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Case Report

Acute gastric volvulus: a case report

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ABSTRACT

Acute gastric volvulus is a rare, life-threatening condition, but its intermittent nature and vague symptoms may make diagnosis difficult. Imaging is usually only diagnostic if carried out when patients are symptomatic. In the acute scenario, severe epigastric pain, retching with or without vomiting and difficulty or inability to pass nasogastric tube, constitute the Borchardt 's triad that may be diagnostic. Herein, author reported a case that presented lately to the emergency department in shock with severe abdominal pain, abdominal distension and vomiting. Unfortunately, she died before surgery. Acute gastric volvulus is a surgical emergency requiring early diagnosis and aggressive management, as a delay results into complications like gangrene and perforation which substantially increase the morbidity and mortality in these patients.

Keywords: Acute gastric volvulus, Borchardt's triad, Gastric gangrene, Organoaxial

INTRODUCTION

Gastric volvulus is an abnormal rotation of the stomach around one of its axes; by more than 180◦. It is a rare clinical entity that is difficult to diagnose and can be fatal in the acute scenario. Borchardt's triad of severe epigastric pain, retching and inability to pass a nasogastric tube is present in 70% cases and is considered to be diagnostic for acute gastric volvulus.[1] Complications include gastric ischemia, gangrene, perforation, pancreatic necrosis, omental avulsion and evensplenic rupture.[2-4]

The rarity of the disease accounts for the associated high mortality (30-50%) and hence requires high index of clinical suspicion.[5]

A high index of suspicion and prompt and correct diagnosis followed by immediate surgery may be the key to reduce the high morbidity and mortality.

CASE REPORT

Sixty-three years old Saudi lady, known to have type 2 diabetes mellitus, hypertension, ischemic heart disease, chronic renal impairment; not on dialysis and gall stone disease for 15 years ago morbid obesity. She had history of old severe road traffic accident that rendered here bedridden for the last 6 years due to dorsal spinal injury with cord transection. She presented to the emergency department on a wheel chair, with 4 days history of progressive severe abdominal pain; mainly epigastric with frequent vomiting that became brown-colored over the last few hours prior to presentation. She didn't pass stools for 3 days and failed to pass gases over the last day. She came to the emergency 3 days ago complaining of on and off mild colicky vague abdominal pain and from the records her vital signs were normal, and the abdomen was soft and lax with mildly tender epigastric and right hypochondrial areas. Plain X-ray abdomen and ultra-sonography were non-conclusive except for the

presence of gallstones. She was diagnosed as a mild biliary colic and discharged home on medications.

Clinically

Generally, she was confused, cyanotic, pale, severely dehydrated, in severe pain, with BP 80/50mmHg, pulse 110/min/ml, oxygen saturation was 86% on 5L/min O_2 mask, temperature of 36 degrees. She had cold clammy sweaty cyanotic extremities. Immediate resuscitation was started, and elective intubation was done to protect her airway.

Intravenous Ringer lactate was started immediately and a trial to pass an oro-gastric tube failed. Abdominal examination revealed severe tenderness all over the abdomen, positive rebound tenderness, absent bowel sounds with empty rectum.

Lab works showed that WBC count 33,000/cmm and hemoglobin of 8gm/dl, platelets count 90,000/cmm, PT, PTT, INR were 22, 49, 1.9 found respectively. Creatinine level (227) and Urea level (12) was found that mildly elevated liver functions. ABG data were showed the presence of metabolic acidosis.

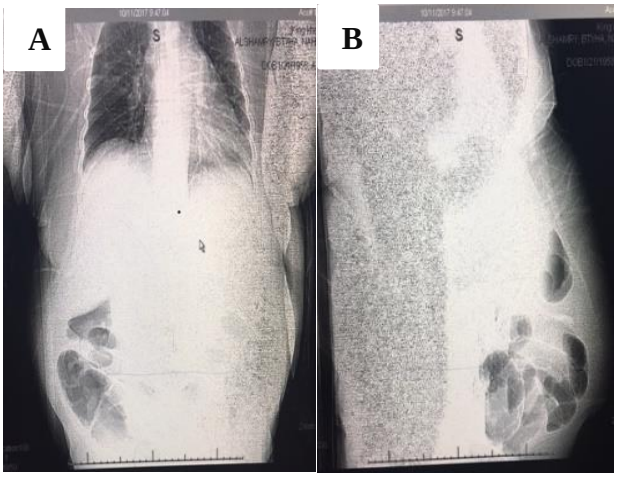

Figure 1: (A) Supine plain abdominal; (B) lateral decubitus film X-ray few dilated small bowel loops that were shown.

Patient was seen already by emergency room staff, intensive care, nephrology, endocrinology, medical and cardiology for assessment.

Portable abdominal supine X-ray was unremarkable, and ultrasonography was done but non-conclusive due to marked gases (Figure 1). Blood pressure raised shortly to 105mmHg and she was shifted for a plain abdominal computerized tomography (CT) scan due to renal impairment and diagnosed the case as a gastric volvulus, no pneumo-peritoneum with minimal free fluid noted in pelvis (Figure 2). The case was referred to general surgery who decided for urgent laparotomy for possible total gastrectomy for suspected gangrenous gastric volvulus. Unfortunately, she was deteriorated and arrested suddenly while shifting her to the theatre and died despite all trials of resuscitation failed.

