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Case Presentation

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Overcoming the Twist: Endoscopic Reduction of Gastric Volvulus Using a Colonoscope in a High-Risk Surgical Patient

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Abstract

Gastric volvulus is a rare but potentially life-threatening condition characterized by the abnormal rotation of the stomach. While surgery is the standard treatment for acute gastric volvulus, high-risk patients with significant comorbidities may benefit from non-surgical approaches, such as endoscopic reduction. An 84-year-old man with a history of prostate cancer, multiple compression fractures, and recent hospitalization for pneumonia presented with acute-onset abdominal pain and vomiting. Imaging studies revealed gastric volvulus with marked gastric distention. After partial symptom relief following nasogastric decompression, the patient developed a fever, prompting urgent endoscopic evaluation. Esophagogastroduodenoscopy using a standard gastroscope was unsuccessful in reaching the point of torsion. A colonoscope with a distal plastic cap was used instead, allowing successful endoscopic detorsion and decompression of the stomach. The patient was discharged with no immediate complications, and there was no recurrence on an outpatient visit. This case demonstrates the use of a cap-assisted colonoscope for the non-surgical reduction of gastric volvulus, particularly in a high-risk surgical patient. The extended reach and torque control of a colonoscope may offer advantages when standard gastroscopes are insufficient.

Keywords: Gastric volvulus; Management of gastric volvulus; Endoscopy; Intestinal obstruction; High-risk patient

Introduction

Gastric volvulus is a rare but life-threatening condition characterized by an abnormal rotation of the stomach of greater than 180° [1]. Gastric volvulus may occur along its short vertical axis (mesenteroaxial), its long longitudinal axis (organoaxial), or a combination of both, leading to variable degrees of gastric outlet obstruction [2]. Acute gastric volvulus can be transient or result in complete gastric obstruction, ischemia, necrosis, and potentially perforation if not promptly treated. Therefore, quick diagnosis and management are necessary. Borchardt's triad, which includes severe epigastric pain with distension, unproductive retching, and inability to pass a nasogastric tube, has been reported to be present in 50–70% of patients with acute gastric volvulus and is commonly evaluated when gastric volvulus is suspected [3]. However, not all patients present with all of Borchardt's triad symptoms. Hematemesis can also occur secondary to mucosal tears induced by retching or as a consequence of mucosal sloughing due to ischemia. On the other hand, chronic or intermittent gastric volvulus can present with nonspecific symptoms such as early satiety, postprandial bloating, and weight loss, making diagnosis challenging. In adults, gastric volvulus most commonly arises in association with anatomical or functional abnormalities that compromise the normal fixation of the stomach. Risk factors include being over 50 years of age, diaphragmatic abnormalities such as diaphragmatic hernia, diaphragmatic eventration, phrenic nerve paralysis, other anatomic gastrointestinal or splenic abnormalities, and kyphoscoliosis [1]. Diagnosis of gastric volvulus requires a high index of suspicion, given its rare nature. Plain chest radiographs can reveal a retrocardiac, air-filled mass, and plain abdominal radiographs may show a significant air-fluid level or double bubble sign. Upper gastrointestinal contrast studies can also be helpful, particularly in evaluating functional obstruction and gastric rotation dynamics. The gold standard is a barium swallow, which offers high sensitivity and specificity for diagnosing a gastric volvulus [4]. Computed Tomography (CT) imaging not only delineates the type and extent of the volvulus but also helps identify associated anatomical abnormalities, such as diaphragmatic hernias, and assesses complications like gastric wall ischemia or perforation.

The management of gastric volvulus has evolved, yielding successful results with both surgical and nonsurgical interventions [1,3]. Upon diagnosis, a nasogastric tube should be placed to help with decompression. Placing a nasogastric tube may allow the stomach to spontaneously derotate and decrease the risk of gastric ischemia and necrosis by reducing the gastric tension and improving perfusion. Acute gastric volvulus has traditionally been considered a surgical emergency. Surgical approaches include open or laparoscopic detorsion, gastropexy, and hernia repair when indicated. Non operative management, such as endoscopy, is typically considered in patients with no clinical or radiologic evidence of gastric compromise. However, in patients who are poor surgical candidates due to advanced age or significant comorbidities, endoscopic intervention may be better tolerated as a therapeutic tool for gastric decompression and detorsion without the risks of general anesthesia or invasive procedures. While esophagogastroduodenoscopy utilizes standard gastroscopes, these may be insufficient in gastric volvulus. In this report, we describe a case of gastric volvulus in a high-risk surgical patient who was

successfully treated using a colonoscope, which offered superior reach and torque control compared to a standard gastroscope. This approach expands the range of therapeutic endoscopic strategies available for managing this complex condition.

