



ACUTE GASTRIC VOLVULUS WITH DIAPHRAGMATIC HERNIA: A CASE REPORT

General Surgery

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ABSTRACT

Gastric volvulus with diaphragmatic hernia is a rare presentation in adults. A 30-year-old female patient presented with history of pain abdomen for 3 days and vomiting for 2 days. Clinical examination showed supraumbilical distention with pain above the umbilicus. CT abdomen and pelvis showed gastric volvulus with pneumoportalis. On laparotomy she was found to have gastric volvulus with gangrene of fundus with diaphragmatic hernia. Resection of the gangrenous segment of fundus and greater curvature with primary closure of the diaphragmatic defect was done. Thus, high degree of suspicion in diagnosis and early intervention is necessary to decrease the high morbidity and mortality associated with acute gastric volvulus.

KEYWORDS

Adult diaphragmatic hernia, Gastric volvulus, Gangrene of stomach

INTRODUCTION

Gastric volvulus is an uncommon condition¹. It occurs when the stomach twists around one of its axes, usually seen with a large hiatal hernia. It can also occur in the unusually mobile stomach without a hiatal hernia. Typically, the stomach twists along its long axis, which is called organo-axial volvulus where the greater curvature flips up. Less frequently, it occurs around the transverse axis, called mesentero-axial volvulus. Usually, organoaxial gastric volvulus occurs acutely and is associated with a diaphragmatic defect, whereas mesenteroaxial volvulus is partial (<180 degrees), recurrent, and not associated with a diaphragmatic defect.

Often, volvulus is a chronic condition that can be surprisingly asymptomatic. When it presents as an acute case, it may lead to severe complications like strangulation, necrosis, ulceration, Perforation of the stomach and omental avulsion.

PRESENTATION OF CASE

A 30-year-old female patient presented to our OPD with complaints of severe pain abdomen and vomiting for 3 days. The patient had pain abdomen for 3 days which was around the umbilicus and then developed vomiting the next day. She was passing flatus and stools and gave history of abdominal distention for 1 day. The patient had no prior health issues.

Patients vitals were as follows: blood pressure 130/80 mmHg, pulse rate 94/min, temperature 98.0o C., respiratory rate 18/min and SpO2 99%.

- On physical examination, the patient was found to have distention above the umbilicus. There was diffuse abdominal tenderness on palpation, markedly around the umbilicus. Ultrasonography of the abdomen and pelvis was unremarkable. CT abdomen was done followed by this and it showed gastric volvulus with pneumoportalis.

Initial blood work revealed Haemoglobin 11.0 g/dL, WBC 13700 cells/cu.mm, serum amylase 1003.0 U/L and serum lipase 7290.0 U/L with normal renal function test, liver function test, serum electrolytes, bleeding time and clotting time. After analysing all the reports, it was decided to take the patient for surgery. Intra-operative findings revealed grossly distended stomach with gangrene of the fundus and upper half of greater curvature of stomach. After adequate exposure it was found that there was an organoaxial volvulus with a with left anterior diaphragmatic hernia of 3*3 cms.

The stomach was opened at the gangrenous portion and gastric

contents were aspirated. The left gastroepiploic vessels, short gastric vessels and branches of right gastroepiploic vessels were ligated and cut. This was followed by the clamping of omentum. The gangrenous part of stomach was clamped and resected and sent for histopathological examination. The remaining stomach was closed with vicryl 3-0 in two layers. The hiatal hernia which was identified intra-operatively was repaired primarily with prolene 1-0 sutures in a continuous fashion in 2 layers. Post-operative period was uneventful, and the patient was followed up for a period of one year without any complications.



