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Case report

Transmural mesh fistula due to composite mesh after Nissen fundoplication

Nissen fundoplikasyonunda kullanılan kompozit mesh sonrası gelişen transmural mesh fistülü

Mahmut Sertan Kapaklı[1], Feride Sinem Akgün[2], Sina Mokhtare[1]

Maltepe University Faculty of Medicine, Departments of General Surgery[1] and Emergency Medicine[2] Istanbul, Turkey

Corresponding address: Feride Sinem Akgün, bfsakgun@hotmail.com

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ABSTRACT

Laparoscopic approaches are now commonly used to treat gastroesophageal reflux disease. Some of the postoperative complications are specific to both open and laparoscopic Nissen fundoplication such as esophageal and gastric perforations, pneumothorax and esophago-gastric fistulas. It can be treated conservatively with anti-secretory agents or endoscopically with clip application. We reported a patient who developed fistula after laparoscopic Nissen fundoplication and was reoperated.

Keywords: Emergency department, gastroesophageal reflux, hiatal hernia, mesh, Nissen fundoplication, surgery

ÖZET

Günümüzde laparoskopik yaklaşımlar gastroözofagealreflü hastalığını tedavi etmek için sıklıkla kullanılmaktadır. Açık ve laparoskopikNissenfundoplikasyonlarına özgü postoperatif komplikasyonların bazıları özofageal ve gastrikperforasyonlar, pnömotoraks ve özofagus mide fistülleridir. Bu durum anti-sekretuvar ajanlarla konservatif olarak veya klips uygulaması ile endoskopik olarak tedavi edilebilir. Laparoskopik Nissen fundoplikasyonu sonrası fistül gelişen ve tekrar opere edilen bir hastayı sunduk.

Anahtar kelimeler: Acil servis, gastroözofageal reflü, hiatal herni, mesh, Nissen fundoplikasyonu, cerrahi

INTRODUCTION

Laparoscopic approaches are now commonly used to treat gastroesophageal reflux disease (1,2). Many studies have demonstrated the safety, efficacy, and durability of these minimal-access procedures (3). However, long-term failure rates and complications range from4.5% to 12.5% in larger series (4,5). Some of the postoperative complications are specific to laparoscopy. Paraesophageal hiatal hernia (PEHH) or "slipped wrap" is rarely reported with open procedures, and it can cause substantial life-threatening morbidity (6,7). Primary laparoscopic hiatal hernia repair is associated with up to a 42% recurrence rate for large hiatal hernias. This has lead to the use of mesh for crural repair, which has resulted in an improved recurrence rate (0-24%). However, mesh-complications have been observed (8).

CASE

The patient, a 69-year-old woman was referred to the emergency deparment for persistant heartburn and regurgitation incompletely controlled by proton pump inhibitor (PPI) therapy.At gastroscopywas performed by general surgery specialists, there was a large hiatus hernia (HH) and Savary-Miller grade 2 esophagitis.

Atoperation, the patient was found to have a 6-cm HH. LF was performed without incident. The hiatus was mobilized, followed by division of the the short and posterior gastric vessels. The hiatus was repaired with composte mesh fixed by AbsorbaTack™ Fixation Device. The fundoplication was completed by performing a 2-cm anterior wall 360° floppy wrap. The fundoplication was sutured with a 2/0 prolene mattress suture (Ethicon, USA). The recovery was uneventful and the patient was discharged on the second post-operative day (Figure 1).

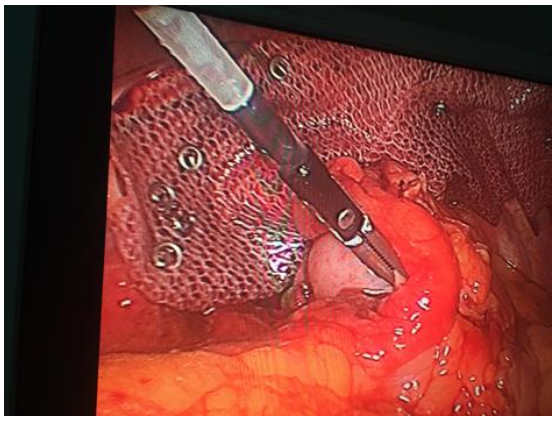

Figure 1

At review 4 weeks later, there was mild residual dysphagia and no reflux symptoms. At 6 weeks, there was severe heartburn and progressive dysphagia. Upper gastrointestinal endoscopy showed an irregularly shaped foreign body obstructing the lumen immediately proximal to the cardia (Figure 2). An attempt was made to remove the foreign body using the endoscopic scissors. The foreign body proved to be a surgical mesh.