Case Presentation

An 84-year-old man presented to the emergency department for vomiting and abdominal pain. He had a prior medical history of prostatectomy due to prostate cancer, osteoporosis, and multilevel compression fractures at the thoracolumbar spines. He also had a recent history of 7-day hospital admission for influenza infection and subsequent pneumonia and was discharged two days ago. The abdominal pain was confined to the left side of the abdomen, which started spontaneously 4 hours ago. He was nauseous and vomited four times prior to the presentation. His abdominal pain continued in the ER, and he vomited around 50g. Upon physical examination, the patient was in slight distress; blood pressure was 130/75 mmHg, heart rate was 104 beats per minute, respiratory rate was 20 breaths per minute, body temperature was 35.7 °C, and oxygen saturation on pulse oximetry was 97%. The patient's abdomen was soft and flat, but he showed tenderness in the left upper quadrant without rebound tenderness. Auscultation revealed a hyperactive bowel sound. Laboratory testing revealed slightly elevated ESR of 60 mm/hr (normal range 2-16 mm/hr) and CRP of 7.6 mg/L (normal range 0-5 mg/L). Chest and abdomen x-rays showed ileus with a markedly distended stomach **(Figure 1)**. An abdominopelvic computed tomography with intravenous contrast revealed obstructive fluid-filled gastric dilatation with gastric volvulus **(Figure 2)**.

Figure 1: Initial abdomen x-ray showing a dynamic ileus.