Fig.1: Left anterior diaphragmatic hernia



Fig. 2: Gangrene of the fundus and upper half of greater curvature of stomach

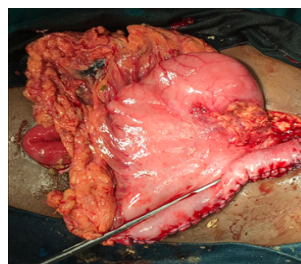


Fig.3: Partial gastrectomy done

DISCUSSION

Gastric volvulus (GV) is an uncommon condition. It was first described by Berti in an autopsy of a female patient in 1866. In 1904, Borchardt described the classical triad associated with GV which consists of severe epigastric pain, retching without vomiting and inability to pass a nasogastric tube.

The aetiology of GV is classified into primary and secondary. Of all GV cases, 10-30% are of primary type. It results from the laxity of the stomach's ligamentous attachments namely gastrohepatic, gastrocolic, gastrolial and gastrophrenic ligaments. Primary GV is seen in association with congenital asplenia and wandering spleen. It is usually mesenteroaxial with pylorus rotating more commonly anteriorly or posteriorly from right to left. Secondary GV occurs due to anatomic abnormalities, the most common of which is diaphragmatic hernia. It is usually organoaxial, with the greater curvature rotating up into the chest either anteriorly (most common) or posteriorly with respect to the fixed duodenum and oesophagus.

Gastric volvulus can manifest either as an acute abdominal emergency or as a chronic intermittent problem. The presenting symptoms depend on the degree of twisting and the rapidity of onset. Acute gastric volvulus most commonly manifests as the sudden onset of severe epigastric or left upper quadrant pain. Intrathoracic gastric volvulus manifests as sharp chest pain radiating to the left side of the neck, shoulder, arms, and back. This condition is often associated with cardiopulmonary compromise from gastric distention and may mimic an acute myocardial infarction. Progressive distention and non-productive retching follow the pain. Patients may have upper abdominal distention and tenderness if the stomach remains intra-abdominal; however, if the stomach becomes intrathoracic, there may be minimal abdominal findings. Occasionally, some patients present with hematemesis secondary to mucosal ischemia and sloughing. Patients with chronic gastric volvulus typically present with intermittent epigastric pain and abdominal fullness after meals. They may report early satiety, dyspnoea, and chest discomfort. Dysphagia may occur if the gastroesophageal junction is distorted. 70% of patients with acute GV present with Borchardt's triad which consists of pain in the lower chest and upper abdomen, severe retching and inability to pass a Ryle's tube.

A diagnosis of GV is made when an erect chest and upper abdomen x-ray shows high air-fluid level in the chest. These findings are not seen in all patients as some might have intermittent obstruction. The diagnosis is confirmed by higher studies such as CT scan, Upper GI Endoscopy or barium contrast study. Barium contrast study is the most reliable diagnostic tool.

There are 3 types of GV namely organoaxial, mesenteroaxial and a combination of both. Organoaxial is the most common, seen in 60% of cases. Mesenteroaxial is seen in 30% and the rest is by a combination of these. Paraesophageal hernias is the most common association in adults with GV. They show an inverted stomach on radiographic studies. The pylorus revolves and the GE junction and the greater curvature lies above the lesser curvature, giving an inverted appearance.

The surgical treatment of GV involves surgical reduction of the volvulus with gastropexy. Some have also attempted reduction by passing a nasogastric tube and succeeded. Reduction can also be done by upper GI endoscopy. The aim of these procedures is to reduce the stomach and fix it to prevent volvulus recurrence. Definitive procedures include gastropexy with colonic displacement (Tanner's procedure), fundoantral gastrectomy (Oozler's operation), gastrojejunostomy, and gastrocolic disconnection. Gastric resection is done only in case of necrosis of the stomach.

CONCLUSION

Acute gastric volvulus is a surgical emergency and a high degree of suspicion is needed to diagnose these cases. In our case early intervention with resection of the gangrenous segment of fundus and greater curvature of the stomach and primary closure of the diaphragmatic defect helped in preventing mortality of the patient. Thus, high degree of suspicion and early intervention is necessary to decrease the high morbidity and mortality associated with acute gastric volvulus.

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