

Chronic intermittent gastric volvulus with diaphragmatic eventration, hiatal hernia and gastroparesis: A case report

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Abstract

Objective: To report a case of Chronic intermittent gastric volvulus with diaphragmatic eventration, hiatal hernia and gastroparesis.

Case report: A 47-year-old male known case of diabetes and Gastro-esophageal reflux disease presented to the emergency department with a 1 year history of nausea after eating and vomiting 15 min after feeding, and early morning vomiting. He complained of heart burn and recurrent retching. On arrival to emergency department he was vitally stable but tachycardic. Examination revealed features of an acute abdomen with the clinical suspicion of a bowel perforation. Complete blood count, renal and liver function tests, amylase level, ECG and arterial blood gases were unremarkable. Patient received fluid and nasogastric tube decompression Chest x-ray showed left hemi diaphragm eventration. CT abdomen with oral and intravenous contrast done and showed stomach was inverted and axially rotated (organ-coaxial) (Figure-1) and Gastroesophageal junction is seen below the diaphragm with no signs of obstruction. n, elevated left hemidiaphragm with no sign of gastro-esophageal or para-esophageal hernia. Oesophagodudenoscopy done which showed gastric body volvulus (figure-1 and figure-2). The diagnosis of chronic intermittent organ axial gastric volvulus, left diaphragmatic eventration and gastroparesis was made. A laparoscopic approach for reduction of volvulus was selected. Nasogastric tube inserted de-twisting of the stomach and closure of the hiatus, the diaphragm was not repaired, nor fundoplication was done to prevent gastroesophageal reflux and as a point of fixation. Decision was made that there is no need for gastropexy. The postoperative course was uneventful and the patient was discharged from the hospital 5 days after surgery. Patient retained to the emergency room after 6 months with symptoms of regurgitation, nausea and vomiting. An urgent OGD was done as we suspected recurrence of the volvulus, de-twist was done endoscopically and PEG tube was failed. The patient was planned for emergency operation but he refused and discharged against medical advice.

Conclusion: Gastric volvulus is a surgical emergency and should be promptly diagnosed and managed.

Key words: volvulus, gastric, gastroparesis

{**Citation:** Wafaa youssef Ghazali, Ghader Jamjoum, Ashraf Maghrabi, Alaa Habeebullah, Nisar Haider Zaidi. Chronic intermittent gastric volvulus with diaphragmatic eventration, hiatal hernia and gastroparesis: A case report. American Journal of Research Communication, 2017, 5(6): 95-101 } www.usa-journals.com, ISSN: 2325-4076.

Introduction

Gastric volvulus is a rare clinical condition characterized by an abnormal rotation of the stomach around an axis. Rotation around longitudinal axis results in organo-axial type, while rotation along transverse axis results in mesentrio-axial volvulus^[1,2]. Organo-axial type is commonest type occurring in 59% of cases and resulting in strangulation and necrosis in 5-28% of cases^[3,4]. Mesentrio-axial type is a chronic condition and without diaphragmatic defect. Combined type has both twists organo-axial and mesentrio-axial and is rare. Gastric volvulus can be either a primary condition, or secondary to adhesions, diaphragmatic hernias, para-esophageal hiatal hernias and diaphragmatic eventration. It occurs in children in 10-20% of cases and uncommon in patients younger than 50 years^[5].

We report a case of chronic intermittent gastric volvulus secondary to hiatal hernia and diaphragmatic eventration with diabetic gastroparesis that presented with abdominal pain and intractable vomiting. To our knowledge this the second case report of gastric volvulus with gastroparesis^[6].

Case presentation

A 47-year-old male known case of diabetes on oral hypoglycemic agents and Gastro-esophageal reflux disease on pantoprazole 20mg BID for one month, presented to the emergency department with one-year history of nausea after eating and vomiting 15 minutes after feeding, and early morning vomiting. He complained of heart burn and recurrent retching. There was history of loss of appetite and he lost 12 kg in the past one year. Gastrografin swallow done before on 12/5/2014 showed normal descent of barium through the hypo pharynx, cervical, thoracic esophagus as well as the Gastro-esophageal junction with normal gastric peristalsis with normal initial gastric time. There was evidence of Gastro-esophageal reflux. Esophagogastroduodenoscopy done before showed large hiatus hernia, stomach showed sever erosive gastritis, with no gastric ulcer, normal first and second part of duodenum. Patient had a severe upper abdominal pain, nausea and continuous vomiting for one day. On arrival to emergency department, he was vitally stable but tachycardia. Examination revealed features of an acute abdomen with the clinical suspicion of a bowel perforation. Complete blood count, renal and liver function tests, amylase level, ECG and arterial blood gases were unremarkable. Patient received fluid and nasogastric tube decompression. Intravenous pantoprazole and metoclopramide was started. Chest x-ray showed left hemi diaphragm eventration. CT abdomen with oral and intravenous contrast done and showed stomach was inverted and axially rotated (organo-axial) (Figure-1) and Gastroesophageal junction is seen below the diaphragm with no signs of obstruction. Liver was enlarged and showed diffuse fatty infiltration, elevated left hemi diaphragm with no sign of gastro-esophageal or para-esophageal hernia. Oesophagoduodenoscopy done which showed gastric body volvulus (figure-3 and figure-4). There was history of tuberculosis of cervical

and axillary lymph nodes 20 year back and he received anti-tubercular treatment. Past surgical history revealed that he donated Left kidney and had open appendectomy.

