

Uncommon cause of retrosternal pain

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Abstract

We present the case of a 54-year old male patient who was admitted with severe acute epigastric pain, vomiting, and inability to eat since three days before admission. After having excluded cardiac and pulmonary emergencies, an oesogastroduodenoscopy was planned and showed a gastric volvulus.

The patient was treated surgically allowing gastric decompression, gastropexy and Nissen intervention.

We discuss the case and describe the classification, the diagnosis, the etiologies and therapeutic options in acute and chronic gastric volvulus. (*Acta gastro-enterol. belg.*, 2016, 79, 251-253).

Key words : hiatal hernia, gastric volvulus, gastric necrosis, gastropexy.

Introduction

Gastric volvulus (GV) is a rare clinical entity defined as an abnormal rotation of the stomach of more than 180°, creating a closed-loop obstruction that can result in incarceration and strangulation. Diagnosis is based on clinical suspicion and standard radiographic studies and is confirmed by an upper gastrointestinal contrast study or oesogastroduodenoscopy (OGD) (1,2).

Primary (idiopathic) GV is defined as volvulus due to abnormalities of the gastric ligaments. Failure of the gastric fixation can occur as a result of agenesis, elongation, or disruption of the gastric ligaments. Secondary GV is reported in two-thirds of cases and is defined as volvulus due to other anatomic abnormalities such as paraesophageal hernia, diaphragmatic hernia (Morgagni hernia, Bochdalek hernia, traumatic hernia), diaphragmatic eventration, phrenic nerve paralysis (3,4). In adults, the most commonly associated diaphragmatic defect is the paraesophageal hernia whereas in children, it is the congenital diaphragmatic hernia (3,5). Acute and chronic GV usually present with different symptoms. The classic symptoms of acute GV are known as Borchardt's triad (severe epigastric pain, nonproductive vomiting and inability to pass a nasogastric tube).

Patients with chronic gastric volvulus typically present with intermittent epigastric pain and abdominal fullness after meals. They may also report dyspnea and chest discomfort (6).

The three types of GV are organo-axial, mesentero-axial and a combination of these two. The most common type, organo-axial volvulus, rotates along the cardiopyloric axis. When associated with a large diaphragmatic de-

fect, the greater curvature rotates upward into the defect, creating an "upside down" stomach. This type is most commonly associated with a large hiatal hernia and left diaphragmatic eventration. The mesentero-axial volvulus, accounting for approximately one-third of gastric volvuli, occurs when the stomach rotates around a transverse axis at the pyloroantral area resulting in the antropyloric region becoming anterior to the stomach. The combination volvulus is rarely encountered (2,7).

Sometimes decompression of the stomach with a nasogastric tube will result in reduction of the volvulus (8) but most of the time, the treatment will require surgery.

The principles of the treatment of GV include decompression, reduction, and prevention of recurrence. In cases of gastric necrosis, a gastrectomy will be indicated (9). Tanner described the surgical options, which include repair of eventration of the diaphragm, simple gastropexy, gastropexy with division of the gastrocolic omentum, partial gastrectomy (10).

With advances in laparoscopic surgery, in the absence of peritonitis or hemodynamic instability, most cases of acute and chronic gastric volvulus can now be approached laparoscopically. Previous case series suggest that a laparoscopic approach could be as efficient as open surgery, with less morbidity and shorter length of stay (11-13). Nevertheless, laparoscopic approach could be technically challenging, requiring previous laparoscopic foregut surgical expertise (13).

Historically, mortality of 30-50% has been reported for acute gastric volvulus, due to strangulation, necrosis and secondary gastric perforation (1,7,12). As a consequence of advances in diagnosis and management, the mortality from acute gastric volvulus is now estimated at 15-20%, and that for chronic gastric volvulus is 0-13% (11,13).

We present the case of an acute gastric volvulus successfully treated by conservative surgery and Nissen procedure.

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Fig. 1. — Anterior thoracic X-ray showing a hiatal hernia

Case report

A 54-year-old male patient was admitted at the Emergency Department for acute thoracic pain associated with nausea and vomiting since 3 days. His medical history consisted in gastro-esophageal reflux (GERD) and hypertension. He had no history of trauma or abdominal surgery. The physical examination was normal except a hypertension and there were no signs of sepsis. Empiric nitrate spray was administered but did not relieve the symptoms. A nasogastric tube insertion failed. The laboratory findings were unremarkable. Chest X-Ray showed hiatal hernia (Fig. 1). Although the troponin T and electrocardiogram were normal, due to the suspicion of acute myocardial ischemia, a coronarography was performed but showed no coronary disease.

