Original Research Article

Interesting case of Mesenteric artery ischemia mimicking appendicitis: A case report

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Abstract
Acute mesenteric ischemia is sudden interruption of the blood supply to a segment of the small intestine. It may be non-occlusive (NOMI) or occlusive, with the primary etiology further defined as mesenteric arterial embolism, mesenteric arterial thrombosis, or mesenteric venous thrombosis. We reported a case of mesenteric artery ischemia mimicking appendicitis in 45 years old male patient.

Keywords: Acute mesenteric ischemia, mesenteric arterial thrombosis, small intestine

Introduction

Acute mesenteric ischemia (AMI) may be defined as a sudden interruption of the blood supply to a segment of the small intestine, leading to ischemia, cellular damage, intestinal necrosis, and eventually patient death if untreated[1]. AMI may be non-occlusive (NOMI) or occlusive, with the primary etiology further defined as mesenteric arterial embolism (50%), mesenteric arterial thrombosis (15–25%), or mesenteric venous thrombosis (5–15%). The overall incidence is low ie. 0.09 to 0.2%, representing an uncommon cause of abdominal pain. Prompt diagnostic and intervention are essential to reduce the high mortality rates (50 to 80%)[2].

The risk factors for AMI, and the clinical course, differ according to the underlying pathologic condition[3]. As bowel ischemia rapidly progresses to irreversible bowel necrosis, severe metabolic derangements ensue, leading to a series of events that culminate in multiple organ dysfunction and death. The timely use of di agnostic and therapeutic methods to quickly restore blood flow is the key to reducing the high mortality rate associated with AMI[4,5]. We reported a case of mesenteric artery ischemia mimicking appendicitis.

Case Report

A 45 years old male presented to the casualty with chief complaints of sudden onset pain abdomen for 3 days, multiple episodes of bilious, nonprojectile vomiting for 2 days and non- passage of stools and flatus since 1 day. Patient gave history of coronary artery disease and for that patient underwent coronary angiography 7 years back. Per abdomen examination revealed distended abdomen with diffuse tenderness with guarding in lower abdomen. Other systemic examinations were unremarkable. Laboratory examination revealed leucocytosis with raised urea level and conjugated hyperbi-lirubinemia. Ultrasonography (USG) suggested multiple edematous bowel loops with inflamed mesenteric fat and minimal fluid in right lower quadrant with non- visualisation of Appendix.

Based of history, initial examination and investigations, a diagnosis of acute appendicitis with suspicion of perforation was made. The patient was taken up for exploratory laparotomy. Intraoperative findings revealed around 100 ml of hemorrhagic fluid in the peritoneal cavity. Around 70 cm of gangrenous ileal segment was found approximately 10 cm proximal to ileo-caecal junction. Another 5 cm of gangrenous ileal segment with intervening 5-10 cm of normal ileum was found proximally. Segments of patchy duskiness in rest of the small bowel was also noted. Resection of gangrenous segment with double barrel ileostomy was performed. Drain placed in pelvic cavity. Stoma moved on post operative day 2; Bilious output. Patient was started orally on day 2 (Fig 1 and 2).

CT angiography done on day 2 which revealed evidence of non-enhancing lesion involving ostia and proximal segment of superior mesenteric artery for a length of about 33.5mm causing significant occlusion of superior mesenteric artery (approx. 80 to 90%) suggesting superior mesenteric artery thrombus. There was also partial narrowing of ostia and proximal segment of left renal artery. However, patient developed superficial surgical site infection on day 4 which was managed conservatively. Patient was discharged on POD-12.

Fig 1: Showing Patchy duskiness with intervening normal bowel segment with unhealthy mesentery.

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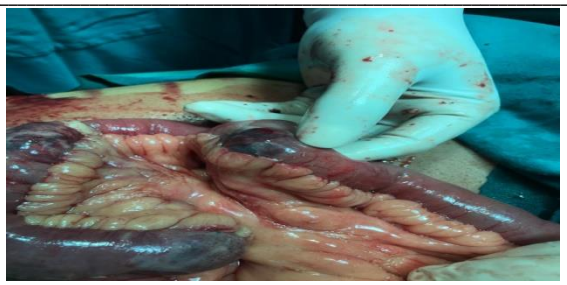

Fig 2: Showing Gangrenous small intestine with toxic fluid.

