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Laparoscopic management of chronic gastric volvulus: A case report

Case Report

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Abstract: Gastric volvulus (GV) is a rare pathological entity, which is difficult to diagnose, may rapidly progress to infarction and necrosis of the stomach, and can be fatal. A 68-year-old woman presented to the surgical outpatient clinic of Istanbul University, Istanbul Faculty of Medicine, in August, 2006, with a 3-month history of nausea, vomiting, and recurrent abdominal pain. Physical examination revealed epigastric tenderness, but otherwise within normal limits. An urgent abdominal computed tomographic examination revealed only a paraesophageal hernia. A mesenteroaxial gastric volvulus with a large paraesophageal hernia was found on laparoscopy. The surgical procedure involved derotation of the stomach and closure of the paraesophageal hernia with a dual V-shaped graft gastropexy to the triangular ligament of liver; in addition, a laparoscopic cholecystectomy was performed. We found that derotation of stomach and gastropexy to the triangular ligament is technically easy to perform and is a safe procedure in the treatment of gastric volvulus.

Keywords: *Gastric volvulus • Laparoscopic management • Triangular ligament • Gastropexy*

1. Introduction

Gastric volvulus (GV) is a rare pathological entity, which is difficult to diagnose, may rapidly progress to infarction and necrosis of the stomach, and can be fatal. GV can be defined in two different ways based on the axis of rotation. The first type is organoaxial volvulus; it is the more common form and is described as rotation around the long axis of the stomach. The second type is the mesenteroaxial form, which is the rotation of the stomach around its transverse axis [1].

GV pathophysiology involves the loosening of the stabilizing ligaments of other intraabdominal organs caused by acquired or congenital factors. Adhesion bands or an anatomic defect of other organs, such as the diaphragm, can act as causative factors [2]. GV can occur in association with paralysis of the diaphragm, a hiatal hernia, or hernia of the diaphragm [3]. GV usually presents as a surgical emergency, with vomiting, abdominal pain, and difficulty passing a nasogastric tube. These three signs and symptoms are called the Borchardt triad [4]. Sometimes GV can present in a chronic form, with long-term nausea, vomiting, and recurrent abdominal pain [5].

This study involves laparoscopic management of a case of a patient with chronic mesenteroaxial GV who presents with a 3-month history of nausea, vomiting, and recurrent abdominal pain.

2. Case Report

A 68-year-old woman presented to the surgical outpatient clinic of Istanbul University, Istanbul Faculty of Medicine, in August, 2006, with a 3-month history of nausea, vomiting, and recurrent abdominal pain. Physical examination revealed epigastric tenderness, but was otherwise within normal limits. The biochemical profile was in the normal range. She underwent an endoscopy of the upper gastrointestinal tract, but an attempt to pass the endoscope from the gastric cavity into the duodenum failed. An esophagus-stomach-duodenum barium study revealed a gastric volvulus with paraesophageal hernia (Figure 1). An urgent abdominal computed tomographic (CT) examination revealed only a paraesophageal hernia (Figure 2). A mesenteroaxial gastric volvulus (Figures 3 and 4) with large paraesophageal hernia was found at laparoscopy

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Figure 1. Esophagus-stomach-duodenum barium study revealed a gastric volvulus with paraesophageal hernia.

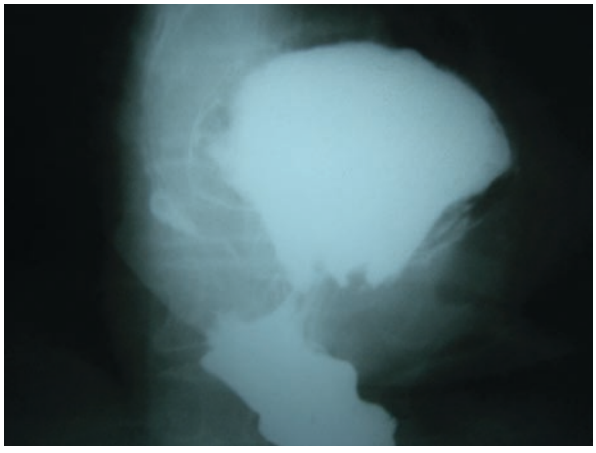
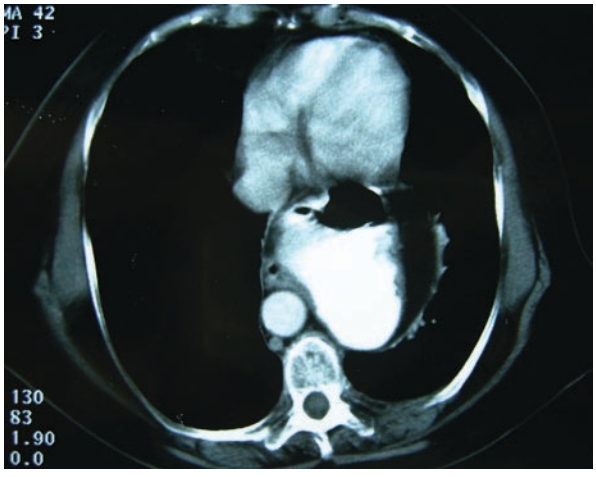


