

An acute presentation of a primary chronic gastric volvulus: A case report

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World Journal of Advanced Research and Reviews, 2025, 26(01), 265-268

Publication history: Received on 25 February 2025; revised on 03 April 2025; accepted on 05 April 2025

Article DOI: <https://doi.org/10.30574/wjarr.2025.26.1.1036>

Abstract

Chronic gastric volvulus is a rare cause of acute abdominal pain in adults. Infrequently, it can develop into an acute gastric volvulus presenting as a sudden onset of abdominal pains. It occurs when the stomach twists more than 180° along its axis. If not diagnosed and treated early, it may lead to severe complications noticeably gastric ischemia and necrosis. We report the case of a chronic GV which presented as an acute GV in a 50-year-old female patient. The patient had been suffering from chronic epigastric pains for over three years. The diagnosis was made incidentally following an abdominal contrasted computed tomography scan for the severe onset of abdominal pains. The patient underwent an emergency exploratory laparotomy in which the gastric volvulus was resolved by untwisting the stomach, gastropexy, and fundoplication. The postoperative course was unremarkable. A 6-months follow-up showed no signs of recurrence. This case illustrates the acute presentation of chronic GV at an early stage which prompted a rapid treatment by our surgical team, preventing the occurrence of gastric stricture complications.

Keywords: Gastric volvulus; Acute abdomen; Emergency surgery; Gastropexy; Case report

1. Introduction

Gastric volvulus (GV) is a rare and life-threatening surgical emergency in adults. It is classified into acute or chronic, primary or secondary, and organoaxial or mesenteroaxial based on the etiopathological mechanism [1]. Chronic GV can develop into acute GV responsible for about 30-50% of mortality if not managed promptly and adequately [2]. The diagnosis is usually suspected clinically and confirmed by a computed tomography (CT) scan. Surgery is the mainstay of treatment to restore the normal anatomical position of the stomach and fix it to the abdominal wall to prevent recurrence [3].

We report this case of acute presentation of chronic GV in a 50-year-old female patient who consulted during the coronavirus disease (COVID-19) pandemic. This case report highlights the need to rule out GV among patients with acute gastrointestinal symptoms as early diagnosis and treatment are vital to avoid complications. This work has been reported in line with the SCARE criteria [4].

2. Case presentation

A 50-year-old female patient with a BMI of 25kg/m² was brought to our emergency department for the severe onset of abdominal pains, nausea, and vomiting. The patient had a medical history of gastric issues such as recurrent stomach pains and dyspepsia for the past 3 years for which she had been seeking medical treatment from several general practitioners and gastroenterologists in private clinics. She had been taking prokinetic medications such as antacids and proton pump inhibitors to relieve her symptoms. The patient denied flatus or any bowel movement in the last 24h. On arrival at the ED, the patient was assessed systematically using the "ABCDE" approach. Her airway was patent, she

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was stable with the following vital signs: blood pressure 120/95, pulse 90, temperature 37.1°C, respiratory rate 18, SpO₂:100% at ambient air. Physical examination revealed a distended upper abdomen, with diffuse tenderness and guarding on palpation, extending from the epigastric region to the peri-umbilical regions which were tympanic on mild percussion. Bowel sounds on abdominal auscultation were absent, however, there were no obvious signs of peritonitis. After this assessment, the initial differential diagnosis was that of an upper bowel obstruction based on her symptoms and signs. Basic blood work showed a WBC 12 000/mm, Haemoglobin 10.5g/dl with normal electrolytes, renal and liver function tests.

The patient had a CT of the abdomen and pelvis which revealed an unevenly dilated stomach with twisting of the gastric body along its longitudinal axis causing delayed gastric emptying, with an upper air-fluid level (**Fig 1a, 1b**) suggestive of a chronic GV. The patient presented a sudden onset of hemodynamic instability with a fall of the BP to 90/60 and tachycardia of 108. She was rapidly transferred to the operating theatre after adequate resuscitation. She subsequently underwent an exploratory midline laparotomy under general anesthesia. A nasogastric tube was inserted which drained about 1L of gastric content. Intraoperative findings showed an organo-axial rotation of the stomach with multiples adhesions without signs of gastric necrosis (**Fig 2**). After tedious and gradual dissection of the stomach from the inflammatory tissue and adhesions around the volvulus site, the stomach was rotated counter-clockwise along its axis to release the torsion until it was back into its anatomical position. A 270° fundoplication was performed by rotating the fundus of the stomach posteriorly and then attaching it to the medial portion of the esophagus. Anterior wall gastropexy by anchoring of the anterior wall of the stomach to the abdominal wall was performed with an absorbable suture. The patient recovered well postoperatively and was discharged home on postoperative day 3. During her 6 months follow-up clinic visits, she continued to progress adequately without complications.