Discussion

Mesenteric ischaemia can be of acute (90%) or chronic type (10%). In acute type the causes are arterial embolism, arterial thrombosis, nonocclusive form or venous occlusion. Acute occlusions of the superior mesenteric artery due to thrombosis or embolisation are responsible for approximately 60%–70% of cases of acute bowel ischaemia, whereas nonocclusive conditions account for approximately 20%–30% of cases and mesenteric venous thromboses account for 5%–10% of the total[6].

The splanchnic circulation receives approximately 25% of the resting and 35% of the postprandial cardiac output. Seventy percent of the mesenteric blood flow is directed to the mucosal and submucosal layers of the bowel, with the remainder supplying the muscularis and serosal layers[7]. The physiologic characteristics of splanchnic blood flow are complex and incompletely understood. Multiple major elements interact to provide the intestinal tract with an appropriate share of the blood supply, including the intrinsic (metabolic and myogenic) and the extrinsic (neural and humoral) regulatory systems[8]. We reported a case of mesenteric artery ischemia mimicking appendicitis.

Our case was in 45 years old male. Wu et al[9] reported the case of an 85-year-old male presenting with acute onset progressive periumbilical cramping pain with elevated D-dimer. The abdominal computed tomography (CT) revealed severe acute superior mesenteric artery occlusion. The surgical report showed a massively ischemic small intestine that was about 250 cm with 200 mL bloody ascites. Medhi et al[10] reported a case of small bowel perforation due to ingestion of a sharp foreign body in a 2 years old child. Authors further elaborated that how, in paediatric age group these conditions are frequently misdiagnosed and usually present late. Hence, the increasing need and importance of a thorough pre-op workup, especially in the pediatric age group.

Arterial inflow occlusion most commonly results from thromboembolism, where the embolus originates from the left atrium as a consequence of atrial fibrillation. Emboli preferentially affect SMA because of its small take-off angle compared with those of the coeliac and IMA[11]. While thrombi and large emboli may occlude the proximal SMA and ostia of major mesenteric vessels resulting in extensive small bowel and colon ischaemia, smaller emboli may lodge in the distal portions of the vessel and cause smaller regions of segmental ischaemia. Acute arterial thrombi and emboli may appear as obvious low-attenuation filling defects in the luminal vessels.

Thrombotic arterial mesenteric ischaemia (TAMI) has a more indolent course. TAMI patients undergo gradual progression of arterial occlusion; therefore, many report symptoms of mesenteric angina (postprandial abdominal pain lasting up to 3 hours and nausea), which results in “food fear”, early satiety and weight loss. In the acute setting, however, the clinical symptoms are similar to those found in patients with EAMI[12].Once the diagnosis of AMI is made, treatment should be initiated without delay. This should include active resuscitation and treatment of the underlying condition, with efforts directed toward reducing the associated vasospasm, preventing propagation of the intravascular clotting process, and minimizing the intravenous fluid resuscitation with crystalloids and blood products should be started promptly to correct the volume deficit and metabolic derangement[13]. Placement of a Swan-Ganz catheter may be required for judicious fluid resuscitation and hemodynamic monitoring, especially in critically ill patients. Ideally, fluid resuscitation should begin before angiography, and crystalloids may be administered in amounts as high as 100 mL/ kg. Supranormalization of hemodynamic values has been attempted, with equivocal results, and it remains to be proven whether such an approach offers an advantage to patients with AMI. Broad spectrum antibiotics should be given as early as possible[14].

Conclusion

Abdominal pain represents one of the most common chief complaints of patients presenting to the ED. Ischemic diseases of the intestine have high morbidity and mortality rates, with early diagnosis and surgery mesenteric artery ischemia has a good prognosis. Acute mesenteric ischemia leads to sudden interruption of the blood supply to a segment of the small intestine. It is an emergency condition, hence prompt diagnosis and intervention in necessary to save the life of the patient.

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