

Acute Gastric Dilatation Leading to Ischemic Necrosis

A rare complication following sigmoid volvulus

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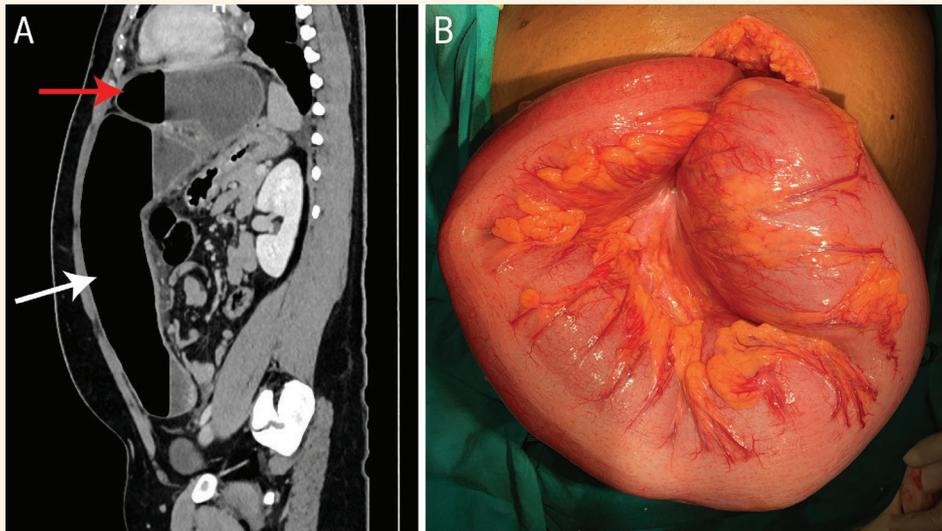


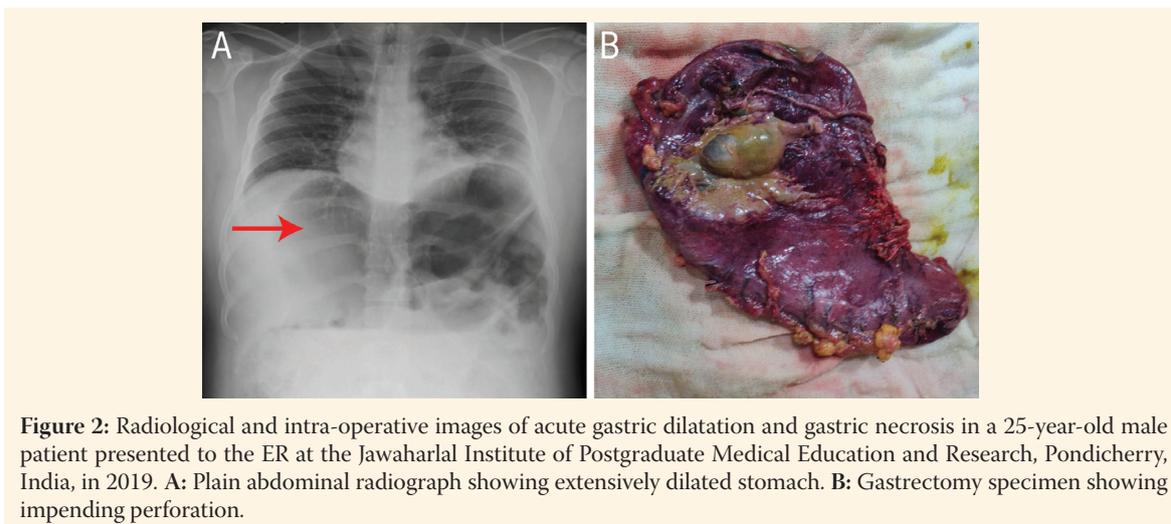
Figure 1: Radiological and intra-operative images of sigmoid volvulus of a 25-year-old male patient presenting to the ER at the Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India, in 2019. **A:** Contrast-enhanced computer tomography of the abdomen showing sigmoid volvulus (solid arrow) compressing the stomach (red arrow). **B:** Intraoperative image showing dilated sigmoid volvulus.

A 25-YEAR-OLD MALE PATIENT PRESENTED TO the emergency room (ER) at the Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India, in 2019 with complaints of abdominal pain, distension, vomiting and non-passage of flatus and faeces 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. An X-ray of the abdomen revealed a hugely dilated sigmoid colon. Contrast-enhanced computed tomography (CECT) of the abdomen revealed a massively dilated sigmoid colon with a whirl sign, suggestive of sigmoid volvulus. The patient was taken up for emergency laparotomy, as endoscopic decompression facilities

were not available. Intraoperatively, the sigmoid colon was found to be extensively dilated; it was twisted around 270 degrees anti-clockwise, with no gangrene or perforation [Figures 1A and 1B].

Resection of the 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 (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 and 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 stoma. A nasogastric tube was reinserted, which drained around



4 L of bilious fluid instantaneously. The patient's electrolytes were within normal limits, but the total leukocyte count was elevated to 20,000 cells per mm³. Arterial blood gas results showed a pH of 7.28, pO₂ of 58 mmHg, pCO₂ of 21 mmHg, HCO₃⁻ of 15mEq/L and SpO₂ of 82%. The patient was intubated and put on a mechanical ventilator. Inotropes were started and antibiotics were changed from intravenous ceftriaxone 1 g twice daily with metronidazole 500 mg thrice daily to 2 g of intravenous meropenem twice a day based on blood and exudate culture sensitivity. The patient was not put on any intravenous opioids post-operatively. An X-ray of the abdomen revealed a 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 4 × 5 cm on both the anterior and posterior walls of the stomach. Subtotal gastrectomy with gastrojejunostomy was performed [Figure 2B].

It can be hypothesised 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, inotropic 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 logistical reasons, a post-mortem could not be carried out. The post-

operative biopsy reports of the sigmoid volvulus and gastrectomy specimen were unremarkable; while the former was descriptive, the latter showed gangrene.

Comment

Acute gastric dilatation (AGD) is a rare condition that can lead to life-threatening complications such as ischemic necrosis, perforation and hemorrhage.¹ However, it is rare for this condition to lead to gastric necrosis. Although AGD is reported most commonly in patients with psychogenic polyphagia and eating disorders, it is also found to occur in association with other conditions.^{2,3} There are very few reports in the literature on gastric necrosis in association with bowel obstruction.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 the researchers' knowledge, gastric necrosis associated with AGD following sigmoid volvulus has not been reported before and this is the first time the interesting medical images of AGD following sigmoid volvulus leading to a disastrous complication of gastric necrosis are being presented.

AUTHORS' CONTRIBUTION

VK was involved in the conceptualization and validation of the manuscript. VK, SS and AA were involved in supervision of the work. BG, BSR, DN and KS contributed to the collection of data and drafting the manuscript. BG, SS and AA contributed manuscript editing. All authors approved the final version of the manuscript.

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