

Intrathoracic Chronic Gastric Volvulus Secondary to Paraesophageal Hernia in a Young Adult: A Case Report

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ABSTRACT

Introduction: Gastric volvulus is a rare disorder seen commonly in elderly individuals with 50% of cases reported in association with hiatal hernia. Gastric volvulus commonly presents acutely as a surgical emergency, but chronic variant is also well documented.

Case description: We report a case of 35-year-old gentleman, who presented with epigastric pain, postprandial fullness and weight loss of 13 kg in last 6 months. In gastroduodenoscopy, crossing gastroesophageal junction (GEJ) required manoeuvring due to abnormal anatomy of stomach and on retroflexion, possible paraesophageal hernia was seen with torsion around scope. CECT abdomen was suggestive of type 3 paraesophageal hernia with gastric volvulus. Patient underwent open laparotomy with repair of hernia and devolvulisation of stomach.

Discussion: Gastric volvulus is characterized by abnormal rotation of the stomach around one of its axis leading to foregut obstruction with a risk of strangulation. Treatment involves devolvulisation of stomach with correction of underlying pathology. Endoscopic treatment has evolved in recent years with endoscopic devolvulization and percutaneous endoscopic gastrostomy being tried as less invasive approaches, but, most of the patients require surgery either laparoscopic or open.

Conclusion: High index of suspicion is needed to diagnose gastric volvulus, especially chronic variant. Any delay can lead to gastric ischemia and necrosis, and can be fatal.

Keywords: Bochardt's triad, Gastric volvulus, Hiatal hernia, Organoaxial volvulus, Paraesophageal hernia.

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BACKGROUND

Gastric volvulus is a rare entity characterized by rotation of the stomach around one of its axis. Gastric volvulus based upon its axis of rotation can be organo-axial or mesentrio-axial and usually presents acutely as emergency with abdominal pain and vomiting. Gastric volvulus is mostly secondary to paraesophageal hernia, and is seen commonly in elderly. Rarely, gastric volvulus may present as chronic variant, with symptoms mimicking dyspepsia. We report a case of chronic gastric volvulus, secondary to paraesophageal hernia in a young male presenting with chronic pain abdomen and significant weight loss, who was managed surgically.

CASE DESCRIPTION

A 35-year-old gentleman, without any comorbidities presented with epigastric pain and postprandial fullness for the last 6 months. He also had a weight loss of 13 kg over a period of 6 months without any history of hospitalization, gastrointestinal bleed, chest pain, dyspnoea, or reflux symptoms in past. His general physical examination revealed a non-tender abdomen without presence of any lump. Laboratory studies showed normal hemogram, fasting sugars, thyroid functions, liver, and renal functions. He underwent a gastroduodenoscopy in view of significant weight loss. In gastroduodenoscopy, crossing GEJ required manoeuvring due to abnormal anatomy of stomach and on retroflexion, possible paraesophageal hernia was seen with torsion around scope (Fig. 1). In view of endoscopic findings, a probable diagnosis of gastric volvulus was kept. His chest X-ray revealed a density with air fluid level on right side and CECT abdomen was suggestive of type 3 paraesophageal hernia (GEJ above diaphragm with entire stomach in pleural cavity) with gastric torsion around an axis

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along cardia and pylorus causing greater curvature to lie superior to lesser curvature giving inverted stomach appearance (Fig. 2) and a diagnosis of organo-axial gastric volvulus was confirmed. Endoscopic devolvulization was not tried in view of need of simultaneous hiatal hernia repair. Patient was taken up for surgery and intraoperatively entire stomach was found to lie in thoracic cavity through the esophageal hiatus without any evidence of gastric necrosis and stomach was mobilized to its anatomical position from thorax and hiatus was sutured with intermittent sutures (Fig. 3). Postsurgery, the patient was discharged on day 3 and follow-up X-ray showed normal chest radiograph and barium radiography confirmed normally situated stomach.

