs is due to the progression of ischemia from mucosal to seromuscular to eventually-full thickness, only when there is full bowel thickness involvement does it lead to signs of peritonitis.⁴

Though mesenteric angiography is the gold standard for the diagnosis of AMI,⁹ CT angiography is slowly surpassing due to its universal availability and combined vascular and bowel assessment.¹⁰ The treatment of AMI encompasses four R's—resuscitation, rapid diagnosis, revascularization, and reassessment of the bowel.¹¹ Treatment options include open surgery and endovascular therapy. Open surgery is the traditional method which included endarterectomy, bypass grafting, and embolectomy.¹² Endovascular therapies are more appealing since they are minimally invasive and include percutaneous aspiration embolectomy, thrombolysis, balloon thrombectomy, percutaneous transluminal angioplasty, and primary SMA stenting. However, the application of revascularization is possible only when an early diagnosis is made and the bowel is salvageable (non-gangrenous). Sometimes for infarcted bowel, a combination of these therapies along with explorative laparotomy can be used.¹³ It was also reported that long-term survival after endovascular therapy was better than open surgery.¹⁴ However, in patients with bowel necrosis, open laparotomy and bowel resection is still the preferred method of management.¹² The main complication of massive bowel resection is short bowel syndrome, it is a malabsorptive disorder with a spectrum varying from single micronutrient malabsorption to complete intestinal failure. The consequences of short bowel syndrome are diarrhea, intestinal failure-associated liver failure, metabolic complications, and complications related to long-term parenteral nutrition and central venous catheter.¹⁵

CONCLUSION

Patients with abdominal pain out of proportion to clinical signs, vomiting, and diarrhea should arouse a clinical suspicion of mesenteric ischemia, early diagnosis is the most imperative in the management of AMI. Late presentation and diagnosis invariably lead to bowel gangrene. If AMI is suspected, a multidisciplinary team compassing general surgeons and vascular surgeons is beneficiary to the patient. Although the prognosis is poor, prompt diagnosis and surgery could improve the outcome in patients.

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