Gastric volvulus associated with cardiac tamponade

Dear Editor,

Gastric volvulus is a rare complication characterized by a rotation of the stomach by more than 180° around the main axis, with obstruction of the lumen, which may or may not be associated with impaired blood flow (1).

Case report

We describe the clinical case of a 65-year-old woman attended in our emergency unit due to epigastric abdominal pain accompanied by dyspnea of several hour of evolution. Abdominal distension and reduced vesicular murmur in the left hemithorax were found during physical examination. X-ray revealed a distended gastric chamber in the thoracic cavity. Computer tomography (CT) scan with intravenous contrast medium of the chest, abdomen and pelvis showed massive gastric dilation (around 15 cm x 20 cm) with the pyloric antrum above the fundus protruding into the mediastinum (herniated), causing compression and possible cardiac tamponade. The findings were compatible with mesenteroaxial gastric volvulus (Fig. 1). The patient presented sudden hemodynamic instability and emergency intervention was required. The previous findings were confirmed during surgery. Gastric decompression, hernia reduction, pillar closure and gastropexy were performed.

Discussion

Gastric volvulus is a severe life-threatening disorder and is therefore classified as a medical and surgical emergency. It was first described by Berti (2) in 1866 as an autopsy finding. It involves the abnormal rotation of a part of the stomach around another part. According to its etiology (3), it can be classified as primary and secondary. A primary volvulus is due to the ligaments which stabilize the stomach becoming slack (i.e., the hepatogastric, gastrophrenic gastroplenic, and gastrocolic ligaments). It has an infradiaphragmatic location and occurs in a third of all cases of volvulus. Secondary volvulus is more frequent and has a supradiaphragmatic location. It is found in cases of paraeosophageal hiatus hernia, evagination of the diaphragm, trauma, and diaphragmatic paralysis, among others. Depending on the anatomy and axis of rotation, primary and secondary volvulus can be divided into three types. The most frequent is organoaxial, where the stomach rotates through its longitudinal axis, from the cardias to the pylorus (59%). This type is associated with paraoesophageal hernia or evagination of the diaphragm. In the mesentericoaxial type (29%), as in the present case, the stomach rotates through its short axis, from the lesser curvature to the greater, and is normally associated with diaphragmatic abnormalities. The mixed type is even less frequent (12%), and in this case the stomach rotates through both axes (4).

Although its incidence is unknown, it is more frequent in people over 50 years of age, whereas only 10 to 20% of cases are found in children younger than 1 year old (3).

The clinical picture depends mainly on the speed of onset, the type of volvulus, and the level of obstruction. In acute cases, the classic presentation is the Borchardt triad which appears in 70% of patients: pain in the epigastrium, abdomen and lower thorax, severe retching, and inability to pass a nasoesophageal tube. Due to retching or mucosal ischemia, hematemesis may

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appear. Complications include obstruction, ulceration, perforation, and bleeding (5).

Diagnosis is not easy, but clinical examination together with imaging techniques can help to obtain an initial diagnosis. For example, X-ray can show the presence of the stomach in thoracic cavity. Currently, multiplanar reformatted computed tomography is the reference imaging technique, since it provides the most information on size, distribution, associated lesions, etc. Thus, the whirl sign, which is characteristic of this pathology, is difficult to detect in axial reformatted CT images, but can be identified with multiplanar CT.

The treatment for gastric volvulus has changed over recent decades. If possible, a nasogastric tube should be inserted to attempt to decompress the stomach. In an acute condition, surgery is indicated and should not be delayed to avoid possible complications. The purpose of treatment is to reduce the volvulus, prevent recurrence and correct the predisposing factors as well as the diaphragmatic defect. Despite the numerous repair techniques described, the most widely used technique is to reduce the stomach under open surgery or laparoscopy with or without gastropexy (6).

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Fig. 1. Thoracoabdominal computed axial tomography. Axial view: large intrathoracic gastric hernia associated with cardiac compression. Coronal and sagittal views: confirmation of the pyloric antrum above the gastric fundus herniated towards the thoracic cavity. Findings associated with mesenteroaxial volvulus.
References