3. Discussion

Gastric volvulus (GV) is an abnormal rotation of the stomach of more than 180° along its axis, affecting both females and males equally in the fifth decade[5]. The etiopathology of GV can be classified as either type 1 (primary) or type 2 (secondary). The primary form involves an abnormal laxity of the gastrohepatic, gastrosplenic, gastrophrenic, and gastrocolic ligaments. Secondary GV is caused by predisposing factors such as diaphragmatic defects, gastroesophageal surgery, neuromuscular disorders, and increased intra-abdominal pressure[2].

Anatomically, three types of GV; organoaxial, mesenteroaxial, or a combination of both are possible depending on the axis of rotation of the stomach. Organoaxial volvulus is more common, occurring in approximately 60% of cases[6], and occurs when the stomach rotates around an axis that connects the esophagogastric junction and the pylorus. Strangulation and necrosis are most frequent in this type of GV and have been reported in 5-28% of cases[7]. In the mesenteroaxial type, there is an incomplete rotation of the antrum anteriorly and superiorly so that the posterior surface of the stomach rests anteriorly.

The clinical presentation of GV may vary from incidental radiographic findings to life-threatening emergencies depending on the degree of rotation and the rapidity of onset. Therefore, two types of manifestation of GV are possible, either as an acute abdominal emergency (acute GV) or as a chronic intermittent problem (chronic GV). Borchardt described upper abdominal pain, retching without vomiting, and the inability to pass a nasogastric tube (NGT) into the stomach as the classical diagnostic triad of acute GV[8]. Patients with chronic GV have subtle manifestations with non-specific symptoms such as epigastric pain, gastroesophageal reflux, respiratory infection, and discomfort. Hence the diagnosis of chronic GV is difficult, requiring a high level of clinical suspicion.

Laboratory findings are not diagnostic of GV. Initial investigations include a plain film or barium contrast radiography and CT scan to confirm the diagnosis. It identifies the anatomical defect, shows evidence of perforation, and excludes other differential diagnoses [3]. Upper gastrointestinal endoscopic findings such as mucosal congestion and ulceration together with the inability to pass the scope through the pylorus may be suggestive of GV.

The treatment of acute GV remains an emergency surgical intervention[9]. Once the diagnosis is confirmed, initial resuscitation is given. The placement of NGT for early gastric decompression is advocated in adults. The approach to surgery is performed by open or laparoscopic. The laparoscopic approach is preferred by many authors as it has the potential to decrease the morbidity associated with open procedures[1, 2, 7, 9]. However, in case of peritonitis or an unstable patient as was in our case, an open midline surgical exploration is warranted[10]. The surgical principles include reduction of the volvulus restoring the normal anatomical position of the stomach, assessment of gastric viability with resection of gangrenous portion by subtotal or total gastrectomy, prevention of recurrence by anterior gastropexy either by gastrostomy tube or suture gastropexy, and a fundoplication to prevent reflux.

