Case Report

Mixed type gastric volvulus in a 15 months child


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Abstract
We have here a report on 15-month-old boy who presented with severe abdominal pain and vomiting. Examination revealed epigastric mass and scan showed mixed type gastric volvulus. He was treated by gastropexy with dramatic response.

Keywords: Acute, chronic, gastric volvulus, gastropexy

Introduction
Gastric volvulus was first described by Berti in 1966(1) in an adult patient and by Oltmann in 1899 in a paediatric patient; there have been less than 600 reported cases of gastric volvulus in children till 2008(2). It is an abnormal rotation of the stomach leading to partial or total obstruction. Gastric volvulus is rare in the paediatric age group and because of its rarity as well as the vague and non-specific symptoms; the diagnosis is often missed or delayed.

Case report
A 15-month-old boy was brought to Khartoum Teaching Hospital with 2 days history of episodes of crying and vomiting. He used to vomit whatever he used to eat. The vomiting contained food particles and not projectile, he had a normal appetite and bowel habits with no abdominal distention or fever. The mother noticed an epigastric mass in the days prior to the presentation. The child was irritable and dehydrated. His pulse rate was 110/min and respiratory rate 26/min. There were visible dilated stomach and visible epigastric mass which was non tender freely mobile mass with blunt edges (Fig 1).

Fig 1: Showing visible spleen (black arrow) and visible dilated stomach (white arrow).
An ultrasound scan (USS) showed a dilated stomach and ectopic lying spleen. The child was resuscitated with intravenous fluids and nasogastric (NG) tube was passed easily. An upper gastrointestinal (GI) study showed dilated stomach situated upside down with a bird peak appearance (Fig 2).

Figure 2: Showing mal-rotated stomach, pylorus situated upwards (black arrow), gastro esophageal junction down words.

Suggesting a diagnosis of gastric volvulus (mixed) type
Under general anesthesia a diagnostic laparotomy was done. The spleen was the presenting part, the stomach was found distended and rotated, the greater curvature facing anteriorly and the pylorus was situated at site of the original cardia (Fig 3).

Figure 3: Showing the mal-rotated stomach

The cardia was displaced inferiorly. Gastropexy was done; the stomach was fixed to the diaphragm, DJ flexure and the anterior abdominal wall. The postoperative period was uneventful. The child was discharged in 4th postoperative day.

Discussion
The normal stomach is fixed by the gastro hepatic, the gastro colic, and gastrophrenic and the gastrosplenic ligaments. The relative fixity of the pylorus and the gastro-oesophageal junction also helps to maintain the normal position of the stomach.

In term of onset, gastric volvulus is classified into acute and chronic\(^{(3,4)}\). Acute gastric volvulus is extremely rare and life-threatening if not recognized and treated promptly. Our case falls in this category of intra-abdominal mesentrico-axial volvulus. Based on location, gastric volvulus is classified into intra-abdominal and intra-thoracic\(^{(3-6)}\). Intra-thoracic volvulus is extremely rare and seen in children with diaphragmatic hernia. According to the axis of rotation it is classified into organo-axial, mesenterico-axial and mixed\(^{(3,4)}\). In mesenterico-axial volvulus, the stomach rotates around an imaginary axis passing through the greater and lesser curvatures. Organo-axial volvulus is the commonest\(^{(7)}\). Gastric volvulus is also classified according to the aetiology into idiopathic where no precipitating cause could be found and secondary to other anatomical defects such as diaphragmatic hernia, eventration of diaphragm, Morgagni’s hernia, paraesophageal hernia and congenital asplenia\(^{(6,7,8)}\). In idiopathic gastric volvulus and although there are no anatomical precipitating defects, laxity of the attaching ligaments that anchor the stomach has been incriminated. Another anatomical abnormality associated with gastric volvulus is a mobile spleen. The spleen is attached to the fundus of the stomach by the gastrosplenic ligament. In the erect position, the mobile spleen draws the gastric fundus downwards by the
gastrospenic ligament leading to gastric volvulus. The precipitating cause in our case was this mobile spleen as proved by US scan and intra operatively.

The symptoms of gastric volvulus depend on the extent of gastric rotation and obstruction. In 1904, Borchardt described the triad presentation of acute gastric volvulus: inability to vomit, severe epigastric distension and inability to pass a NG tube\(^9\). These result from obstruction at the cardia and/or pylorus. Our patient presented with abdominal pain, vomiting and epigastric mass, the NG tube was easily passed to drain the gastric content.

Acute gastric volvulus requires emergency surgery; chronic gastric volvulus on the other hand can be treated conservatively unless the symptoms are severe.

By keeping the patient in the prone position, the gastric fundus is filled with air rather than by milk. This will reduce the amount of air and gastric contents regurgitating into the oesophagus. Metaclopramide may be added to enhance oesophageal and gastric emptying and proton pump inhibitor to reduce the gastric acidity which can cause oesophageal ulceration. This conservative approach proved to be effective in 11 of 36 patients in a study conducted in Kingdom of Saudi Arabia (KSA)\(^{10}\). The surgical treatment of chronic gastric volvulus is still controversial\(^{11}\). Some authorities advocate anterior gastropexy only\(^9\). This alone, however, may aggravate the already existing gastroesophageal reflux. Others perform only fundal gastropexy\(^{12}\), while some advocate adding an antireflux procedure to overcome the associated gastroesophageal reflux\(^4\).

In our case, we did an anterior and fundal gastropexy together with fixation of the stomach to the duodenojejunal flexure posteriorly and the patient did well post operatively.

In conclusion, we believe acute gastric volvulus is a rare surgical emergency that requires a high level of clinical suspicion, appropriate radiological assessment and timely surgical intervention.

References