

Case report



Stomach volvulus, not a common diagnosis in digestive emergency: acute or chronic evolution, does it make difference?

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Stomach volvulus, not a common diagnosis in digestive emergency: acute or chronic evolution, does it make difference?

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Abstract

Stomach volvulus is a rare pathology whose etiologies are dominated by hiatal or diaphragmatic hernia, its diagnosis is not a common in digestive emergency; Brochart described a triad: severe epigastric pain, retching without vomiting, inability to pass a nasogastric tube; abdominal CT make diagnosis in the majority of cases. Surgery is the major treatment in emergency context by stomach devolvulation and gastropexy; hiatal or diaphragmatic hernia must be treated in the same operation. Medical and endoscopic treatments are reserved for patients with high operative risk and chronic evolution.

Introduction

Stomach volvulus is a very rare pathology whose etiologies are dominated by hiatal or diaphragmatic hernia; thoraco-abdominal trauma can also be in the origin of it. It performs an upper bowel obstruction chart especially in an emergency context. Gastric volvulus is diagnostic and therapeutic emergency; it can manifest either as an acute abdominal emergency or as a chronic intermittent problem [1]. Surgery stays the main way of treatment. Timely diagnosis and treatment of acute gastric volvulus can potentially decrease morbidity and mortality [2].

Patient and observation

Case N° 1: a 77-year-old patient, without previous history, admitted for occlusive syndrome: early vomiting, materials and gases stop without abdominal distension evolving since 3 days; clinical examination noted a patient who was hemodynamically and respiratory stable, normo-colored conjunctives with a temperature at 37.2°C; a heart rate at 110/min; respiratory rate at 22 cycles per min; left basithoracic pain was also noted, the establishment of the gastric tube was very difficult, it brought back blackish digestive fluid. The biological balance sheet showed hemoglobin at 8.5 g/dl; hyperleukocytosis at

15,000; wafer at 150,000; the prothrombin level was 90%; a correct ionogram; in front of this symptomatology a thoraco-abdominal CT was realized, and it evokes gastric volvulus on hiatal hernia with ischemia of the gastric wall evoked in front of a decrease in the enhancement of the contrast (Figure 1). Surgical exploration found a gastric volvulus (organo-axial) vertical axis on hiatal hernia with suffering gastric wall which was recolored after reduction (Figure 2). The stomach was devolvulated after reduction of the hiatal hernia, closing of the diaphragmatic opening and gastropexy of the pyloric region with the anterior abdominal wall. The operating suites were simples.

Case N°2: patient, aged 52, having as background a hiatal hernia, is referred by a gastroenterologist for suspicion of gastric volvulus on diaphragmatic hernia, mentioned after a barium examination (Figure 3, Figure 4) and confirmed by a thoraco-abdominal CT. The patient had a history of dysphagia and regurgitation, the clinical examination found a conscious patient, hemodynamically stable with slight respiratory discomfort, conjunctiva was normal, abdominal examination was normal including no pain or palapable mass. On the biological level: hemoglobin at 12g/dl; leukocytes at 8000 elements/ mm³; hypoprotidemia at 40g/l; correct ionogram. A medical treatment was undertaken initially which consisted in the installation of a naso-gastric tube with analgesics, antispasmodics and inhibitors of proton pump, 3 days later the patient was generally evaluated, the surgical team decided to operate on the patient, the surgical exploration shows a posterior left diaphragmatic hernia with incomplete gastric volvulus following the mesenteroaxial axis without necrosis. The gesture consisted in a reduction of the hernia, a gastric devolvulation and gastropexy with cure of the diaphragmatic hernia by separate stitches with a silk thread closing on a left thoracic drain. The operating suites were simple.

Discussion

Gastric volvulus is a rare clinical entity defined as an abnormal rotation of the stomach of more than 180°, which creates a closed-loop obstruction that can result in incarceration and strangulation [2]. The most frequently used classification system of gastric volvulus, proposed by Singleton [3], relates to the axis around which the stomach rotates and includes the following three types: organoaxial, mesenteroaxial or combined. Gastric volvulus occurs in children usually less than 1 year of age and occurs in older adults, those who are older than 50 years which was noted for both of our cases. There does not seem to be a predilection for gastric volvulus for either gender or race. The most common cause of a gastric volvulus in both children and adults is a paraesophageal hernia and both of our patients were having hiatal hernia [4]. Borchartt described the classic triad associated with gastric volvulus [5]: severe epigastric pain, Retching without vomiting, Inability to pass a nasogastric tube. This triad occurs in up to 70% of patients who present with an acute organoaxial volvulus.

