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CASE STUDY

MESENTEROAXIAL GASTRIC VOLVULUS: A RARE CASE REPORT

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ABSTRACT

Acute gastric volvulus is torsion of the stomach by more than 180° and a life-threatening condition, but its intermittent and vague symptoms may make diagnosis difficult. There are different types of gastric volvulus, with the variant presented in our case being the less commonly encountered mesenteroaxial gastric volvulus.

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INTRODUCTION

Gastric volvulus a rare clinical life threatening condition thus prompt early diagnosis and treatment is imperative. Berti in 1866 was the first person who described the gastric volvulus on the basis of autopsy of 61-year old women (Berti, 1866). The peak age group of incidence is in the fifth decade with children less than one year old making up 10-20% cases. No association with either sex or race has been reported (Chau, 2007, McElreath *et al*., 2008). The mortality rates for acute volvulus range from 30 to 50% highlighting the importance of early diagnosis and treatment (Chau *et al*., 2007; Teague *et al*., 2000). We herein report a rare case of acute severe gastric volvulus due to mesenteroaxial rotation.

Case Presentation

A 50-year-old male was admitted to the emergency department of our hospital complaining of severe abdominal pain, nausea, and multiple episodes of bilious vomiting followed by repeating nonproductive retching. His medical history was unremarkable. His vital signs showed tachycardia, tachypnoea, and fever.

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Upon physical examination the abdominal distended with abdominal sounds were absent and his abdomen was diffusely tender especially in the upper quadrant, guarding and rigidity present. No peptic ulcers or diaphragmatic hernias were included in his family history. Rectal examination showed an empty rectum. Laboratory investigations showed marked elevations in the white blood cell count (24,900 cells/mm^3), neutrophil fraction (91.3%), and C-reactive protein (7.3 mg/dl). The admission abdomen erect X-ray showed an ground glass appearence and gas under right hemidiaphragm .On the basis of physical examination, laboratory findings and radiological finding patient diagnosed as a case of small bowel perforation peritonitis.

At lapratomy, ther was bilious collection approximating 3 litres in the peritoneal cavity. The parieties and whole of the bowel was caked with flakes. The fundus and greater curvature of the stomach had necrosed and the ryles tube and the mucosal folds of the stomach were visible as shown in Fig (1) and stomach lies in the vertical plane with the antrum and pylorus rotated anterior and superior to the gastroesophageal junction.An roux- en –y esophagojejunostomy with feeding jejunostomy was done. Post-op period was uneventfully and patient discharge under satisfactory condition

Fig. 1. Showing fundus and greater curvature of the stomach had necrosed and the ryles tube and the mucosal folds of the stomach

DISCUSSION

Acute gastric volvulus is less common and is an acute life – threatening, surgical emergency. Gastric volvulus defined as abnormal rotation of the stomach of more than 180^0.It can be of three types anatomically -organo-axial,mesenteroaxial, and a combination of both.Oraganoaxial is most common type accounting for two-third of cases and defined as rotation along the longitudinal cardiopyloric axis and therefore causes the greater curvature of the stomach to rest superior to the lesser curvature ,resulting in an inverted stomach and usually associated with diaphragmatic defects, most commonly a paraesophageal hernia. Mesenteroaxial volvulus less commonly encountered variant defined as rotation around the transverse axis of the stomach .In this position the stomach lies in the vertical plane with the antrum and pylorus rotated anterior and superior to the gastroesophageal junction (Godshall *et al.*, 1999). The third and rarest form of gastric volvulus is when the stomach rotates about both the organo-axial and mesenteroaxial axes resulting in a combined volvulus (Chau *et al*., 2007, McElreath *et al*, 2008). Based on aetiology, it can be of two types primary and secondary. Primary gastric volvulus occurs due neoplasia, adhesion or an abnormality in the attachment of stomach. Stomach normally fixed by four ligaments to the abdominal wall and they are gastrocolic, gastrohepatic, gastrophrenic, and gastrosplenic alongwith pylorus and gastroesophageal junctions that provide anchorage and therefore prevent malrotation. Failure of these supportive mechanisms as a result of agenesis,elongation, or disruption of the gastric

Ligaments may predispose to primary gastric volvulus. Alternatively, a secondary gastric volvulus may arise because of disorders of gastric anatomy or gastric function or abnormalities of adjacent organs such as the diaphragm or spleen. In adults, the most common association is with a paraesophageal hernia however traumatic defects, diaphragmatic eventration and phrenic nerve paralysis have also been reported (Godshall *et al.*, 1999; Cribbs *et al*, 2006; Shivanand *et al.*, 2003). Complication of gastric volvulus is gastric ischaemia, necrosis, and perforation (Casella *et al.*, 2011). Distinction between types is not crucial as the classification is more descriptive than prognostic (Wasselle *et al.*, 1993). On the basis of clinical features, gastric volvulus can again be classified into two types: the acute type and the chronic recurrent type. The direction and degree of the rotation indictate the severity of the symptoms. Usually, acute symptoms tend to occur when the rotation is about or beyond 180 degrees. The chronic or intermittent type is more common than the acute type. Acute volvulus presents like acute obstruction. There is abdominal distention and inability to pass a nasogastric tube. This process may eventually compromise the blood supply of the stomach leading to gangrene and perforation.

Chronic or recurring volvulus presents with dyspeptic pain, giving intervals of freedom for a variable period, like peptic ulcer disease. Sometimes this pain occurs after food consumption and thus may resemble chronic duodenal ulcer with gastric outlet obstruction. The Borchardt clinical triad of symptoms – epigastric pain,retching,and inability to pass a nasogastric tube are useful and valuable pointers to suspect diagnosis. Upon diagnosis of the condition the patient should be kept prone and a nasogastric tube inserted to facilitate decompression (McElreath *et al.,* 2008). In majority of the cases surgical intervention required due to the risk of vascular compromise and death are high however successful results have been reported with a conservative approach too (Teague *et al.,* 2000). Tanner has described several operative procedure and these include diaphragmatic hernia repair, simple gastropexy, gastropexy with division of the gastrocolic omentum (Tanner's operation), partial gastrectomy, fundo-antral gastrogastrostomy (Opolzer's operation) and repair of eventration of the diaphragm.(McElreath *et al.*, 2008; Teague *et al.*, 2000). Despite several operations being available, it is open surgical reduction with or without gastropexy that is most frequently performed. The principal aims of surgery include reduction of the volvulus, the prevention of recurrence and repairing any predisposing factors such as diaphragmatic defects.

Conclusion

Mesentroaxial is potentially life threatening condition with high morbidity and mortality. It seems that the most important factor in diagnosing gastric volvulus is the awareness of its possibility. The diagnosis is suspected mainly by symptoms and exclusion of other pathologies. Emergency laparotomy is required to prevent gangrene of stomach that is due to delayed diagnosis.

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