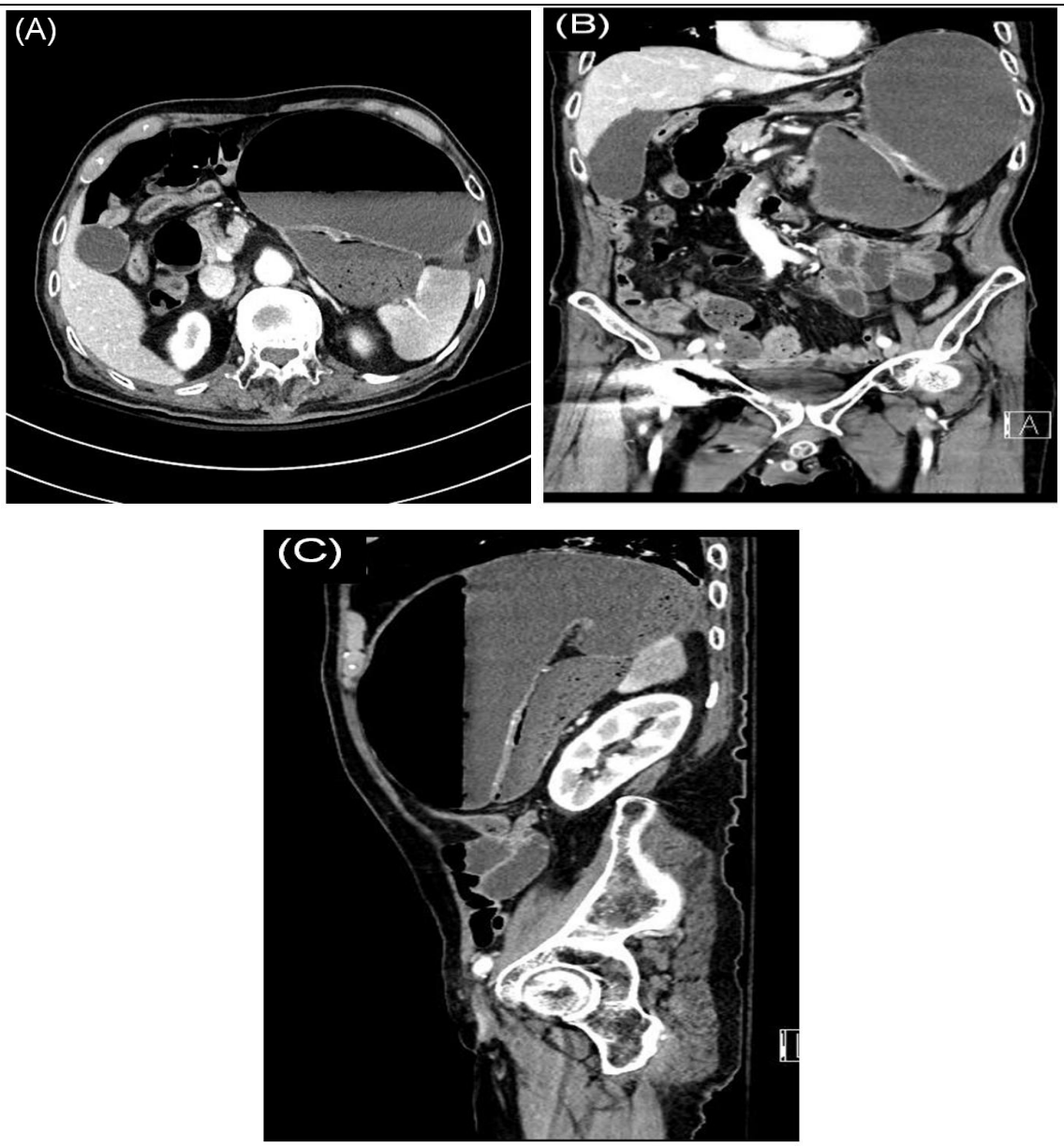

Figure 2: Axial (A), coronal (B), sagittal (C) abdominopelvic CT scans demonstrating obstructive fluid filled gastric dilatation with gastric volvulus.

A nasogastric tube was inserted, and 550cc of fluid was observed within the first 30 minutes of insertion, followed by an additional 500cc. Initial symptoms subsided, but the patient became febrile with a body temperature of 37.9°c. Gastroenterology was consulted, and esophagogastroduodenoscopy was performed for endoscopic detorsion. Using a conventional gastroscope (GIF-HQ290 by Olympus, with an outer diameter of 10.2 mm and a working length of 1,030 mm), a gastric outlet obstruction was confirmed. The gastroscope could not be advanced beyond the whirl sign in the lower body of the stomach **(Figure 3)**. The instrument was changed to a colonoscope (CF-HQ290L by Olympus, with an outer diameter of 13.2 mm and a working length of 1,680 mm) with a plastic cap placed on the end of the

colonoscope. The distal stomach was detorsed successfully. Detorsion uncovered multiple ischemic gastric ulcers in the antrum **(Figure 4)**. The colonoscope passed freely through the pylorus, and there was no duodenal passage disturbance.