The nasogastric tube passes easily in patients who present with an acute mesenteroaxial volvulus. Patients who present with chronic, intermittent, and vague signs and symptoms of upper abdominal pain, nausea, dysphagia, early satiety, vomiting, and hiccups may have a chronic partial or intermittent gastric volvulus [2] and that was noted in the second case. Radiologically, the chest X-ray can evoke the diagnosis in front of the following signs: an intrathoracic upside-down stomach, retrocardiac fluid level; abdominal radiography when performed with the patient upright shows double air-fluid level large, distended stomach, collapsed small bowel; concerning abdominal CT. The appearance depends on points of torsion, extent of gastric herniation, and final positioning of stomach: distended stomach with antropyloric transition point, located at the level of/or superior to the fundus, linear septum may be visible within the gastric lumen which corresponds to the site of torsion, entire stomach may be herniated; both can

result in: volvulus, obstruction, ischemia; ischemia seen as lack of contrast enhancement of gastric wall, with or without pneumatosis. Fluoroscopy after ingestion of contrast product can show: distended stomach in left upper quadrant extending into thorax; inversion of stomach; volvulus with >180° twist causes luminal obstruction; incomplete or absent entrance of contrast material into and/or out of stomach is indicative of acute obstructive volvulus; "beaking" may be demonstrated at point of twist; mesenteroaxial form shows an antrum and pylorus lie above gastric fundus [6] most of these radiological signs were observed in the second case.

The traditional treatment for a patient presenting with an acute gastric volvulus has been an immediate operation [2]. After resuscitation and medical optimization, the aim of the surgery is to decompress and de-rotate the volvulus and fix the stomach to prevent recurrence. The gastropexy can be approached laparoscopically also [7]. Morelli *et al.* anchored the stomach to the anterior abdominal wall by placing 4 sutures on the great and lesser curvature of the stomach near the fundus and the body [8]. Palanivelu *et al.* performed laparoscopic suture gastropexy in 14 patients (chronic volvulus and 4 acute). Majority of patients presented with a secondary gastric volvulus. All 14 patients did not develop complication post operatively [9]. Conservative treatment is reserved for patient with high comorbidities risks, because of the risk of the future strangulation and death associated with conservative management of chronic gastric volvulus, where possible patients should offer surgery [10]. That was the decision about the second case in our report. In older patients who are unfit for surgery, endoscopic gastrostomy showed good results [11] but in our context it was possible to realize this process. In cases of secondary gastric volvulus, the paraesophageal hernia must be repaired. Robotic repairs of paraesophageal hernia with a mesh offer a tension free primary closure of the defect [12].

Conclusion

Gastric volvulus is a pathology which often manifests on diaphragmatic anomaly and produces a high acute occlusion table. Management is surgical in emergency. Conservative treatment is reserved for patients with high risk comorbidities, de-rotate the stomach with gastropexy, and the paraoesophageal hernia reparation are the main aim of surgical treatment, laparoscopic and endoscopic process give satisfactory results regarding the chronic course of this disease.

Competing interests

The authors declare no competing interest.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: CT image showing stomach in left thoracic side

Figure 2: recoloration of the ischemic stomach after reduction and devolvulation

Figure 3: x-rays chest (intra thoracic aerial image)

Figure 4: barium examination showing intra thoracic stomach

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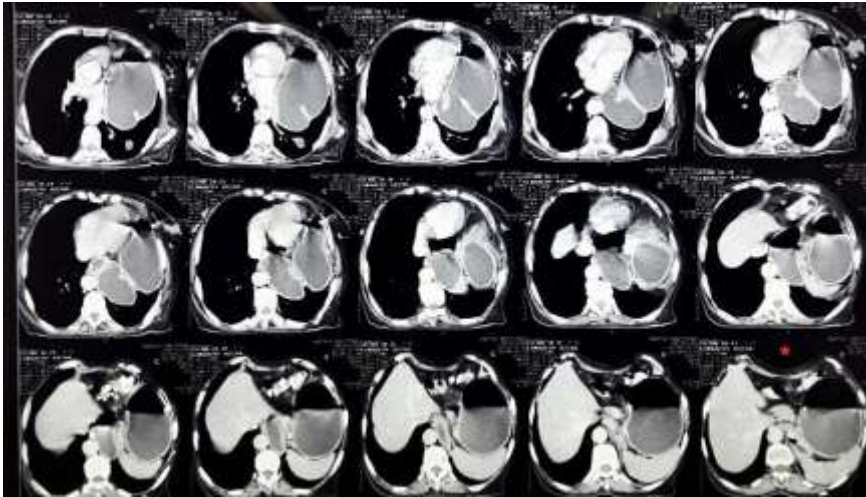