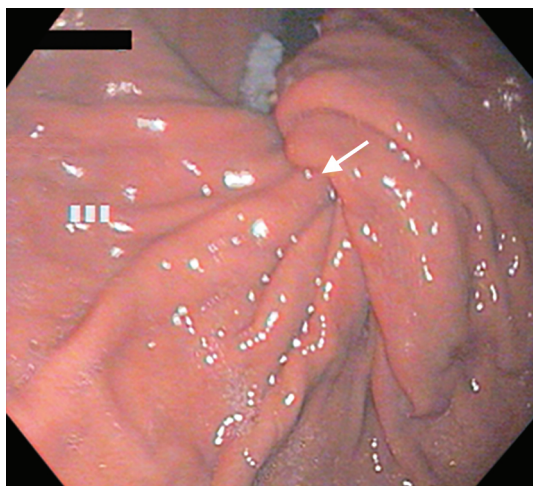
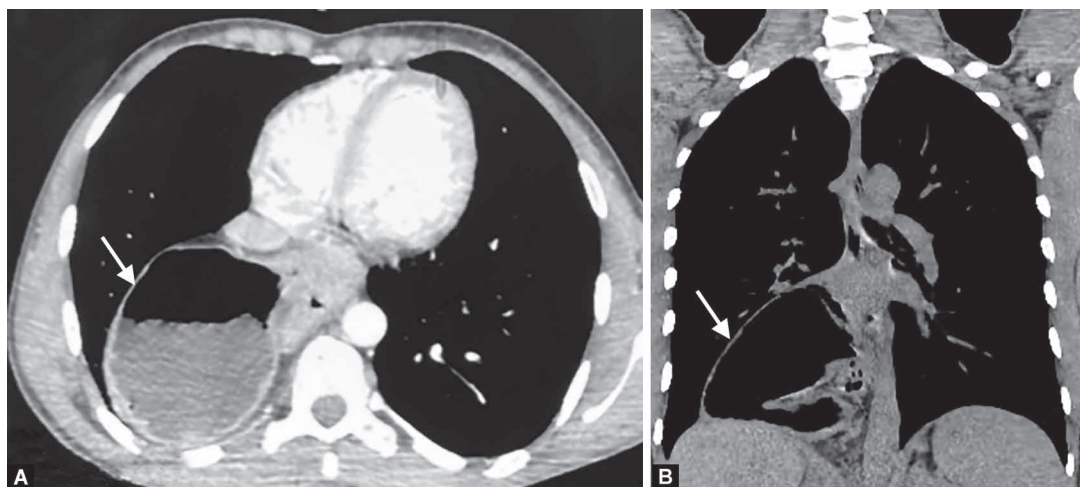


Fig. 1: Endoscopic view on retroflexion showing torsion of stomach (white arrow)



Fig. 3: Laparotomy showing large paraesophageal hernia (white arrow)



Figs 2A and B: Axial (A) and coronal; (B) computed tomography (CT) scan view of thorax showing migration of stomach in thoracic cavity with torsion of stomach leading to inverted stomach appearance [greater curvature (white arrow) lies above lesser curvature]

DISCUSSION

Gastric volvulus is characterized by abnormal rotation of the stomach around one of its axis leading to foregut obstruction with a risk of strangulation. It's a rare entity, mostly reported in elderly males without any gender predilection.¹ Gastric volvulus based upon its axis of rotation can be organo-axial or mesentrio-axial and can present acutely or as chronic volvulus. The commonest form, organo-axial (60%), has rotation of stomach around its longitudinal axis passing through cardia and pylorus, whereas mesentrio-axial volvulus has rotation of stomach around axis passing along lesser and greater curvature. We would focus mainly on organo-axial volvulus here. Acute gastric volvulus is usually complete and presents with classical Bochar's triad (pain, retching, and inability to pass NG tube).^{2,3} Chronic gastric volvulus accounts for 30% of the cases with presentation being abdominal pain or heaviness following meals. Again, gastric volvulus can be primary (30%), where the defect lies because of neoplasia, adhesions or failure of gastric supports (gastrocolic, gastrosplenic, gastrophrenic, and gastrohepatic ligaments) or secondary, where volvulus occurs secondary to paraesophageal hernia, eventration of diaphragm, traumatic diaphragmatic hernia, or phrenic nerve palsy.⁴ Almost half

of the gastric volvulus are associated with hiatal hernias, primarily paraesophageal hernia.⁵

Clinical presentation depends upon type of volvulus, axis of rotation, possible complications and acute or chronic presentation.^{2,3} If untreated, volvulus can lead to gastric necrosis and perforation, hence, timely intervention is needed. Chronic gastric volvulus usually presents with non-specific abdominal pain and hence high index of suspicion is needed. Gastric volvulus is an intra-abdominal pathology, but intrathoracic variant is also well known.^{6,7}

Evaluation involves chest radiograph which may reveal a retrocardiac shadow and barium study may reveal an intrathoracic inverted stomach, or non-passage of contrast beyond the site of complete volvulus. Upper gastrointestinal contrast studies remain one of the sensitive and specific investigations while evaluating gastric volvulus. Only disadvantage is that they do not identify other anatomic abnormalities that might be associated with secondary volvulus. In a case series by Teague et al., they found that upper gastrointestinal contrast study was the most reliable diagnostic test in 14 out of 25 cases.⁸ Computed tomography may confirm the findings of X-ray and may show non enhancement of wall in case of necrosis and can elucidate anatomic abnormalities associated with secondary volvulus.

Management involves resuscitation and decompression of the stomach. Decompression *via* nasogastric tube allows the return of perfusion to the stomach and prevents ischemia and necrosis and in some patients can lead to spontaneous detorsion of stomach. Endoscopic detorsion has evolved in recent years and endoscopic detorsion and percutaneous gastrostomy can also be tried as less invasive modalities.⁹⁻¹¹ Still, for a significant portion of gastric volvulus patients, surgical intervention is necessary. The aim of the surgery is to restore the normal anatomical position of the stomach and to correct the predisposing conditions leading to gastric volvulus.^{12,13} This repair can be done by either open or laparoscopic approach.

CONCLUSION

Gastric volvulus is a rare entity, which requires high degree of suspicion on endoscopy and is confirmed on radiological imaging and portends a sinister prognosis if there is delay in diagnosis leading to ischemia or necrosis of stomach.

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