SUNTEXT REVIEWS

SunText Review of Case Reports & Images
ISSN: 2766-4589

Open Access
Case Report
Volume 5:4

Acute Gastric Volvulus with Gangrene, a Rare and Potentially Fatal Complication Post Laparoscopic Fundoplication, Endoscopic Management of Complications

Basimbe F[1,*], Bbosa B[1], Din iman H[2] and Kakande I[3]

[1]Department of Surgery, Gastrointestinal Surgery Unit St Francis Hospital Nsambya, Mother Kevin Post Graduate Medical school Uganda Martyrs University Nkozi, Uganda
[2]Professor of Surgery, Uganda Martyrs Hospital Lubaga, Uganda

[*]Corresponding author: Francis B, Department of Surgery, Gastrointestinal Surgery Unit St Francis Hospital Nsambya, Mother Kevin Post Graduate Medical school Uganda Martyrs University Nkozi, Uganda

Received date: 26 April 2024; **Accepted date:** 02 May 2024; **Published date:** 10 May 2024

Citation: Basimbe F, Bbosa B, Din iman H, Kakande I (2024) Acute Gastric Volvulus with Gangrene, a Rare and Potentially Fatal Complication Post Laparoscopic Fundoplication, Endoscopic Management of Complications. SunText Rev Case Rep Image 5(4): 134.

DOI: https://doi.org/10.51737/2766-4589.2024.134

Abstract

Despite Laparoscopic fundoplication being a highly effective intervention for management of symptomatic GERD, gastric volvulus is among the rare but fatal complications that can occur after surgery. By comprehensively understanding this uncommon complication, healthcare professionals can enhance their ability to recognize and manage gastric volvulus post fundoplication effectively, thereby optimizing patient outcomes. In this case we present an option of Endoscopic management of a high output gastro cutaneous fistula with an anterior abdominal wall abscess that may be an option in an unstable patient.

Keywords: Gastric volvulus; Laparoscopic fundoplication; Interventional Endoscopy

Introduction

Gastroesophageal reflux disease (GERD) is the most common disease encountered in the gastroenterology clinic with a 20% prevalence in the adult population [1]. Laparoscopic fundoplication is the standard surgical treatment for intractable GERD [1,2]. This surgical procedure is generally effective with an 80% success rate in alleviating symptoms and improving the quality of life for many patients with GERD and many studies have demonstrated this [1,2,10]. However, gastric volvulus is an extremely rare but serious complication that can occur following fundoplication and it has emerged as a topic of increasing concern in many recent case reports [4,5]. Gastric volvulus refers to the abnormal rotation or twisting of the stomach, and its occurrence subsequent to fundoplication poses unique challenges in both diagnosis and management [4]. This phenomenon, though infrequent, is a true surgical emergency [4,5]. Delay in diagnosis and management can lead to fatal complications, including gastric ischemia and necrosis. We present a case of a 28-year-old male who presented with epigastric pain, vomiting and abdominal distension ten months post fundoplication and discuss his management and challenges encountered while at our surgical service and highlight the role of Endoscopic management of complications in our setting.

Case Presentation

Patient history

BS, 28-year-old male was, 10 months post laparoscopic Nissen fundoplication presented with one day history of severe epigastric pain, associated with non-projectile, non-bilious vomiting of feeds and sudden onset abdominal distension that was also more marked in the epigastrium. He had not passed stool in three days, however, he was normally passing flatus. He also reported sudden onset distension of the left side of the neck extending to left upper chest area, however, he had no difficulty in breathing, no chest pain and no cough.

Clinical examination

He was sick looking and moderately dehydrated and not in obvious respiratory distress. There was crepitus over the anterior aspect of left side of the neck and left upper anterior chest, he had tachypnea of 26 breaths/minute, reduced breath sounds on left hemi thorax but normal vesicular breath sounds. The abdomen was asymmetrically distended, with the distension more marked in the epigastrium, there was generalized tenderness, no guarding, and no rebound tenderness. Abdomen was hyper resonant on percussion, with bowel sounds increased in pitch and frequency. There was normal anal sphincter tone and the rectum was full of pellet-like stool. Complete blood count showed leukocytosis of 16.2x103, abdominal ultrasound scan showed pneumoperitoneum, likely secondary to perforated gut, loops of bowel that show pendulous peristalsis suggestive of bowel obstruction. Erect abdominal x-ray showed gastric volvulus, air under both diaphragms. Thoraco-abdominal CT (computer tomography) showed bowel perforation with pneumoperitoneum and subcutaneous emphysema.