Figure 1: CT image showing stomach in left thoracic side



Figure 2: recoloration of the ischemic stomach after reduction and devolvulation

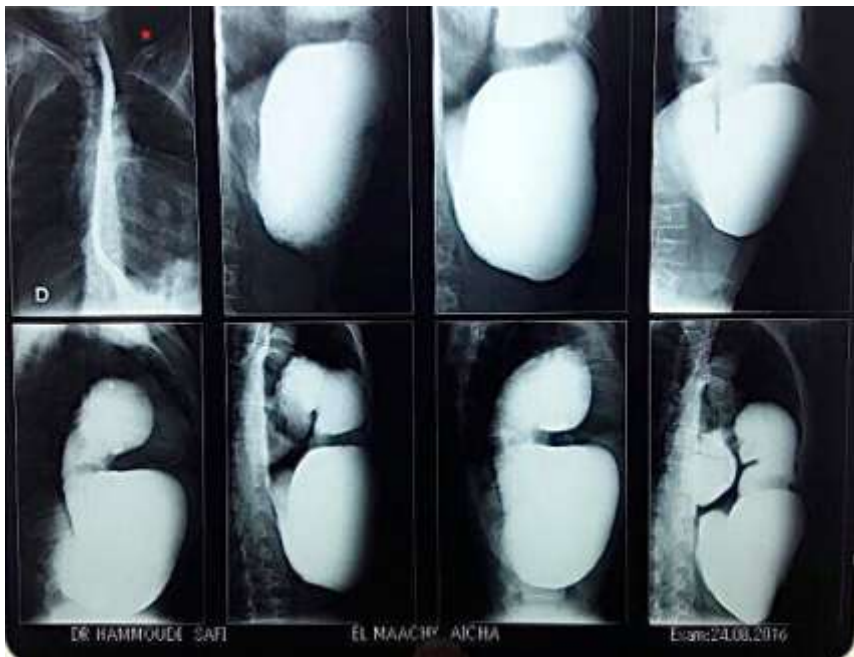


Figure 3: x-rays chest (intra thoracic aerial image)

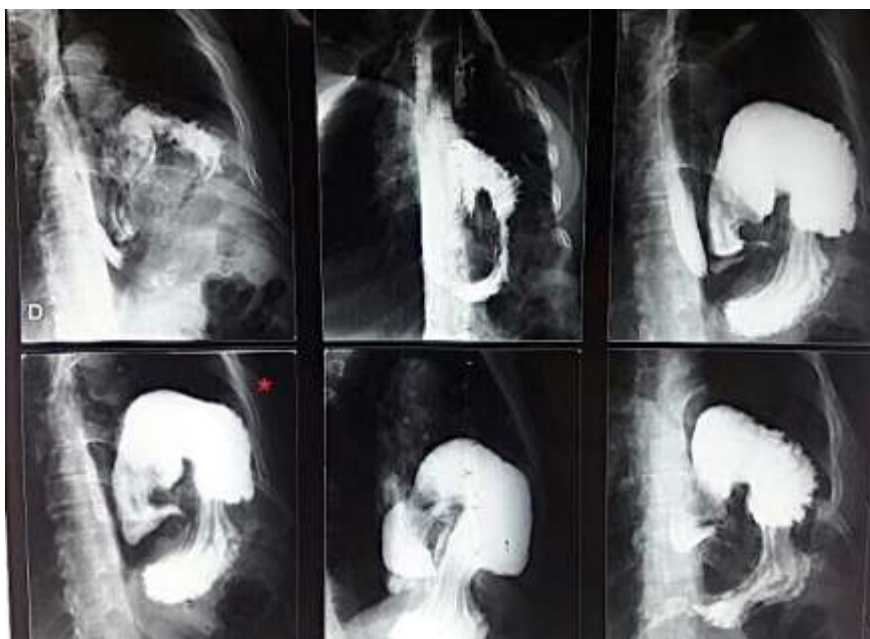


Figure 4: barium examination showing intra thoracic stomach