Figure 2. Abdominal Computed Tomography (CT) examination showing paraesophageal hernia.



(Figure 5). The surgical procedure involved derotation of the stomach, closure of the paraesophageal hernia with a dual V-shaped graft (Bard, CruraSoft patch, New Jersey, USA) (Figure 6), and gastropexy to the triangular ligament of the liver (Figure 7); a laparoscopic cholecystectomy was also performed. Oral fluids were started 6 hours postoperatively, and she was discharged from the hospital 72 hours postoperatively. Eighteen months after the surgery, she had no problems related to the gastric volvulus, such as nausea, vomiting, or abdominal pain.

3. Discussion

In most cases, GV needs to be treated surgically, either with open surgery or by laparoscopy. In the literature, more cases treated with open surgery than by laparoscopy are described; however, laparoscopic surgery has only recently evolved, and this may be why open surgery seems to be the preferred modality statistically [6,7].

Figure 3,4. Mesenteroaxial gastric volvulus.

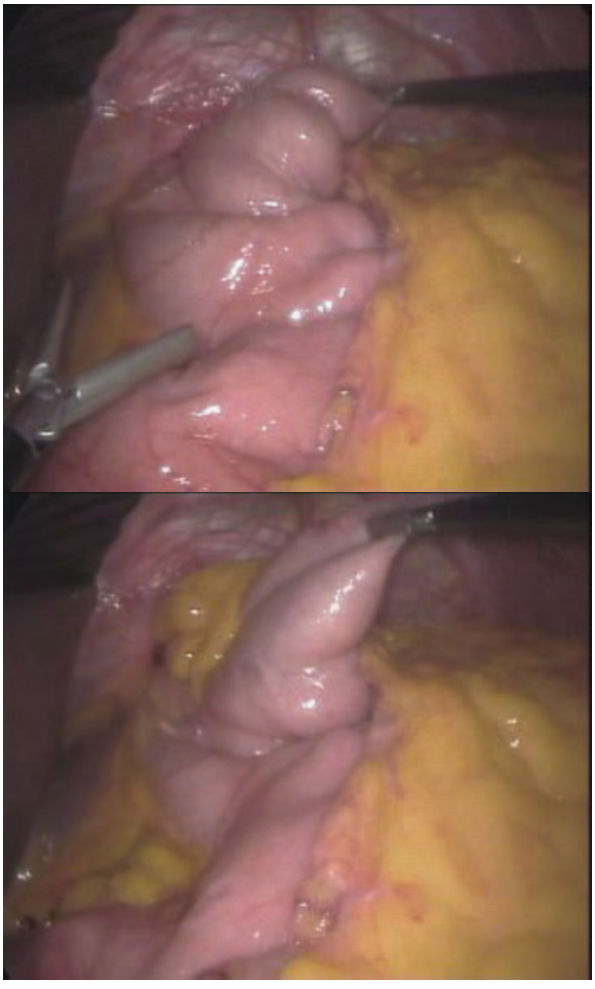


Figure 5. Large paraesophageal hernia.