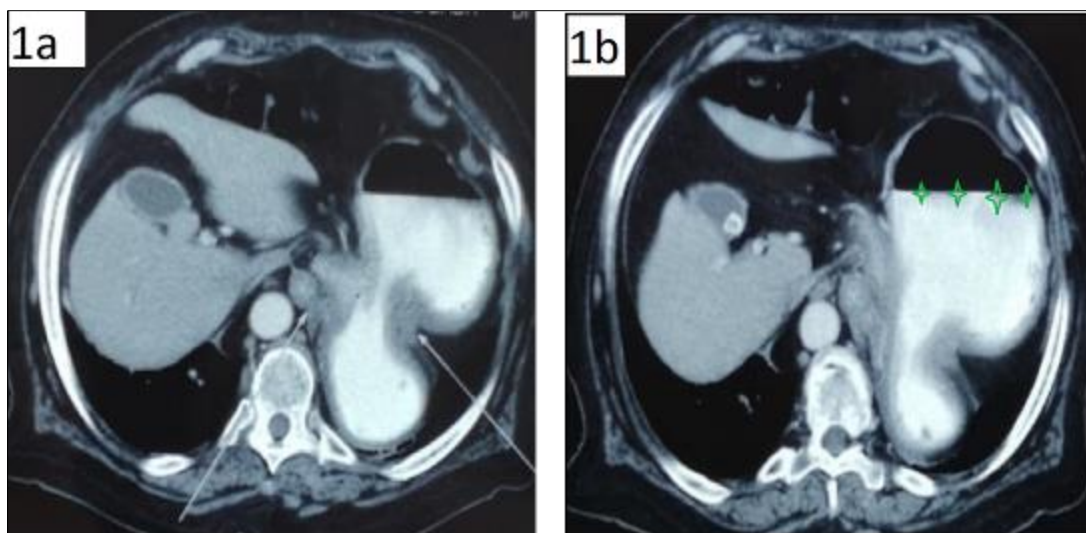


Figure 1 a, b Axial abdominal CT scan of the distended stomach with twisting of the gastric body (two white fleches) and upper air-fluid level (green stars)

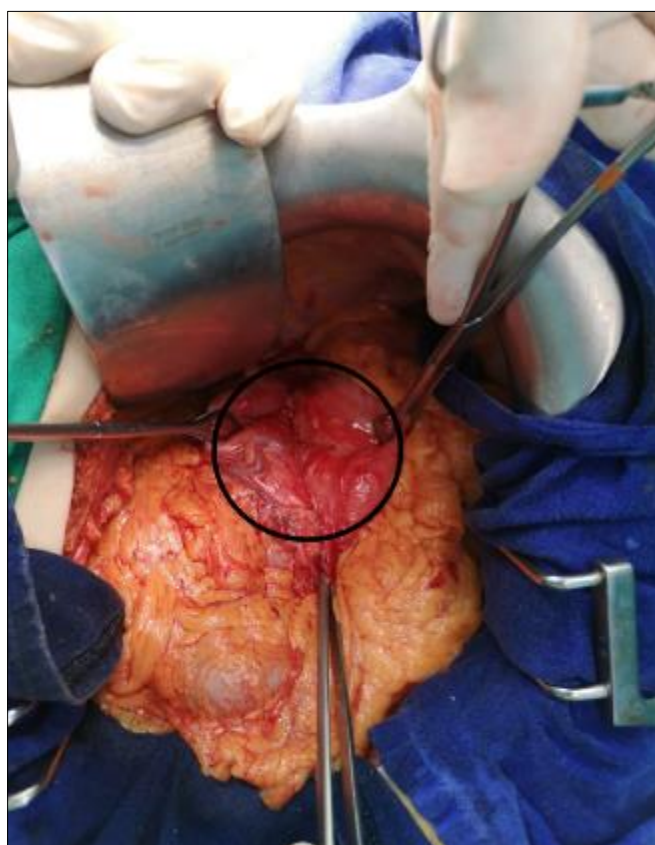


Figure 2 Findings during exploratory laparotomy, showing the strangulated stomach (black circle)

Unlike acute GV, chronic GV may be managed on a non-emergency basis. Endoscopic treatment in the majority of cases of chronic GV has been reported[8], [11]. It can be accomplished by advancing the scope beyond the point of torsion and then rotating it to untwist the stomach. Endoscopic reduction may be proposed to non-surgical patients with comorbidities or inability to undergo general anesthesia. However, care should be taken as endoscopic reduction is associated with the chance of gastric perforation.

4. Conclusion

GV is considered a serious condition that may prove lethal if not managed timely. Due to the rapid aggravation of the condition of patients with acute GV, surgeons need to have a clinical suspicion for this entity especially in patients with a known history of chronic gastric issues.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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