Patient management

He was admitted, routine labs and radiological investigations were done. Emergency management with Intravenous paracetamol, Intravenous ondansetron, Intravenous Drotaverine. Intravenous omeprazole, high soapy enema and IV fluids was administered. He was kept on nil per oral and nasogastric tube was attempted with difficulty for decompression but failed. An Exploratory laparotomy was done. Intra-operative findings were axial gastric volvulus ~180 degrees, with necrotic body of the stomach (greater curvature 10 x 15cm) and intact fundoplication and multiple adhesive bands involving the stomach as well as gross distended. The rest of the abdominal organs were normal. Necrotic body of stomach was resected in a sleeve fashion involving the greater curvature that was nectrotic. Primary repair in two layer was done the peritoneum was lavaged with 4 liters of warm saline, left a drain in the left paracolic gutter. Postoperative management included intravenous antibiotics, analgesia, proton pump inhibitors and rehydration. Patient was managed in the intensive care unit for two days and subsequently discharged through the High dependence unit to the ward. He was discharged after one week of admission. However the patient developed a swelling in the mid portion of the incision scar 14 days post operatively that spontaneously ruptured a drained copious amounts of pus. This was followed by drainage through the incision site of food contents that were dimmed to be from the stomach. A diagnosis of post-operative sepsis with a gastrocutaneous fistula was made. Patient was emaciated with hypoalbuminemia and a decision was made for gastroscopy and possible endoscopic assessment of the Gastro cutaneous fistula site and a general assessment of the remnant stomach.

Interventional Endoscopy

Under local anesthesia with an oral xylocaine spray. An Endoscope was introduced into the stomach. , the entire remnant stomach was inflamed with oedematous mucosa, a point of gastric dehiscence at the point of gangrenous resection was identified and a scope was gently introduced into the abscess cavity. A 14 gauge needle was advanced gently through the abscess cavity and was identified by the scope and a guide wire introduced. Percutaneous Endoscopic Gastrostomy (PEG) Gauge 24 was introduced with a pull Technique. This plugged the gastric fistula as well as acting as a drain for the per fistula absces Patient was feed orally immediately after the procedure and had the PEG removed in two weeks with subsequent closure of the Gastro cutaneous fistula and full recovery of the patient.

Case Discussion

Gastric volvulus is a rare complication that has been described among only few cases following fundoplication.Gastric volvulus is defined by the anomalous rotation of the stomach over itself, and it can be either acute or chronic [4,5]. Rotation of the stomach usually occurs around the axis and between its two fixed points, i.e. the cardia and the pylorus (Stavros Gourgiotis). There are three types of gastric volvulus, depending on the axis of rotation; organoaxial which is the commonest and was encountered in our patient, mesenteroaxial and a combination of these two that are rarer. Organoaxial volvulus, rotates along the cardio pyloric axis with two sites of obstruction. When associated with a large diaphragmatic defect, the greater curvature rotates upward into the defect, creating an “upside down” stomach .This type is most commonly associated with a large hiatal hernia and left diaphragmatic eventration [4,5]. The mesenteroaxial volvulus, accounting for approximately one-third of gastric volvuli, occurs when the stomach rotates around a transverse axis at the pyloroantral area resulting in the pyloric/antral portions becoming anterior to the stomach. The combination volvulus is extremely rare. Gastric volvulus can be primary or secondary to other pathologies. The normal stomach has great mobility but stays in its anatomical position due to both its continuity with the cardia and duodenum and the action of many ligaments like gastrophrenic, gastrosplenic, gastrohepatic and gastrocolic ligaments [6,7]. Stomach ligament laxity leads to primary volvulus. Most of the cases of gastric volvulus are secondary to diaphragmatic defects or other intra-abdominal factors such as left diaphragmatic eventration, adhesions, gastric ulceration and gastric or duodenal carcinoma [3], due to the extensive adhesions encountered intraoperatively postulate the cause was likely due to adhesions. Rotation of the stomach can be of various degrees, leading to variable clinical presentations. These can range from dyspeptic symptoms to complete rotation with vascular

impairment, and the latter of these requires urgent surgical intervention as seen in our patient. The Borchardt triad, characterized by severe epigastric pain and distension, inability to vomit, and difficult or impossible nasogastric tube bypass can be observed in 70% of patients with gastric volvulus has was evident in our patient. Epigastric tenderness and distention can suggest gastric volvulus and in cases of stomach necrosis or severe obstruction, peritonitis can be present. These symptoms must be promptly recognized because of fatal complications. Gastric ischaemia or perforation has a been documented to carry a mortality of 30 % among patients with gastric volvulus and occur most commonly with organoaxial gastric volvulus (5-28% of cases) [5].