The diagnosis of chronic intermittent organ axial gastric volvulus, left diaphragmatic eventration and gastroparesis was made. A laparoscopic approach for reduction of volvulus was selected.

Surgery: During surgery, pneumoperitoneum was established by veress needle; an intra-abdominal pressure of 12 mmHg was maintained. A total of 4 ports were placed, 10 mm supra-umbilical and left abdomen, 5 mm in left abdomen. Inspection of abdomen was done, the stomach looked pulled up to the left upper quadrant with diaphragm in the left side because of adhesion from the previous operation. Dissection around the esophagus at the hiatus was done. Esophagus was isolated and both vagus nerve were seen and preserved, using number one proline suture the hiatus fixed. Nasogastric tube inserted de-twisting of the stomach and closure of the hiatus, the diaphragm was not repaired, dor fundoplication was done to prevent gastroesophageal reflux and as a point of fixation. Decision was made that there is no need for gastropexy. Patient tolerated the procedure well and transferred to recovery room in satisfactory condition. No intra- and/or postoperative complications were observed.

The postoperative course was uneventful and the patient was discharged from the hospital 5 days after surgery. The patient was in good condition tolerated diet with no vomiting. Patient discharged on omeprazole and domperidone. 6 week follow up in clinic, had no symptoms of GERD and was tolerating both liquid and solid diet. Patient retained to the emergency room after 6 months with symptoms of regurgitation, nausea and vomiting.

An urgent OGD was done as we suspected recurrence of the volvulus, de-twist was done endoscopically and Percutaneous endoscopic gastrostomy (PEG) tube insertion was failed. barium swallow study was done; gastric organ axial volvulus (figure-2). The patient was planned for gastropexy and diaphragmatic eventration repair. However, patient refused the procedures and discharged against medical advice.



Figure -1 CT scan abdomen showing gastric volvulus.



Figure -2 barium meal showing gastric volvulus.

and is due to congenital abnormalities, like diaphragmatic defects, gastric ligament defects abnormal bands or adhesions.^[8]

Secondary volvulus is more common 68%, and is associated with para-oesophageal hiatus hernia, traumatic diaphragmatic hernia, diaphragmatic eventration, previous gastro-oesophageal surgery and other causes of diaphragmatic elevation including phrenic nerve palsy, and intrapleural adhesions^[9]. In our patient, a raised left hemidiaphragm, hiatal hernia and a peritoneal adhesion band probably due to previous operation predisposed to gastric volvulus. Eventration of diaphragm is either congenital or acquired due to phrenic nerve dysfunction, remains asymptomatic in early life and presents later with respiratory or gastrointestinal complications. Gastric volvulus occurs because of the wide sub-diaphragmatic space that allow for abnormal rotation of stomach around itself.

Acute gastric volvulus presents with some of component of Borchardt triad or with abdominal pain, vomiting and upper GI bleeding^[10]. Chronic intermittent volvulus is challenging diagnosis, it presents with vague clinical picture and symptoms may include intermittent upper abdominal distension, early satiety, water brash, Gastro-oesophageal reflux or intermittent dysphagia. In this patient diagnosis was missed because gastrograffin was done in untwisted state. long history of Intermittent vomiting and epigastric pain in our patient suggests an episodic twisting and untwisting mechanism. Early morning vomiting that contained old food particle suggest gastroparesis. Diagnosis is usually confirmed with upper gastrointestinal contrast study and barium study is usually diagnostic. Plain chest x-ray may show a retro cardiac gas filled viscus. X-ray abdomen may reveal horizontally placed stomach with single air fluid level^[11]. Nowadays CT can also confirm the diagnosis and illustrate the predisposing factor such eventration of the diaphragm and complication such pneumoperitoneum^[12,13]. CT shows antrum at same level or higher than fundus and antro-pyloric transition point without any abnormality at transitional zone. Upper GI Endoscopy reveals distorted gastric anatomy with difficult intubation. Endoscopic de-twisting can be done as treatment but it is more successful in chronic gastric volvulus.

Gastric volvulus is an emergency and require reduction to prevent complication. Surgical approach either open or laparoscopic for reduction, gastropexy and correction of predisposing factor. Nowadays laparoscopic is a safe and acceptable approach, with minimal morbidity and a significantly shorter hospital stay and surgical options are diaphragmatic hernia repair, simple gastropexy, gastropexy with division of the gastrocolic Omentum, partial gastrectomy, fundoantral gastrogastrostomy and repair of eventration of the diaphragm^[14]. Chronic gastric volvulus may be treated as non-emergency basis initially and surgical treatment can be offered to prevent complications.

Conclusion

Gastric volvulus is a surgical emergency and should be promptly diagnosed and managed.

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