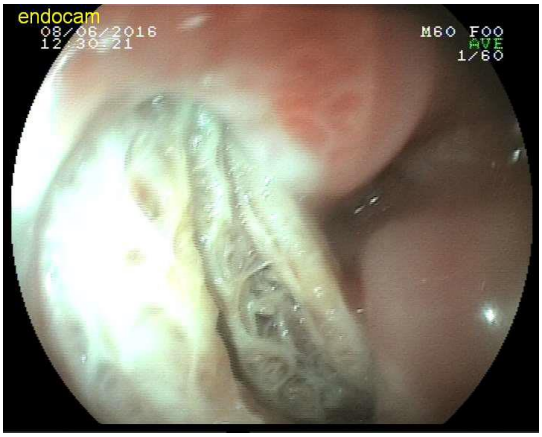

Figure 2

The esophageal wall was again inspected after this endoscopic extraction. There was evidence of evere lumen tortuosity and ulcerated stenosis at the gastroesophageal junction, and the opening of a fistula was found 1cm above the cardia on the anterior wall of the esophagus (Figure 3).

Figure 3

Thoracoabdominal computed tomography (CT) scanning confirmed an intraabdominal air collection at the level of the fundoplication and a line of air to the esophagogastric fistula (Figure 4).

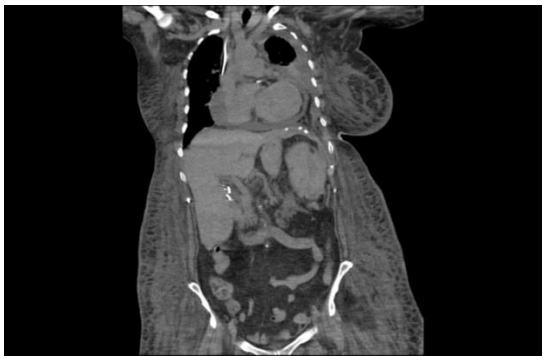

Figure 4

Progressive weight loss and failure to prevent further stricture formation led to reoperation 2 months after initial surery. At surgery, dense fibrosis was found around the hiatus, fundoplication and cardioesophageal junction. When the fundoplication was taken down and cut the mesh nearby the fundoplication, the fistula was found between the esophagus and the superoanterior aspect of the fundoplication. The esophagus was repaired and buttressed with fundoplication. Multiple drains were left in the upper abdomen. İntensive care therapy was required for 7 days. She was discharged 50 days after the operation.

DISCUSSION

Thirty years after the first fundoplication was reported in 1961, laparoscopic anti reflux surgery was introduced by Dallemagne et al. (9). The shorter recovery periods, reduced complication rates, and success rates of up to 90% have increased the popularity of this method to the point that it is now the standard anti reflux surgery (10).

Currently there are several varietşies of laparoscopic anti reflux surgery, each with inherent advantages and disadvantages. The most common intra-

operative compilacations are esophageal and gastric perforations and pneumothorax. Although esophagogastric fistulas are a rare complication of fundoplication (11,12).

Our patient presented with dysphagia and vomitting. Gastroscopy and reoperation revealed the cause to be fistulation and stricture formation from a composite mesh. All series reviewed report dysphagia secondary to a variety of causes such as overtight closure of the hiatus, overtight fundoplication, displaced repair, reherniation and esophageal motility disorders (13-15).

Esophagogastric fistula or "double lumen esophagus" is a rare complication of both open and laparoscopic Nissen fundoplication. Regarding laparoscopic anti-reflux surgery we present a rare case of this unusual complication. Overall, pathogenetic causes include prolonged untreated reflux disease with ulcerations and erosions, migration of the wrap, intraoperative injuries, ischemic necrosis, tissue reaction with used sutures or Teflon pledgets, and local existing malignancy or prior surgery. When symptomatic, esophagogastric fistula can be treated conservatively with anti-secretory agents or endoscopically with clip application (either through or over the scope); for non-responding cases laparoscopic gastroplasty or even open surgery could be an option (16-18).

The reason for occurrence of this rare complication is unclear.One possibility is an abnormal inflammatory reaction to the composite mesh. The second possibility for the occurrence of this complication is ischemia. The erosion by the mesh may have been due to ischemic necrosis caused by an overtight suture. The third possibility is that a deeply placed prolene mattress suture may have inadvertently entered the lumen of the esophagus or fundus (16). Despite a lack of objective evidence, we believe it is worthwhile taking extra care to ensure that the suture does not enter the lumen of the esophagus or fundus and that undue tension is not exerted when the suture is tied.The fundoplication should be carefully inspected for ischemia at completion.

Mesh reinforcement is not without complications and the incidence of these complications may be greater than previously reported (19,20). We describe a rare case of dysphagia caused by an esophagogastric fistula that was secondary to complete transmural esophageal migration of the surgical mesh 6 weeks after Nissen fundoplication and was resolved by endoscopic management and reoperation.

Although rare, fistulas may ocur after laparoscopic Nissen fundoplication, and a careful endoscopy, possibly followed by a barium swallow should be done in patients presenting with recurrent postoperative reflux symptoms.

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