In general, the treatment of an acute gastric volvulus remains emergency surgical repair. With chronic gastric volvulus, surgery is performed to prevent complications. The principles of treatment of gastric volvulus include decompression, reduction of the volvulus and prevention of recurrence with gastropexy [3]. Sometimes decompression of the stomach with a nasogastric tube will result in reduction of the volvulus. Reduction of the volvulus can be performed by endoscopy or by gentle traction on the stomach during surgery. Gastric resection is necessary if there is full-thickness necrosis of the stomach as encountered in this case. Many variations of gastropexy, some with multiple points of fixation, have been reported in the literature [3,4,5].

Figure 1: *Guidewire with 14 Gauge cannula in the abcess cavity under endoscopic vision with snare deployed.*

Figure 2: *PEG Tube being guided under endoscopic vision into the stomach to plug the gastric fistula.*

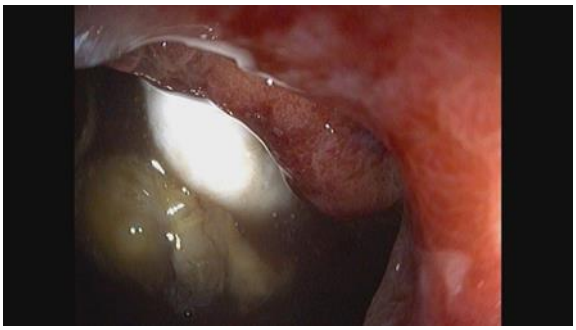

Figure 3: *PEG Tube plugging the Gastrocutaneous fistula.*

Figure 4: *thoracoabdominal CT scan with visible pneumoperitoneium.*

Simple gastric fixation to the anterior abdominal wall, gastrostomy tube placement or suturing the lesser curvature to the ligamentum teres or the free edge of the liver can accomplish gastropexy [5]. Other variations include posterior fixation of the greater curvature to the parietal peritoneum and colonic mesentery or fixation of the fundus to the undersurface of the diaphragm [8,9]. As presented, this patient has 180 degrees rotation of the stomach with necrosis and gastric perforation. Partial gastrectomy with anterior gastropexy was done intra-operatively and developed a gastrocultaneous fistula, the patient was unstable for laparotomy and we took a decision to assess the gastric fistula through a gastrostomy and place a PEG Tube by Pull technique. We believe this served initially to plug the fistula and reduce the output as well as act as a conduit for Drainage of the associated abscess and this served the purpose with the fistula closing and PEG Tube removal in two weeks (Figures 1-4).

Conclusion

Despite Laparoscopic fundoplication being a highly effective intervention for management of symptomatic GERD, gastric volvulus is among the rare but fatal complications that can occur after surgery. By comprehensively understanding this uncommon complication, healthcare professionals can enhance their ability to recognize and manage gastric volvulus post fundoplication effectively, thereby optimizing patient outcomes. In this case we

present an option of Endoscopic management of a high output gastro cutaneous fistula with an anterior abdominal wall abscess that may be an option in an unstable patient.

References

1. Smith CD, Fink AS, Applegren K. Guidelines for surgical treatment of gastroesophageal reflux disease (GERD). Society of American Gastrointestinal Endoscopic Surgeons (SAGES). Surg Endosc. 1998; 12: 186-188.
2. Terry M, Smith CD, Branum GD, Galloway K, Waring JP, Hunter JG. Outcomes of laparoscopic fundoplication for gastroesophageal reflux disease and paraesophageal hernia. Surg Endosc. 2001; 15: 691-699
3. Baty V, Rocca P, Fontaumard E. Acute gastric volvulus related to adhesions after laparoscopic fundoplication. Surg Endosc. 2002; 16: 538.
4. Gourgiotis S, Vougas V, Germanos S, Baratsis S. Acute gastric volvulus: diagnosis and management over 10 years. Digestive Surg. 2006; 23: 169-172.
5. Light D, Links D, Griffin M. The threatened stomach: management of the acute gastric volvulus. Surgical Endosc. 2016; 30: 1847-1852.
6. Jacob CE, Lopasso FP, Zilberstein B, Bresciani CJC, Kuga R, Cecconello I, et al. Gastric volvulus: A review of 38 cases. ABCD. Arquivos Brasileiros de Cirurgia Digestiva (Sao Paulo). 2009; 22: 96-10.
7. Channer LT, Squires GT, Price PD. Laparoscopic repair of gastric volvulus. JSLS: J Society Laparoendoscopic Surg. 2000; 4: 225.
8. Reyes Zamorano J. Laparoscopic manegement of secundary gastric volvulus. Report of 3 cases and review of literature. Cirujano General. 2014; 36: 96-102.
9. Frazzoni M, Piccoli M, Conigliaro R, Frazzoni L, Melotti G. Laparoscopic fundoplication for gastroesophageal reflux disease. World J Gastroenterol: WJG. 2014; 20: 14272.