

Acute idiopathic mesentero-axial gastric volvulus in adolescence: a rare occurrence

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Abstract

Gastric volvulus is a rare entity first described in 1866. Gastric volvulus in neonates, infants and younger children accounts for 5–15% of the total. Acute idiopathic mesentero-axial gastric volvulus is a rare sub-type and there are only a few cases reported in children. There is a paucity of reports of its occurrence in adolescents. We present the first one of its kind, matching the classical description.

Keywords

Gastric volvulus; Borchardt's triad; Bird beak.

Introduction

Gastric volvulus is a rare condition^[1] which typically presents with intermittent episodes of abdominal pain. The volvulus occurs around an axis made by two fixed points, organo-axial or mesentero-axial, and is typically associated with a para-oesophageal hiatus hernia. Increased pressure within the hernia sac associated with gastric distension can lead to ischemia and perforation^[2]. Acute obstruction of a gastric volvulus is thus a surgical emergency.

Case report

A 17-year-old male presented with a history of epigastric pain, indigestion and heartburn for 3 months. He had been treated with PPIs by his general practitioner. He presented acutely to A&E with a 3-day history of worsening epigastric and left hypochondrial pain associated with severe nausea, retching and a bloated feeling; the pain was relieved by belching, retching and by bending forward. There was no history of fever or systemic upset.

On examination, the patient was distressed with pain and tachycardia. There was fullness in the epigastrium, which was tender with no guarding or rigidity. Bowel sounds were present. Four hours post admission, the abdominal pain was worsening and was accompanied by coffee ground vomit; the abdomen became tense and distended with voluntary guarding and the bowel sounds disappeared.

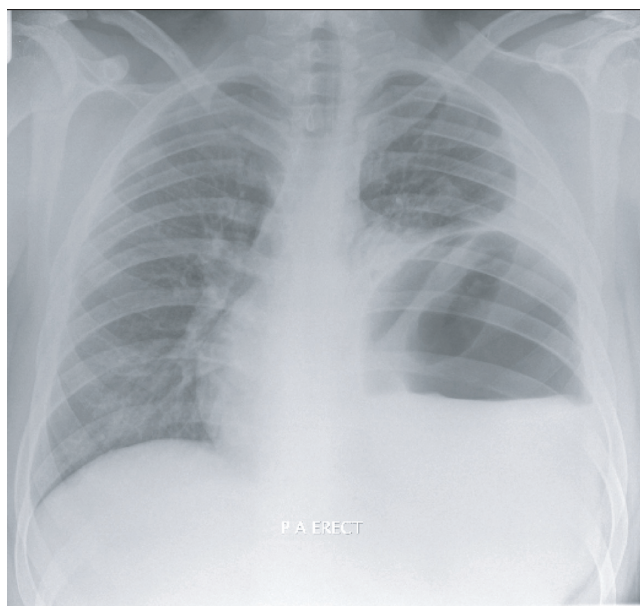


Fig. 1. Chest x-ray on day 2.

Investigations revealed a white cell count of 21.1 (neutrophils 19.6), with other haematological and biochemical parameters within the normal range. Chest x-ray showed an enlarged stomach with gaseous distension and an elevated left hemi-diaphragm.

The patient was resuscitated with oxygen and intravenous fluids. An attempt to pass a nasogastric tube was unsuccessful. A working diagnosis of acute pancreatitis with delayed presentation was made.

After immediate resuscitation measures the patient was reviewed and his clinical condition had improved. Because of the unusual appearance of the chest x-ray, a Gastrograffin swallow was requested. This study showed a hugely dilated fluid-filled stomach, with no leak or flow into the duodenum.

A nasogastric tube was passed into the stomach with difficulty and more than a litre of greenish black fluid was aspirated. He reported worsening right sided chest pain radiating to the left side and developed increased retching leading to subconjunctival haemorrhages.