An OGD was then planned (with midazolam premedication and without fluoroscopy). After aspiration of an important oesophageal stasis, the cardia was passed with a severe friction allowing the access to a blind gastric space with massive liquid stasis. The retroflexion revealed an ischemic gastric ulcer centered in a twisted area of the gastric body (Fig. 2). A naso-gastric tube was inserted with a snare and the patient was referred for thoraco-abdominal CT scanner. It showed a hiatal hernia with upside-down stomach but no sign of ischemia (Fig. 3 & 4). The patient was referred for surgery and a laparotomy was performed. At the opening of the abdominal cavity, the surgeons found the incarceration of a large part of the stomach in the thoracic cavity through the Morgagni's orifice. After reducing incarceration and repair of the diaphragm, due to the absence of ischemia and the satisfying recolorisation after gastric detorsion, a gastropexy, followed by a Nissen intervention, was done.

The follow up was unremarkable and the patient left the hospital four days after surgery.

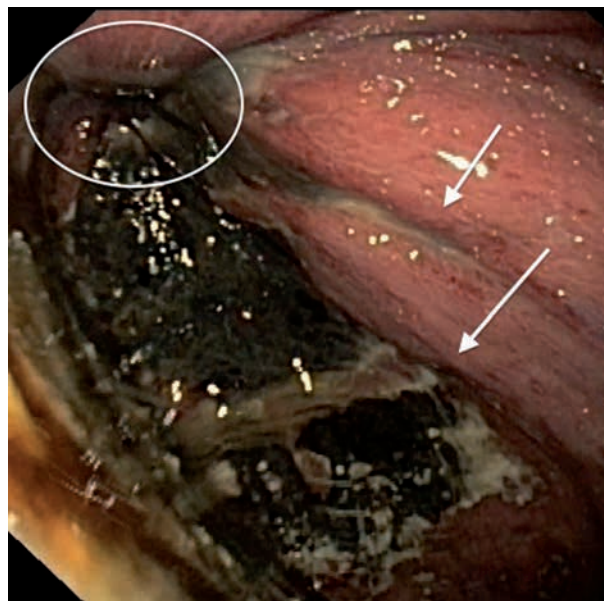


Fig. 2. — Oesogastroduodenoscopy : gastric volvulus with strangulation (ovale) and ischemic gastric ulcers (arrows).

Discussion

Our patient presented the Borchardt's triad in the context of previous GERD whom lead to the suspicion of GV. Commonly, GV manifests as the sudden onset of severe epigastric or left upper quadrant pain or as sharp chest pain radiating to the left side of the neck, shoulder, or arms in case of intra-thoracic GV. It may also induce cardiopulmonary distress, due to gastric distention, and mimic an acute myocardial infarction. Sometimes, patients will present hematemesis secondary to mucosal ischemia whom can rapidly progress to hypovolemic shock.

In our case, the diagnosis of GV was made by OGD and a CT-Scan was performed in order to evaluate the existence of ischemia. We did not attempt an endoscopic reduction of the stomach because the OGD was performed without general anesthesia and without fluoroscopy. However, even if this technique was been described as successful in some patients, it should not be tried in hemodynamically unstable patients or in the presence of peritoneal signs (14). One potential benefit of endoscopic reduction is that it may act as a bridge procedure in chronic and acute gastric volvulus, allowing the surgical procedure to be performed on an elective basis and permitting medical optimization before surgery (14).

The laparotomy approach was preferred on the suspicion of gastric necrosis. The surgeons found incarceration of a large part of the stomach supra diaphragmatic in the thoracic cavity. Stomach was pulled back from thoracic cavity to the abdominal cavity, the diaphragm was fixed, the fundus was attached to the diaphragm and a Nissen was performed.



Fig. 3. — CT scanner (coronal view) showing an upside-down stomach with the naso-gastric tube (arrow) inserted in the oesophagus (O) and the torsion area between the gastric fundus (S) and the hiatal hernia (HH).



Fig. 4. — CT scanner (coronal view) showing the torsion area between the gastric fundus (S) and the flat antro-corporeal region (white arrow).

Post-operatively epigastric discomfort and vomiting disappeared. Oral intake was allowed at the day 1 PO and the patient was discharged from hospital on the fourth day after surgery.

Conclusion

In the presence of acute retrosternal pain associated with severe vomiting, and no signs of acute cardio-respiratory affections, the diagnosis of gastric volvulus should be considered, even more in case of preexisting GERD.

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