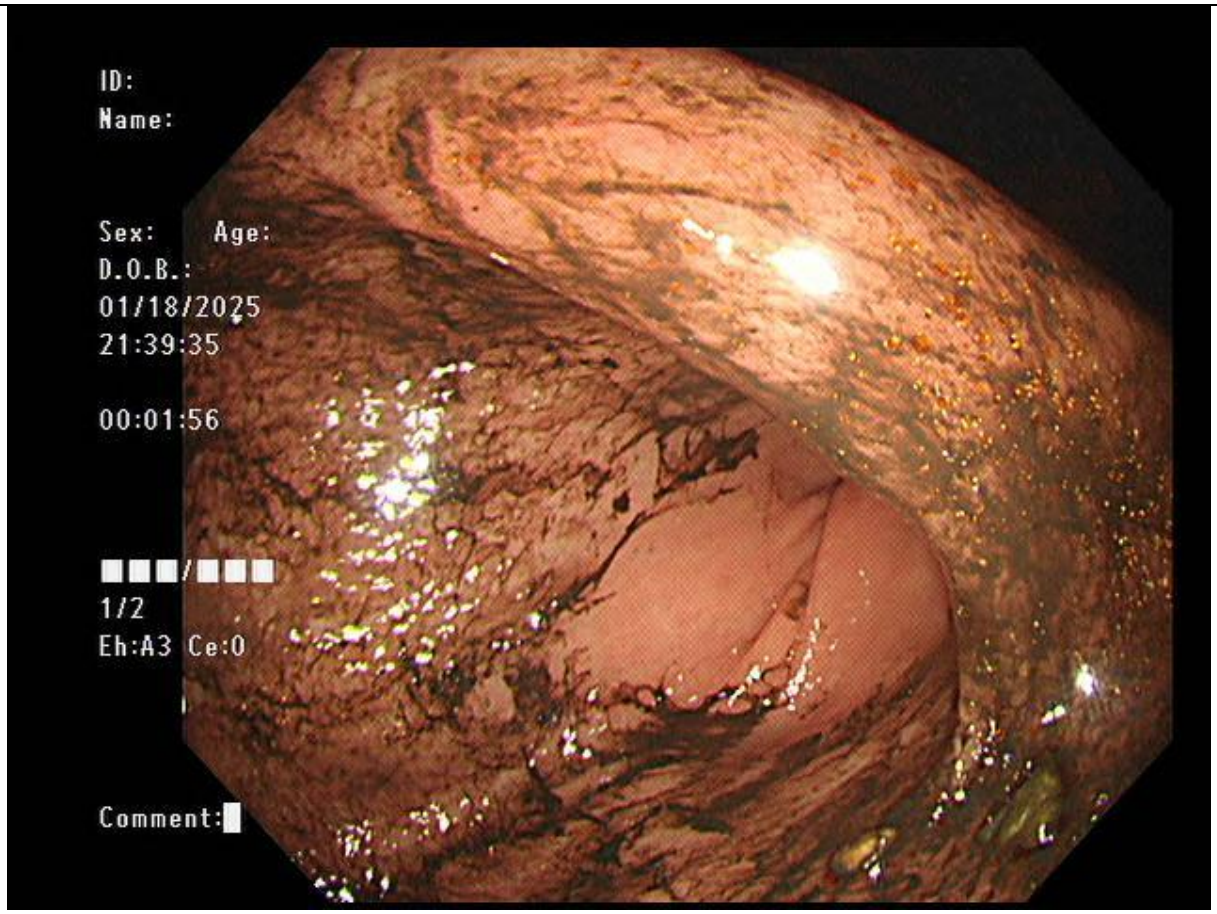

Figure 3: A whirl sign indicative of gastric volvulus upon EGD.

