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# Strangulated Gastric Volvulus

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**Abstract:**

Gastric volvulus is a rare but potentially life-threatening condition. High index of suspicion is required in patients presenting with signs and symptoms suggestive of gastric outlet obstruction/Borchart's triad of epigastric pain and distension, retching or non-productive recurrent vomiting and difficulty in nasogastric tube insertion. We report a 14 year old young girl who presented in emergency department (ED) with signs of peritonitis and was later on diagnosed as acute gangrenous gastric volvulus. She was managed by immediate resuscitation, exploratory laparotomy and partial gastrectomy, anterior gastropexy and plication of diaphragm. Postoperative period was uneventful and patient was discharged on 6th postoperative day.

**Key words:** Stomach Volvulus, Abdominal Pain, Gastrectomy, Gastric Outlet Obstruction, Laparotomy.

## Introduction

Gastric volvulus is rotation of all or part of stomach more than 180 degree causing close loop obstruction [1]. This rotation can be organoaxial (along the long axis of stomach) or mesentricoaxial (perpendicular to long axis of stomach). Patient usually presents with Borchardt's triad of epigastric pain and distention, retching or nonproductive recurrent vomiting and difficulty in nasogastric tube insertion and very rarely with signs of peritonitis in view of strangulation leading to perforation of stomach [2-4]. We are reporting a case of 14 year young girl who presented with strangulated gastric volvulus secondary to eventration of diaphragm. She was managed with partial gastrectomy and anterior gastropexy and plication of diaphragm with uneventful postoperative period.

## Case Report

A 14 year old girl presented with history of upper abdominal pain and recurrent non bilious vomiting since last 2 days. Pain has increased in its intensity and diffused to whole abdomen since 6 hours. Past history of similar two episodes, managed conservatively by healthcare provider was present. There was no previous history of peptic ulcer disease, hematemesis and gastro esophageal reflux disease, jaundice, or any other systemic complaints. On examination she was drowsy and dehydrated with pulse 110/minute, blood pressure 96/60 mm

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Hg, respiratory rate of 18 per minute. Abdominal examination revealed tenderness, guarding, rigidity and sluggish bowel sounds. X-ray chest and abdomen revealed "gas" under right dome of diaphragm and eventration of left dome [Fig.1]. Laboratory investigations revealed-hemoglobin: 11 gm%, total leucocyte count: 11000/$mm^3$, serum urea: 60 IU/dL (Normal 2-20 IU/dL), other investigations were within normal limits. Patient was resuscitated with crystalloids. Attempts to insert Ryle's tube for nasogastric decompression were unsuccessful. Exploratory laparotomy revealed gangrenous posterior wall of stomach [Fig.2] due to volvulus and perforation in posterior wall of stomach [Fig.3]. There was associated eventration of diaphragm. Partial gastrectomy (resection of gangrenous part of stomach) [Fig.4,5] with anterior gastropexy and placation of diaphragm with prolene 2-0 was done. Postoperative period was uneventful. Patient was allowed orally on day 3 and discharged on day 6 of surgery.

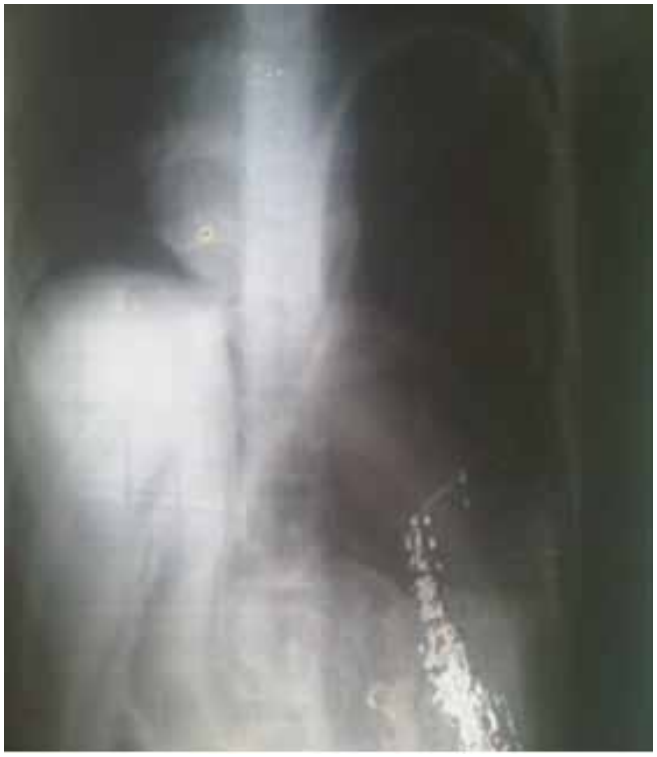

**Fig.1:** X-Ray abdomen showing: Free gas under right dome of diaphragm, eventeration of diaphragm with massive gaseous distension of stomach.