Review next day revealed 350ml of nasogastric aspirate. Repeat x-ray showed a dilated stomach, pushing the diaphragm up and deviating the trachea to the right side (Fig. 1). A urinary amylase was normal. Hourly monitoring and aspiration was requested. A radiologist reviewed his films and suggested that there was an obstruction at the level of oesophago-gastric junction with a well-defined bird beak appearance suggesting a gastric volvulus (Fig. 2). A laparotomy was performed which confirmed the radiological diagnosis and a gastropexy was carried out. His postoperative recovery was uncomplicated and he was discharged home after 10 days. There were no recurrent problems on initial follow up.

Discussion

Acute idiopathic mesentero-axial gastric volvulus is a rare subtype with only five cases reported in children^[3]. This is one of the rarest case seen in an adolescent with all the characteristic features of this type of volvulus. A review of the literature revealed five previous cases of acute idiopathic mesentero-axial gastric volvulus in children aged 5–12 years. The other subtypes of gastric volvulus are typically seen in neonates, infants and younger children. There is an increased preponderance in females. Three out of six cases were reported from the Indian subcontinent^[3]. An understanding of the varied presenting features including both thoracic and abdominal manifestations is essential for early recognition and prompt treatment.

The presentation of late onset idiopathic gastric volvulus can be acute, chronic or acute on chronic. Chronic gastric volvulus is more common than acute gastric volvulus. Organo-axial gastric volvulus is the most common type. Acute gastric volvulus presents with complete volvulus and acute obstruction requiring immediate surgical intervention. Borchart's triad is seen

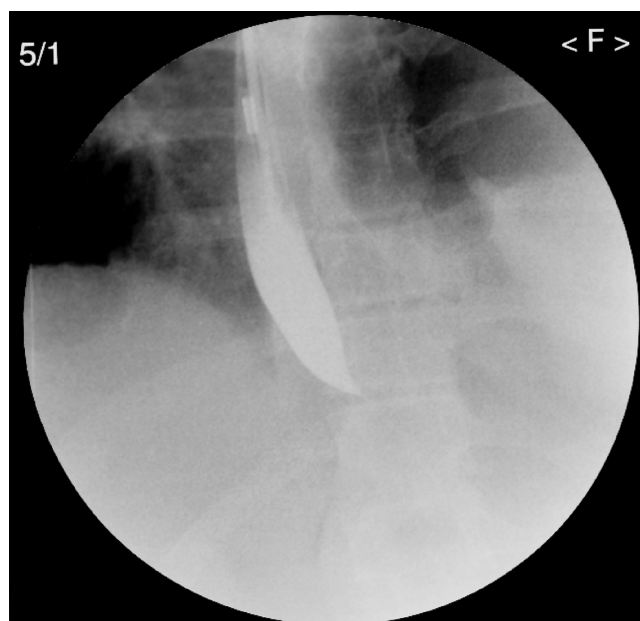


Fig. 2. Bird beak appearance - volvulus.

typically as an acute presentation. Chronic gastric volvulus is diagnosed in the presence of partial volvulus with chronic, non-specific symptoms and signs. Conservative management is usually successful. Acute on chronic gastric volvulus is the least common of all and mesentero-axial type is the rarest. There is usually a period of non-specific symptoms before the acute episode and surgical intervention is vital for a good outcome.

The typical features include Borchardt's triad^[4] of epigastric pain, retching with no vomiting, and difficulty or failure to pass a nasogastric tube. There are few abdominal signs because the stomach is in the thorax. Radiology demonstrates a gas-filled viscus in the upper abdomen and lower chest and obstruction at the site of volvulus.

There may be a possible contribution to the aetiology and pathogenesis from increased laxity of the supporting ligaments of the stomach^[4] and a high residue diet^[4]. Chang *et al.*^[5] retrospectively analyzed 15 patients under 18 years of age over a period of 10 years and recommended immediate surgical reduction for acute gastric volvulus. For chronic idiopathic gastric volvulus, the treatment may be based on the age at diagnosis, the severity of symptoms, and how well patients comply with conservative measures.

In the general management of acute gastric volvulus there is non-operative mortality of more than 80%. Though rare it is important to consider acute idiopathic mesentero-axial gastric volvulus in the differential diagnosis of Borchardt's symptoms in later childhood.

Teaching point

In the presence of Borchardt's symptoms, it is important to consider gastric volvulus in the differential diagnosis.

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