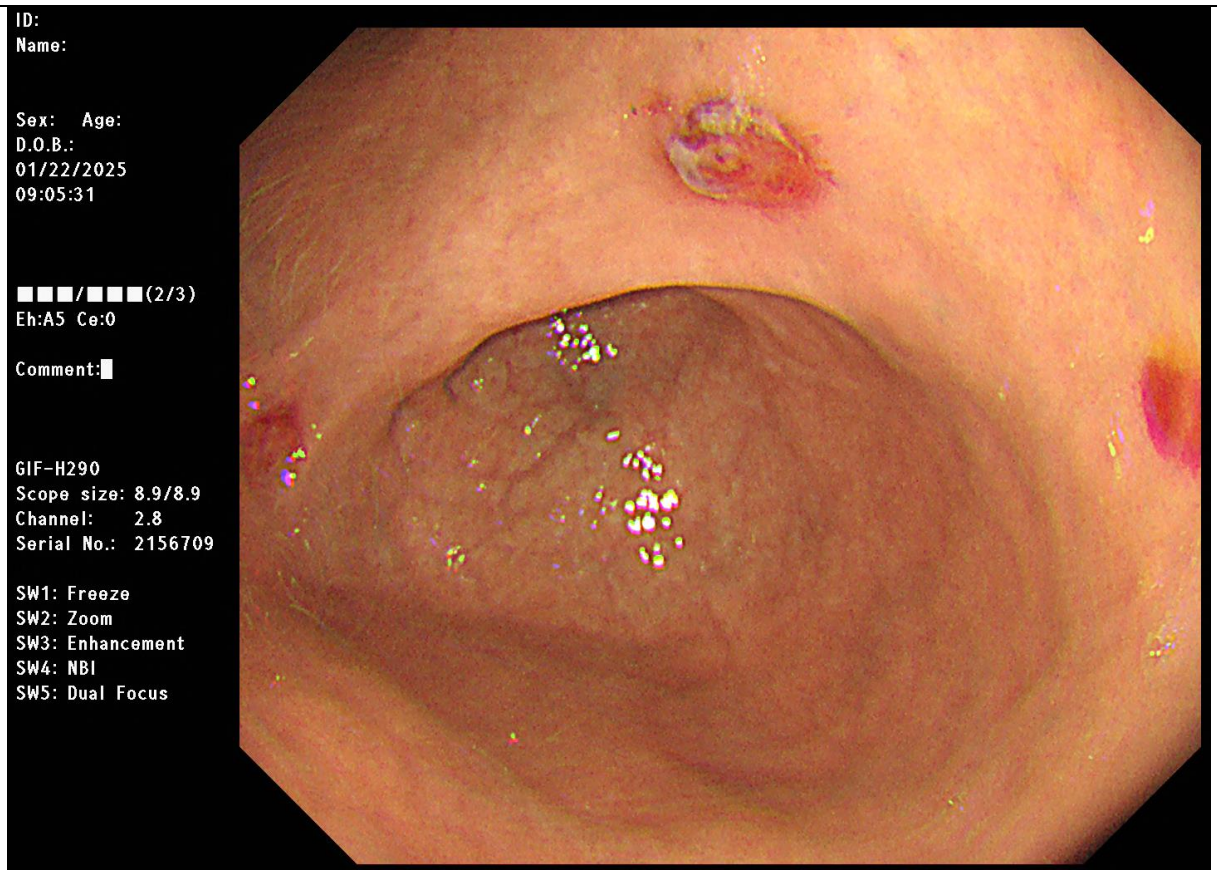

Figure 4: Gastric ulcers revealed after reduction of gastric volvulus.

After endoscopic reduction, the patient's symptoms were relieved. Post-procedure abdominal plain radiograph and CT revealed improved gastric dilatation **(Figure 5)**. The nasogastric tube drain was kept for the weekend, and the tube was clamped on the first business day. He developed no further symptoms upon clamping, so the nasogastric tube was removed. A follow-up EGD took place 4 days later, and there was no sign of recurrence. The patient was discharged.