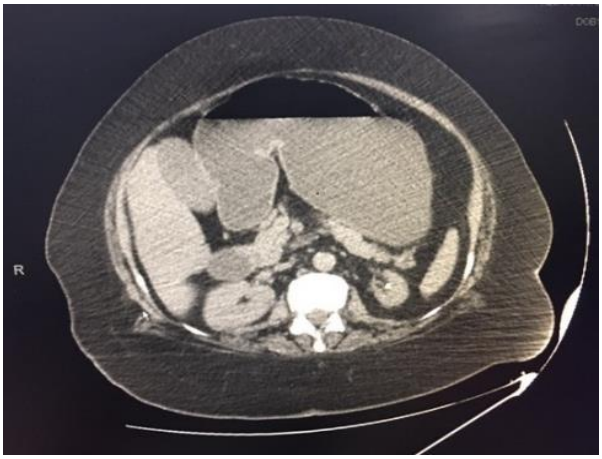

Figure 2: Plain computerized scan of abdomen showing an inverted stomach suggestive of gastric volvulus.

DISCUSSION

Volvulus is described as more than 180◦ rotation of a hollow viscous around its mesentery, resulting in obstruction, impairment of vascularity and eventually ischemia. Most common organ to undergo volvulus in adults is sigmoid colon, followed by caecum to a lesser extent. Gastric volvulus is very uncommon, usually presenting in the 5th decade.[6] It was first described in 1866 by Berti based on the autopsy of a 61 years old woman. It can present either in the acute or chronic form. Acute gastric volvulus may lead to gangrene in 5-28% of the patients.[7] There is no sex or racial predilection.[8] Gastric volvulus may be primary or secondary. In approximately 70% cases, it occurs secondary to anatomical or functional disorders of the stomach or of the adjacent structures like spleen and diaphragm.[5] The most common association in adults is with a para-esophageal hernia. Other causes include trauma, eventration of diaphragm and phrenic nerve palsy.[9,10] Primary gastric volvulus occurs due to malignancy, adhesions or failure of the gastric supports namely gastrocolic, gastrosplenic, gastrophrenic and gastrohepatic ligaments. In the present case, the gastric volvulus was of primary type without any associated diaphragmatic defect or para-esophageal hernia as evidenced on CT scan. Based on the axis of rotation, it can be organo-axial (longitudinal) or mesentero-axial (transverse) or combined. Organo-axial variety is the commonest (60% cases) and is characterized by rotation of the stomach about an axis passing through the gastro-esophageal junction and pylorus, with greater curvature lying superior to the lesser curvature; resulting in an 'inverted' stomach. The distinguishing feature of this particular variant is that it lies in the horizontal plane; a fact that may aid with diagnosis.[11] Mesentero-axial type

is less common in which stomach rotates about an axis passing perpendicular to the longitudinal axis of stomach. Stomach lies in the vertical plane with antrum and pylorus lying anterior and superior to the gastroesophageal junction. The rarest variety is the combined form. In the case, the gastric volvulus was of organo-axial type and presented lately to the hospital 4 days after the onset of symptoms. She presented typically with Borchardt's triad of pain in epigastrium or lower chest associated with severe retching and inability to pass a nasogastric tube.

Chronic cases may present with dysphagia, dyspepsia and intermittent pain after intake of meals. The symptoms may be similar to those of peptic ulcer disease, gastritis, cholecystitis or even angina pectoris.[10,12] It may reduce spontaneously leading to delay in diagnosis and treatment. A clinical diagnosis is usually difficult as the disease is very uncommon. X-Ray chest may show a retrocardiac air filled mass suggestive of an intrathoracic stomach herniating through the diaphragm. Abdominal radiographs may show a single large gas shadow with paucity of distal bowel gases, consistent with a distended fluid filled stomach which was present in the case. In chronic cases especially associated with para-esophageal hernia, barium study is the gold standard.[6] Computed tomography of abdomen can confirm the diagnosis and also identify the transition point and should be the first line of investigation.[13,14]

Management of gastric volvulus depends on its presentation, the cause and the general condition of the patient. Acute presentation requires immediate surgery after resuscitation. Chronic forms may be managed conservatively or repaired electively. In the emergency laparotomy, if the stomach is not gangrenous, reduction of the volvulus with anterior gastro-pexy is the most commonly performed procedure. Partial or total gastrectomy may be required in cases of gangrene or perforation of stomach.[5] The best of the knowledge, total gastrectomy may be needed for cases with total gangrene or perforation of stomach.[15-17]

Several other procedures have been described in literature such as diaphragmatic hernia repair, gastropexy with division of gastrocolic ligament (Tanner's operation), fundo-antral gastrogastrostomy (Opolzer's operation), repair of diaphragmatic eventration.[8] Nissen's fundoplication is done in case of hiatal hernia.[18] Conservative management is recommended in chronic form of the disease especially in the elderly age group. Conservative approach involves endoscopic reduction or percutaneous endoscopic gastrostomy (PEG) insertion.[6,7] Minimally invasive surgical approaches include laparoscopic fundoplication and repair of hiatal and paraoesophageal hernia. Laparoscopic repair is associated with lesser complications, shorter hospitalization and is particularly indicated in patients with chronic volvulus.[5,18]

CONCLUSION

Acute gastric volvulus is a surgical emergency with high morbidity and mortality. The most important factor in diagnosing acute volvulus of stomach is high index of suspicion. Symptoms and radiological studies may help in the diagnosis. Emergency laparotomy is needed to prevent serious complications like gangrene and perforation.

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