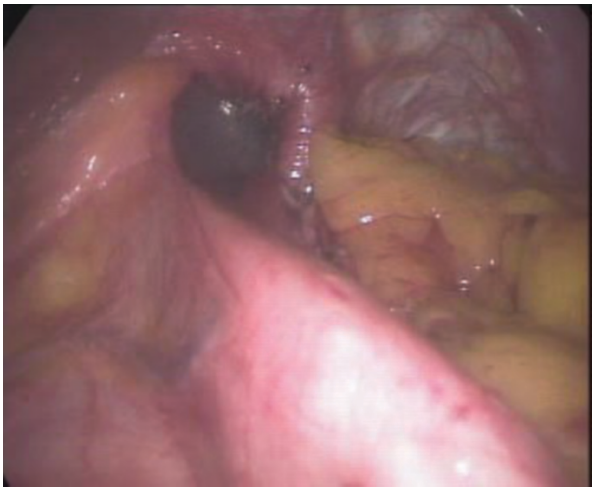
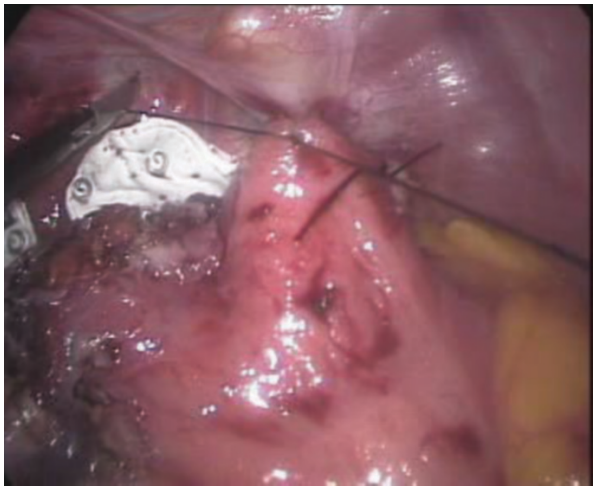


Figure 6. Dual V shaped graft.

Figure 7. Gastropexy to triangular ligament of liver.



It is preferable to use laparoscopic treatment modalities for GV, because laparoscopic management is minimally invasive, involves a shorter hospital stay, and is associated with less postoperative morbidity than open surgery. Also, in recent years, laparoscopic surgical modalities have gained importance even in the treatment of many abdominal cancers like gastric and bowel cancer. Thus, we would choose laparoscopic surgery in the management of GV, because it is a benign disease that should be treated with less morbidity. On the other hand, laparoscopic surgery is technically more difficult than open surgery, and in inexperienced hands, complications like gastric perforation, splenic injury, and pleural damage can easily occur [8,9].

In the literature, there is no standard treatment for GV. In particular, the treatment of associated paraesophageal hernia and the need to add antireflux surgery (fundoplication) is controversial. Many studies advise antireflux surgery in addition to the derotation of stomach [7,10]. The reason for adding antireflux surgery to treatment of GV is to prevent the further implicationsof gastroesophageal reflux disease (GERD).

Patients with GV usually have episodes of nausea and vomiting, and some observers believe that these symptoms are due to an associated paraesophageal hernia and GERD; however, they most commonly occur secondary to GV itself and usually resolve after the treatment of GV.

There is a controversy in the literature about the addition of gastropexy to the derotation of stomach. Many studies suggest that there is no need for antireflux surgery and that performing a gastropexy is enough to prevent further symptoms of GERD [11-13].

In our case, we performed laparoscopical derotation of the stomach, repair of a hiatal hernia with dual graft, and gastropexy to the triangular ligament, instead of additional antireflux surgery. We believe that nausea and vomiting in these patients is due to GV itself and that performing gastropexy alone will prevent recurrence of these symptoms.

Another controversial feature is where to place the gastropexy. In the literature, many studies advise attaching the stomach to the anterior abdominal wall, splenophrenic ligament, or diaphragm [12,13]. We attached it to the triangular ligament of the liver, because the triangular ligament is loose but safe; it is shaped like a band, can easily be located at operation, and is easy to stitch laparoscopically.

A Medline search with the words “triangular ligament” and “gastropexy” has shown that use of the triangular ligament as an attachment point for gastropexy has not been described previously in the literature.

We share the opinion of other authors that the treatment for GV is laparoscopic surgery. We suggest that derotation of stomach and gastropexy to the triangular ligament is technically easy to perform and is a safe procedure in the treatment of GV.

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