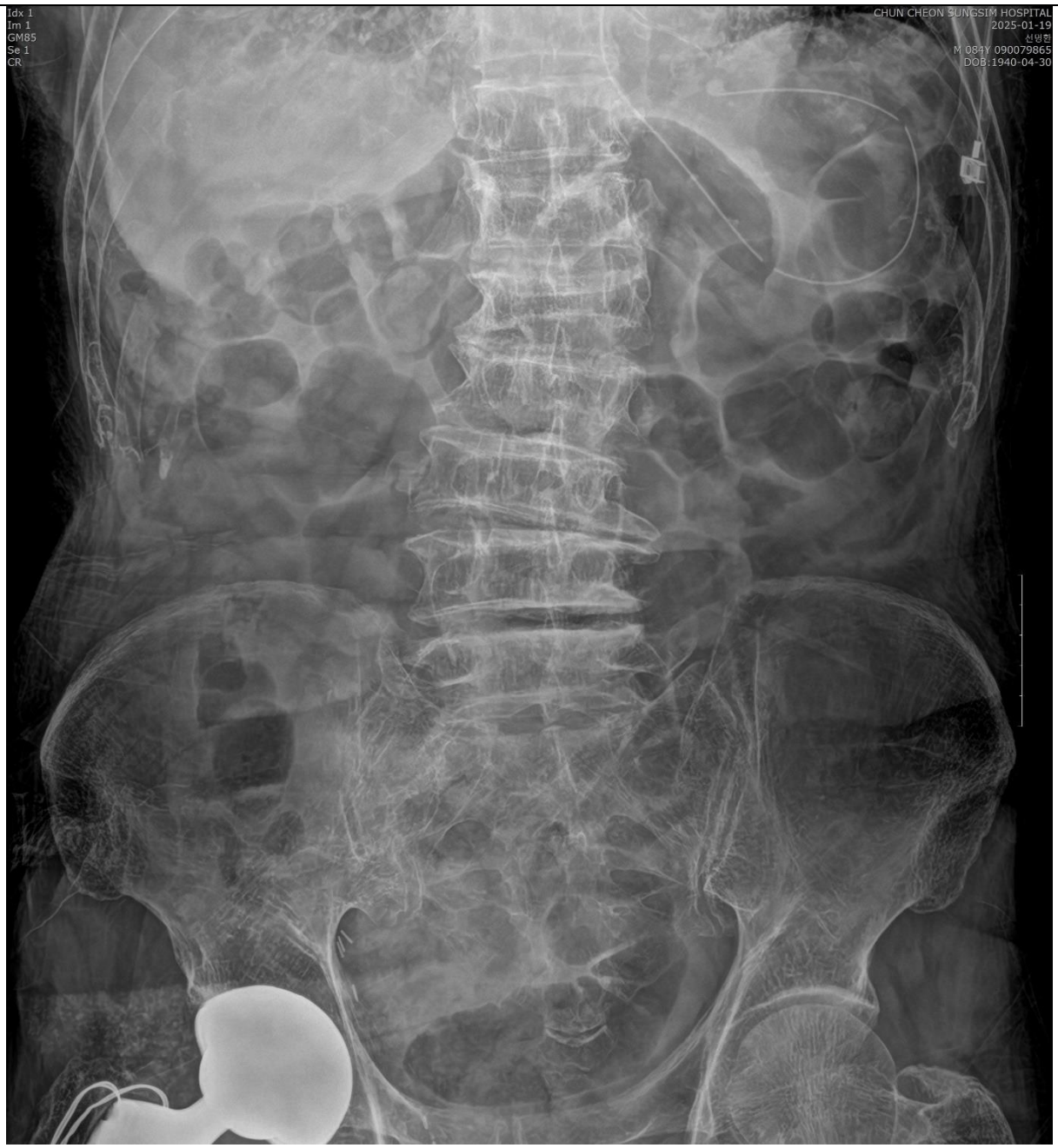

Figure 5: Post-procedure abdominal x-ray without ileus.

Discussion

Gastric volvulus is a potentially life-threatening condition with a mortality rate of 42-56% resulting from abnormal rotation of the stomach, often exceeding 180°, which can lead to gastric outlet obstruction and vascular compromise [4]. Traditionally, acute gastric volvulus is managed surgically for detorsion, possible resection, and repair of predisposing factors, especially in the presence of ischemia, necrosis, or perforation. However, even with complete obstruction and a sign of ischemia, non-surgical strategies may be considered in patients with poor surgical candidacy—due to age, comorbid

conditions, or prior operative history. In our case, gastric volvulus was diagnosed with complete gastric outlet obstruction using plain radiographs and CT. A nasogastric tube was inserted, and the patient's symptoms subsided, potentially indicating a spontaneous derotation of gastric volvulus with a nasogastric tube. However, fever, a systemic symptom, occurred in the emergency room, which is an alarm sign for possible complications. The patient was not suitable for surgery because of his old age of 84 years, comorbid conditions including prostate cancer, and a history of recent infection with hospitalization within the past week. Hence, the reduction was attempted endoscopically.

Endoscopy showed a distorted, distended stomach with a whirl sign. Since the stomach was distorted and distended, a conventional gastroscope (GIF-HQ290 by Olympus, with an outer diameter of 10.2 mm and a working length of 1,030 mm) was unable to reach the rotation point. We used a colonoscope (CF-HQ290L by Olympus, with an outer diameter of 13.2 mm and a working length of 1,680 mm) with a plastic cap placed on the colonoscope tip. The colonoscope's increased shaft length and rigidity allowed for improved scope control, enhanced reach to the distal stomach, and effective application of torque necessary to reverse the volvulus. Moreover, cap-assisted endoscopy facilitated the application of directed pressure and friction to the mucosal surface for detorsion. While the immediate reduction was successful, gastric volvulus is known to have a high recurrence rate, particularly if the underlying anatomical defect remains uncorrected. Surgical prevention with gastropexy or even gastrectomy may be considered electively after successful endoscopic derotation of gastric volvulus. In patients who are not surgical candidates, adjunctive procedures such as Percutaneous Endoscopic Gastrostomy (PEG) have been employed. Our patient was discharged after the initial endoscopic reduction and is closely monitored in the outpatient department; if gastric volvulus recurs, surgical or non-surgical gastropexy may be needed. This case highlights not only the utility of endoscopic management in select high-risk patients but also the importance of adapting endoscopic tools and techniques to the individual anatomic and clinical context. The use of a colonoscope in this setting expands the armamentarium of therapeutic endoscopy and may provide a viable alternative when traditional methods are unsuccessful or technically challenging.

Conclusion

Endoscopic reduction is a viable, less invasive option for managing gastric volvulus in high-risk surgical patients. This case demonstrates the use of a colonoscope in overcoming the technical limitations of gastroscopes, providing an alternative when surgery is not suitable.

References

1. Bauman ZM, Evans CH. Volvulus. Surg Clin North Am. 2018;98(5):973–93.
2. Jeyarajah DR, Dunbar KB. Abdominal Hernias and Gastric Volvulus. In: Feldman MMD, Friedman LSMD, Brandt LJMD, editors. Sleisenger and Fordtran's Gastrointestinal and Liver Disease. 2021;381–98.e5.
3. Rashid F, Thangarajah T, Mulvey D, Larvin M, Iftikhar SY. A review article on gastric volvulus: a challenge to diagnosis and management. Int J Surg. 2010;8(1):18–24.

4. Chau B, Dufel S. Gastric volvulus. Emerg Med J. 2007;24(6):446–7.

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