**CLINICAL VIGNETTE**

# Gastric Volvulus: An Uncommon Cause of Vomiting

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## *Case Presentation*

An 81-year-old female with severe heart failure, coronary artery disease, and chronic kidney disease, presented to the emergency department with coffee-ground emesis. Her symptoms began the day prior to presentation with abdominal cramping and vomiting. She was unable to tolerate oral intake and had multiple episodes of vomiting prior to admission. She denied hematemesis, dysphagia, odynophagia, diarrhea, constipation, hematochezia, sick contacts, or alcohol intake.

The patient was admitted one week prior for a heart failure exacerbation. She had an episode of coffee ground emesis that led to endoscopic evaluation. Endoscopy was notable for a large hiatal hernia, Mallory Weiss tear and abnormal anatomy of the gastric body. The procedure was aborted without intubation of the duodenum given the abnormal anatomy and concern for worsening the Mallory Weiss tear. The patient's symptoms resolved with proton pump inhibitor, and she was discharged.

On her re-admission, an upper GI series was completed and confirmed a gastric volvulus. The patient's symptoms resolved with a nasogastric tube. She was not a candidate for surgical treatment and no further intervention was pursued by the patient.

## *Discussion*

Gastric volvulus is a rare cause of vomiting. It is characterized by the rotation of the stomach along its horizontal or vertical axis and abnormal rotation of the stomach of more than 180 degrees leading to gastric outlet obstruction.[1]

Gastric volvulus is classified as either primary or secondary. Primary gastric volvulus is defined as a volvulus due to abnormalities of the gastric ligaments: gastrocolic, gastrohepatic, gastrosplenic, and gastrophrenic ligaments. Secondary gastric volvulus is due to other anatomic abnormalities other than the gastric attachments (i.e. diaphragmatic abnormalities/hernia, or paraesophageal hernias). Secondary gastric volvulus is more common with peak age at presentation in the fifth decade of life.[2,3]

Clinical symptoms of gastric volvulus include abdominal pain along with vomiting. Borchardt's triad can be helpful for the diagnosis of gastric volvulus. This includes the combination of abdominal pain, vomiting, and the inability to pass a nasogastric tube. This triad should raise clinical suspicion for gastric volvulus. Hematemesis can occur due to mucosal ischemia or mucosal tears from persistent vomiting.[1]

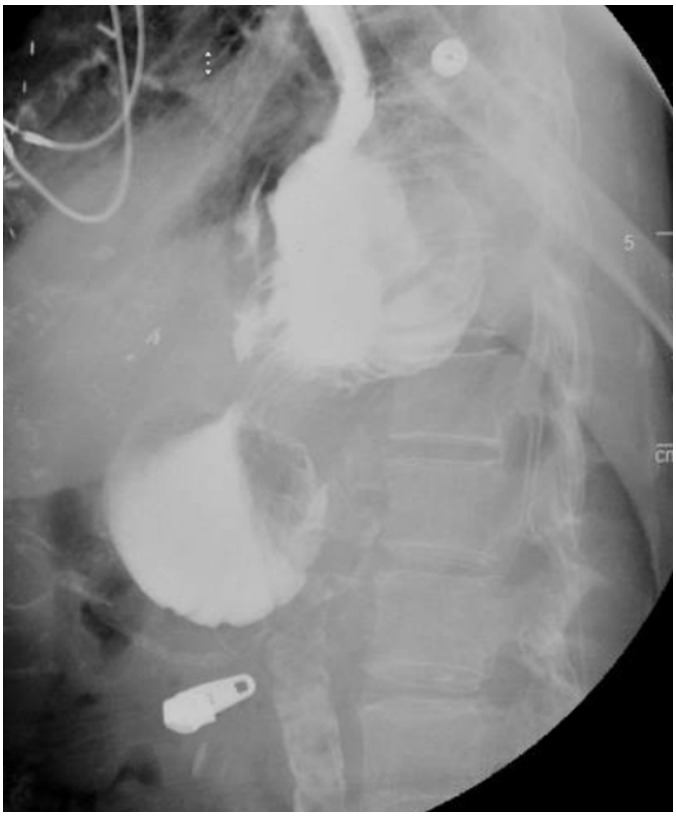
Risk factors for gastric volvulus in adults include age >50 years, diaphragmatic abnormalities such as paraesophageal hernia, hiatal hernia, other diaphragmatic hernia, diaphragmatic eventration, phrenic nerve paralysis, non-diaphragmatic anatomic gastrointestinal abnormalities including stomach, spleen, and kyphoscoliosis.[1]

Diagnosis can be made by plain radiograph, computed tomography (CT) scan or upper gastrointestinal barium study. The finding of acute gastric volvulus on abdominal radiograph can be seen by a large, spherical gas bubble located in the upper abdomen or chest with an air-fluid level.[4] CT of the abdomen or chest may show a dilated stomach with a swirl pattern with the esophagus and stomach rotating around each other.[4] Upper gastrointestinal barium study is also very reliable in diagnosis.[5]

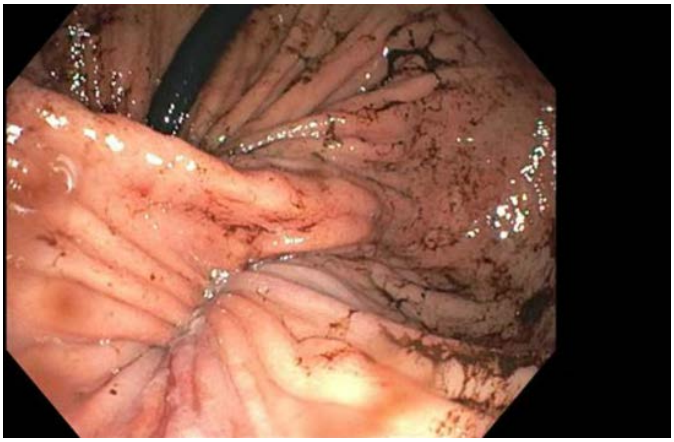
Initial management of gastric volvulus is with nasogastric tube decompression. Endoscopic-assisted decompression can also be done if bedside nasogastric tube placement fails. Urgent surgery for gastric volvulus is necessary when the stomach cannot be decompressed with a nasogastric tube or with endoscopic assistance or when there is a life-threatening complication such as gastric perforation or necrosis.[1] For symptomatic patients with secondary gastric volvulus, surgical repair of the anatomic defect with gastric fixation is recommended.[1] When surgery is not an option for patients with significant medical comorbidities, gastric fixation with a percutaneous endoscopic gastrostomy (PEG) tube placement has been described. This involves the placement of a catheter on the anterior wall of the gastric antrum and a second catheter placed in the gastric body.[6]

In conclusion, gastric volvulus is a rare cause of vomiting. However, a high clinical suspicion can lead to early diagnosis and treatment with reduced morbidity.

***Figures***



Gastric volvulus on upper gastrointestinal barium study



Gastric volvulus on upper endoscopy

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***Keywords***: Gastric volvulus, vomiting, diaphragmatic defect

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