

A life threatening complication of anti reflux surgery: acute gastric volvulus

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Introduction

Gastric volvulus is divided into two as primary and secondary according to the aetiology. In primary gastric volvulus, the pathology is the relaxation of the support ligaments of stomach. Secondary gastric volvulus develops due to predisposing factors such as hiatus hernia, traumatic diaphragmatic rupture, diaphragm eventration, intrinsic and extrinsic pathologies of stomach, and abdominal adhesions [1].

Case presentation

A 27-year-old male patient was admitted with a sudden onset of chest pain, nausea, and inability to vomit. His medical history revealed that he underwent a laparoscopic Nissen fundoplication operation six months ago. Laboratory results were as follows: aspartate aminotransferase: 45 U/L, alanine aminotransferase: 100 U/L, total bilirubin: 0,9 mg/dL, amylase: 200 U/L, creatinine: 1,4 mg/dL, leukocyte count: 12 10³/μL. Initially, unstable angina was suspected; however, electrocardiography and troponin I (0.3 mg/L) value of the patient were found to be normal. On the chest X-ray, air-fluid level was detected behind the heart, and it was observed in the computed tomography that the stomach was herniated into the thoracic cavity with organoaxial rotation (Figure 1).

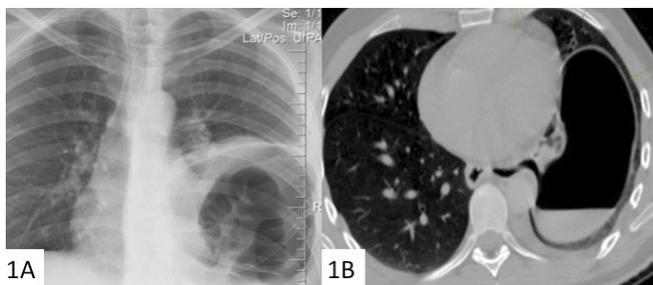


Figure 1A. Chest X-ray showing air fluid level
1B. computed tomography showing acute gastric volvulus

The patient was diagnosed with acute gastric volvulus, since the nasogastric catheter was unable to be inserted, and it was decided to perform endoscopic detorsion. Gastric ischaemia was not observed during the endoscopy, although detorsion failed and the patient underwent emergency surgery. In the laparoscopic exploration, it was observed that along with the stomach, colon was also herniated through the diaphragmatic defect into the thorax. Due to the failure of detorsion of stomach and colon and the difficulty of dissection, it was decided to convert to conventional surgery. The stomach and colon were pulled into the abdomen. After the stomach was detorsioned, the hernia sac was resected. The diaphragmatic defect was closed with primary suturing and repaired with the aid of a mesh. To avoid gastric detorsion, gastropexy was performed fixing the greater curvature of the stomach to the abdominal wall with 2/0 silk (Figure 2). The mesocolon was also fixed to the retrocolic area using primary suturing. On the fourth postoperative day, the patient was uneventfully discharged.

Discussion

Acute gastric volvulus is characterized by Borchardt's triad; severe epigastric abdominal pain, distention and unproductive vomiting [2]. The clinical presentation of chronic gastric volvulus is rather obscure. It is encountered with various findings such as atypical chest pain, anaemia (often related to Cameron's ulcer), weight loss, dysphagia and reflux. If the diagnosis of gastric volvulus is delayed, fatal outcomes may occur such as ulceration, haemorrhage, ischaemia and up to full-thickness necrosis [3].

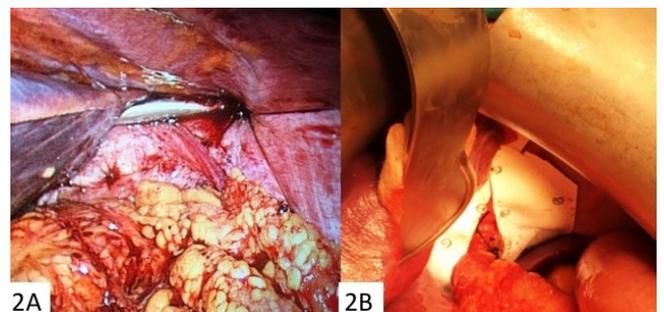


Figure 2 A. Laparoscopic exploration showing thoracic herniation of the stomach and colon **2B.** Reconstruction of large diaphragmatic defect with a mesh is seen.

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The incidence of strangulation in gastric volvulus cases ranges from 5% to 28% [4]. Acute gastric volvulus development after laparoscopic Nissen fundoplication is an extremely rare clinical entity. If there is a delay in diagnosis, strangulation is likely to be detected. The relaxation of gastro splenic, gastro colic and gastro hepatic ligaments which hold the stomach in place and postoperative adhesions are responsible in the pathogenesis [5]. Gastric volvulus is often in the organo-axial type and the stomach takes the shape of hourglass [6]. Diagnosis is made with radiological examinations in accordance with clinical suspicion. In the early period, the increased serum amylase value from laboratory results is particularly indicative of ischaemia. Computed tomography is the gold standard radiological examination [7]. Treatment steps of gastric volvulus include correction of volvulus and prevention of recurrence. Llana et al. [8] described that detorsion could be achieved by nasogastric decompression in volvulus cases. However, nasogastric decompression is useful in relieving acute clinical picture rather than a definitive treatment option. Endoscopic evaluation should be performed in these patients without losing time. Thus, by determining the grade of ischaemia, loss of time is prevented. Tsang and Walker have described that endoscopic treatment is possible in acute and chronic gastric volvulus cases. The endoscope is brought to the J-shape manoeuvre in the fundus, pushed forward to the antrum and duodenum clockwise, which is called alpha-loop manoeuvre [9]. Surgical treatment is performed by laparoscopic or conventional methods. The main goals of surgical procedure are correction of volvulus, excision of hernia sac, repair of hiatus hernia and anterior gastropexy [10].

Conclusion

Acute gastric volvulus development after laparoscopic Nissen fundoplication is an extremely rare clinical entity. If the diagnosis of gastric volvulus is delayed, fatal outcomes may occur. Surgical treatment should be performed when acute gastric volvulus is detected in patients who have had previous upper abdominal surgery.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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Learning Points:

- Acute gastric volvulus is an extremely rare but known clinical entity following laparoscopic Nissen fundoplication.
- Computed tomography is the gold standard radiological examination.
- In patients who have had previous upper abdominal surgery, surgical treatment should be performed