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Esophageal perforation secondary to gastric volvulus

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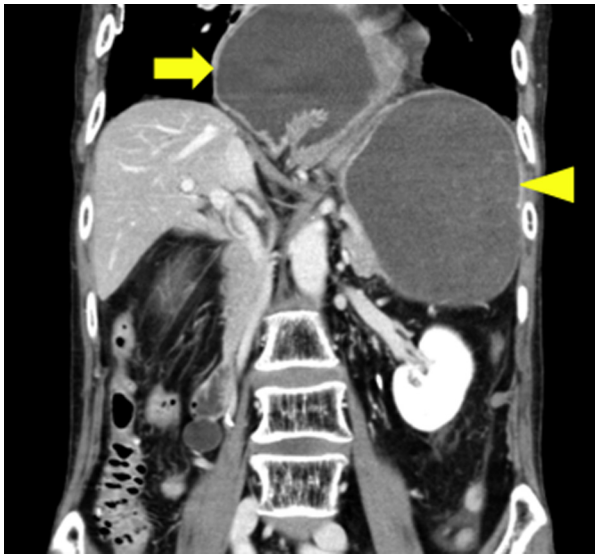

Fig 1. Computed tomography scan revealed a gastric volvulus (*arrow*) with the antrum of the stomach to the duodenal bulb inside of a paraesophageal hernia sac and the dilation of the proximal stomach (*arrowhead*).

An 82-year-old man presented with a 4-day history of vomiting and abdominal pain. The past medical history included osteoporosis, cholelithiasis, and hemorrhoids. On physical examination, blood pressure was 165/92 mmHg, pulse 95/minute, respiratory rate 26/minute, and temperature 37.9°C. The epigastrium was distended and tender to palpation without guarding or rebound tenderness. A contrast-enhanced abdominal computed tomography scan was performed that revealed gastric volvulus in a paraesophageal hernia sac (Fig 1). A nasogastric tube was inserted and

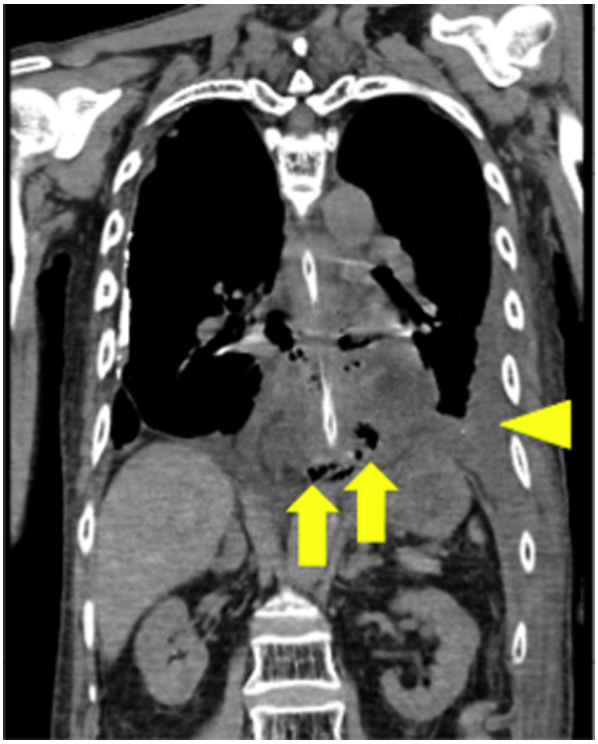

Fig 2. Computed tomography scan revealed air in the mediastinum (*arrow*) and a left pleural effusion (*arrowhead*).

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gastric fluid was evacuated. Endoscopic reduction of the gastric volvulus was then performed, which was successful. However, the patient became physiologically unstable the next day. A contrast-enhanced computed tomography of the chest and abdomen was performed that revealed free air in the mediastinum (Fig 2). The patient was diagnosed with esophageal perforation caused by vomiting and an emergency operation was performed. Turbid fluid was found in the left chest. The site of perforation in the thoracic esophagus was sutured and a drain was placed. In the abdominal procedure, a feeding tube and a drain were placed through the stomach and fixed to the abdominal wall to prevent recurrence of the volvulus. Finally, a cervical esophagostomy was performed. After the operation, the patient recovered from the acute condition and gastric volvulus has not recurred.

Discussion

Various etiologies of esophageal perforation exist, including vomiting, endoscopy, surgery for esophageal hiatal hernia, trauma, or foreign body ingestion.[1] After establishing the diagnosis, an emergency operation is recommended. In benign conditions, closure of the perforation and drainage of the mediastinum is recommended. Gastric volvulus can result in ischemia with perforation of the stomach.[2] To our knowledge, however, only one patient with esophageal perforation secondary to gastric volvulus has been reported elsewhere.[3] The most likely mechanism of esophageal perforation in patients with gastric volvulus is acute gastric obstruction, resulting in vomiting, and subsequent esophageal perforation. During the operation for esophageal perforation secondary to gastric volvulus, measures to prevent recurrence of the gastric volvulus are necessary. We report a reasonable approach to management for the prevention of gastric volvulus complicated by paraesophageal hernia during surgery for esophageal perforation. Fixation of the gastric wall to the abdominal wall by gastrostomy tube placement is considered a reasonable technique to fix the stomach and prevent future volvulus. Although such a procedure is extremely rare, surgeons performing it should take into account the etiology.

Conflicts of interest

The authors have indicated that they have no conflicts of interest regarding the content of this article.

References

1. Misiak P, Jabłoński S, Piskorz Ł, Dorożała L, Terlecki A, Wcisło S. Oesophageal perforation— Therapeutic and diagnostics challenge. Retrospective, single-center case report analysis (2009-2015). *Pol Przegl Chir*. 2017;89:1–4.
2. Collet D, Luc G, Chiche L. Management of large para-esophageal hiatal hernias. *J Visc Surg*. 2013;150:395–402.
3. Saito S, Hosoya Y, Kurashina K, et al. Boerhaave's syndrome in a patient with an upside down stomach: A case report. *Int J Surg Case Rep*. 2016;19:51–54.