Acute Gastric Dilatation Leading to Ischemic Necrosis

A rare complication following sigmoid volvulus

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Introduction

Acute gastric dilatation (AGD) is a rare condition that can lead to life-threatening complications like ischemic necrosis, perforation, and hemorrhage.¹ This condition leading to gastric necrosis is a rarity. Although AGD is reported most commonly in patients with psychogenic polyphagia and eating disorders,² it is also found to occur in association with other conditions³ and there are very few reports in the literature on gastric necrosis in association with bowel obstruction.¹,⁴ The mortality rate is as high as 80% in delayed interventions.¹ Thus, early radiological imaging and surgical intervention can reduce the mortality rate. To the best of our knowledge, gastric necrosis associated with AGD following sigmoid volvulus has not been reported before. Here, we present the interesting medical images of AGD following sigmoid volvulus leading to a disastrous complication, gastric necrosis.

Patient consent was taken for writing this medical image and using the photographs.
Comment

A 25-year-old gentleman presented to emergency room (ER) with complaints of abdominal pain, distension, vomiting and non-passage of flatus and faces for two days. The patient had no history of previous surgery, any toxin ingestion or any other congenital abnormalities. On general physical examination, the patient was tachycardic, dehydrated and the systemic examination was unremarkable. On abdominal examination, diffuse tenderness and no guarding with normal bowel movements were recorded. Digital rectal examination revealed an empty rectum with free rectal mucosa.

Abdomen X-ray revealed a hugely dilated sigmoid colon. Contrast-enhanced computed tomography (CECT) of abdomen revealed a massively dilated sigmoid colon with whirl sign, suggestive of sigmoid volvulus [Figure 1A]. The patient was taken up for emergency laparotomy, as endoscopic decompression facilities were not available. Intraoperatively, sigmoid colon was hugely dilated; it was twisted around 270 degrees anti-clockwise, with no gangrene or perforation [Figure 1B]. Resection of redundant sigmoid colon was performed after detorsion followed by an end-to-end anastomosis, with the fashioning of a diverting loop ileostomy.

On post-operative day -1 (POD 1), when the stoma started functioning and bowel sounds returned, the nasogastric tube was removed, and the patient was started on oral liquids. On POD 2, the patient developed tachycardia due to dehydration, which was corrected with intravenous fluids. The abdomen was soft, non-distended and the stoma was functioning. On POD 3, persistent tachycardia, multiple febrile spikes, and decreased urine output were noted. Furthermore, the patient developed tachypnoea, hypotension, abdominal distension, and non-functioning of the stoma. A nasogastric tube was reinserted, which drained around 4 litres of bilious fluid instantaneously. The patient’s electrolytes were within normal limits and the total leukocyte count was elevated to 20,000 cells per mm³. ABG showed pH- 7.28, pO₂ – 58 mmHg, pCO₂ - 21 mmHg, HCO₃- 15mEq/L and SpO₂ – 82%. The patient was intubated and put on mechanical ventilator. Inotropes were started, and antibiotics were changed from intravenous ceftriaxone 1 gram twice daily with metronidazole 500 milligrams thrice daily to 2 grams of intravenous meropenem twice a day based on blood and exudate culture sensitivity. The patient was not on any intravenous opioids post-operatively. Abdomen X-ray was repeated which revealed hugely dilated stomach with few dilated bowel loops [Figure 2A].
Re-exploration revealed a healthy anastomotic site at the previous sigmoidectomy site. Around 100 ml of turbid fluid was present in the abdominal cavity. The stomach was dilated with gangrenous patches of 4x5cm on both anterior and posterior walls of the stomach. A subtotal gastrectomy with gastro-jejunostomy was performed [Figure 2B]. It can be hypothesized that the hugely dilated sigmoid volvulus could have led to gastric volvulus either by some tamponade effect or displacement of the stomach which might have further led to gastric ischemia and necrosis. Post-operatively, the patient was not extubated in the light of severe acidosis and high inotropic support. The patient was shifted to the surgical intensive care unit (ICU) where over a few hours, his acidosis worsened, ionotropic support increased, and urine output dropped to nil. However, despite our best resuscitation, the patient could not be salvaged and succumbed to septic shock on POD-5 of sigmoid volvulus resection. Due to logistics reasons, post-mortem was not carried out. The post-operative biopsy reports of the sigmoid volvulus and gastrectomy specimen were unremarkable and were descriptive and gangrene respectively.

References
Figure 1: Radiological and intra-operative images of sigmoid volvulus of a 25-year-old patient presented to the ER at ... in .... A: Contrast-enhanced computer tomography (CECT) of the abdomen showing sigmoid volvulus (solid arrow) compressing the stomach (red arrow). B: Intraoperative image showing dilated sigmoid volvulus.

Figure 2: Radiological and intra-operative images of acute gastric dilatation and gastric necrosis in a 25-year-old patient presented to the ER at ... in .... A: Plain abdominal radiograph showing hugely dilated stomach. B: Gastrectomy specimen showing impending perforation.