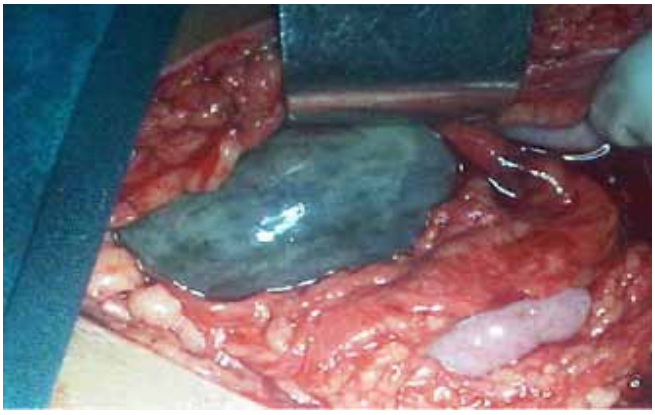

**Fig.2:** Gangrenous posterior wall of stomach.

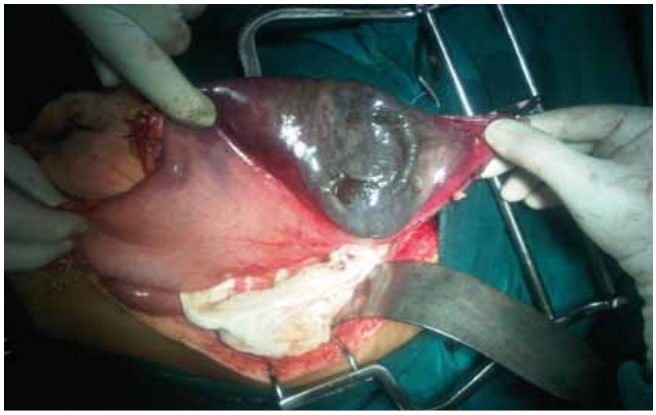

**Fig.3:** Perforation of gastric wall.

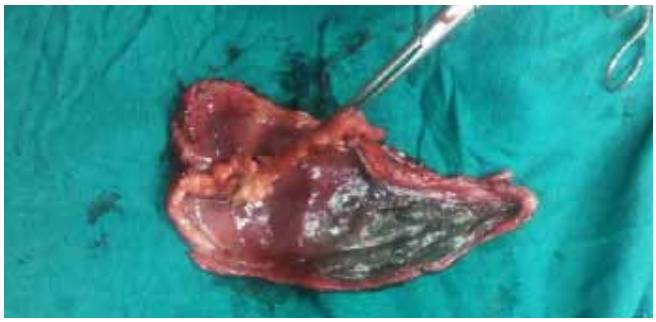

**Fig.4:** Resected specimen showing gangrenous wall of stomach.

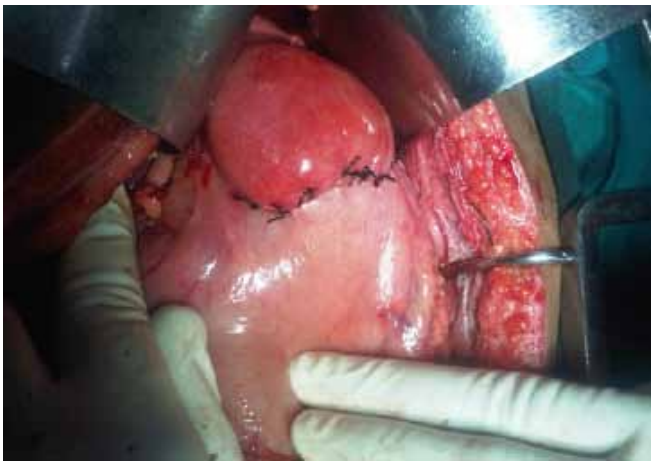

**Fig.5:** After partial gastrectomy.

## Discussion

Gastric volvulus is a rare but potentially life-threatening entity [5]. Incidence of gastric volvulus is not known since many cases remain undiagnosed by the treating physicians. Gastric volvulus has been classified into organoaxial: stomach rotates along longitudinal axis, associated with paraesophageal hernia and mesenteroaxial type: stomach rotates between the lesser and greater curvatures, idiopathic causing chronic features [3,6]. Anatomically it is classified as intrathoracic and intra-abdominal while on the basis of etiology: primary or secondary depending on presence of risk factors like hiatal hernia, diaphragmatic hernia or eventration or abdominal bands [1,5,6]. This case of strangulated gastric volvulus occurred secondary to eventration of diaphragm.

Gastric volvulus can occur at any age, however, it is more common in children [7]. The classic triad described by Borchardt's of retching, severe and constant epigastric pain, and difficulty in inserting a nasogastric tube suggests an acute gastric volvulus [2,3]. This 14 year old girl presented with upper abdominal pain and recurrent non bilious vomiting and insertion of Ryle's tube was unsuccessful. Traditionally acute gastric volvulus is diagnosed on chest X ray showing retrocardic air bubble or large air fluid level in the chest [8]. X-ray chest and abdomen in our case revealed "gas" under right dome of diaphragm and eventration of left dome. A CT scan can lead to immediate diagnosis with anatomical details and should be the investigation of choice as it avoids any delay in diagnosis [9]. But in acute emergency situations like this where CT scan was not possible, clinical and X ray finding remains only investigation. In emergency situations like this clinician should have high index of suspicion of gastric volvulus in patients presenting with Borchardt's triad.

Treatment of choice in acute gastric volvulus is laparotomy with detorsion, anterior gastropexy. In cases of gastric strangulation the necrotic portion of stomach is resected [1,10]. Recurrent volvulus is prevented by anterior gastropexy and repair of diaphragmatic repair should be undertaken as was done in our patient.

## Conclusion

Gastric volvulus is an uncommon cause of upper abdominal pain and persistent vomiting. This diagnosis must be suspected in patients with documented paraesophageal hernia and diaphragmatic eventration. The presence of persistent vomiting despite initial antiemetic treatment, continuing epigastric pain and inability to pass a nasogastric tube should trigger one to think of gastric volvulus. Early diagnosis and treatment can decrease the morbidity and mortality.

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