

Laparoscopic Sleeve Gastrectomy: an Alternative for Recurrent Paraesophageal Hernias in Obese Patients

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ABSTRACT

Background: Recurrent paraesophageal hernias in obese patients are technically challenging and have a high recurrence rate. We sought to develop an alternative to the traditional approaches for this problem. This article describes the use of a sleeve gastrectomy in an obese patient with a large recurrent paraesophageal hernia.

Case Report: A morbidly obese 70-year-old woman presented with a 1-year history of chest pain, cough, dysphagia, and dyspnea. She had undergone an open paraesophageal hernia repair 8 years earlier. Diagnostic workup revealed a recurrent large paraesophageal hernia. Laparoscopically, we took down all adhesions, excised the hernia sac, reduced the stomach and distal esophagus into the abdomen, and closed the hiatus. We then resected the greater curvature and fundus of the stomach, leaving the lesser curve in a sleeve configuration. Eighteen months after the operation, the patient's chest pain, cough, dyspnea, and dysphagia were resolved. In addition, she has lost 57 pounds (255 to 198).

Conclusion: A sleeve gastrectomy is a potentially useful alternative to fundoplication or gastropexy, or both of these, in the treatment of obese patients with complex paraesophageal hernias.

Key Words: Paraesophageal hernia, Gastrectomy, Failed hiatal hernia repair.

INTRODUCTION

Large paraesophageal hernias (PEH) represent a substantial challenge to the surgeon: the anatomy is complex and the disease is usually seen in elderly patients with other comorbidities, which increases the risk. Traditional operative management includes resection of the sac, complete reduction of the stomach into the abdomen, hiatal herniorrhaphy and some form of gastropexy. We have recommended that a fundoplication be used routinely to prevent reflux and help anchor the stomach in the abdomen.¹ However, even when all these measures are taken, the initial repair is associated with a high recurrence rate,³⁻⁶ up to 42% in some series.⁷ Other factors may increase the recurrence rate even further. For example, prior hiatal hernia repair is an independent risk factor for recurrence.^{3,6} Obesity is both a risk factor for developing PEH⁸ and for recurrence if repaired.⁹ For these reasons, alternatives to traditional approaches are desired in obese patients with PEH, especially those with a failure of the initial operation. This article describes performance of a sleeve gastrectomy, an operation developed for the treatment of obesity, in an obese patient with a large, recurrent paraesophageal hernia.

CASE REPORT

A 70-year-old woman with a body mass index of 46 presented with progressive postprandial chest pain, cough, dysphagia, and severe shortness of breath 8 years after undergoing an open paraesophageal hernia repair with Nissen fundoplication. An upper gastrointestinal series showed a large, fixed hiatal hernia with organoaxial volvulus (**Figure 1**). Manometry demonstrated normal esophageal peristalsis. An upper endoscopy showed a normal esophagus, but the endoscope could not be advanced into the stomach because of the altered anatomy. The patient's symptoms were worsening, especially the dyspnea, despite maximal pharmacologic intervention for her COPD. The patient was unable to lose weight despite multiple medical and dietary measures. Surgical options considered included¹ redoing the hernia repair and Nissen fundoplication,² performing a total or subtotal gastrectomy, or³ doing a partial gastrectomy in a sleeve config-

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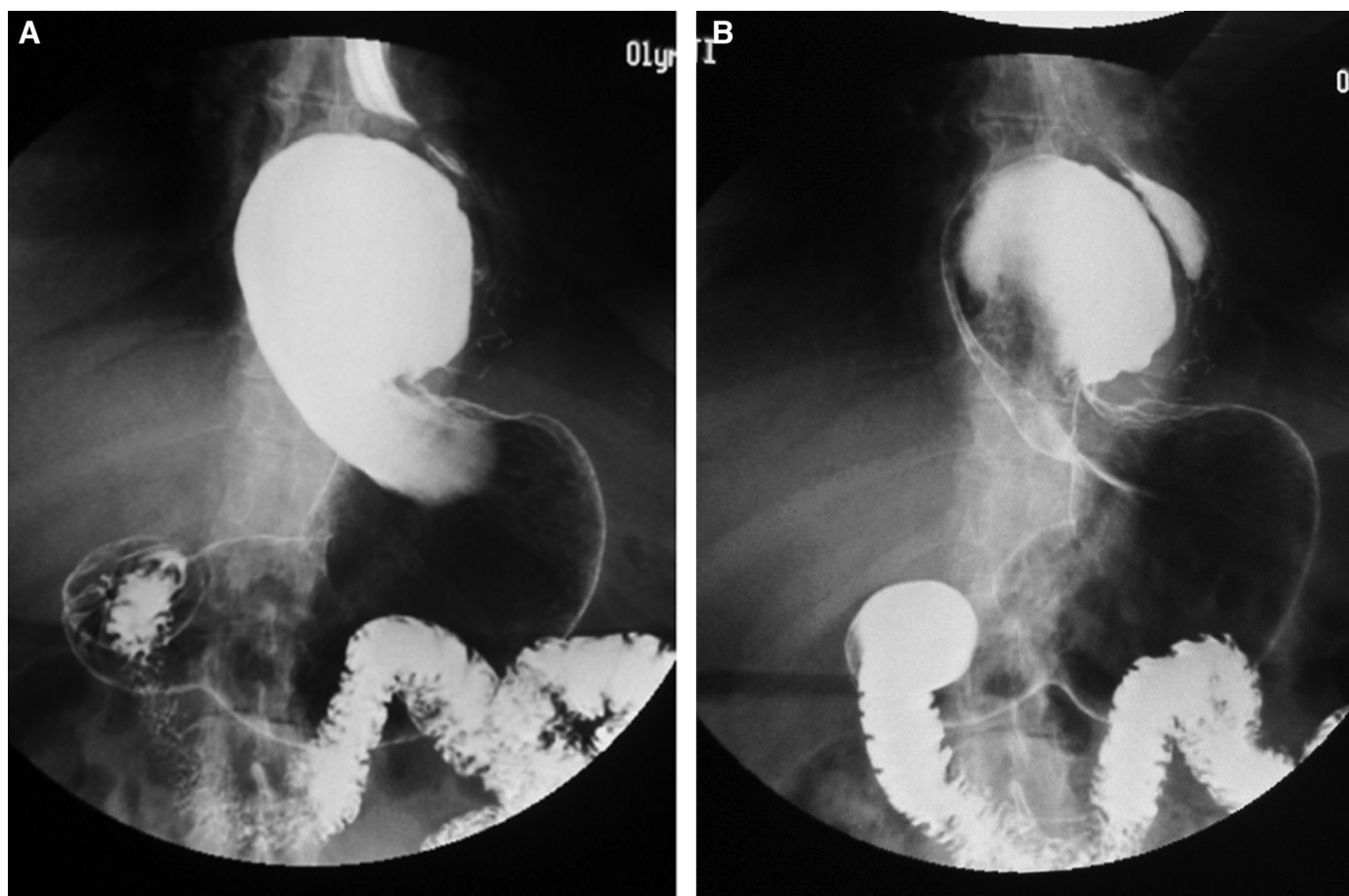


Figure 1. Upper gastrointestinal tract with a large recurrent paraesophageal hernia.

uration. We chose the latter which, heretofore, had not been described for this problem.

We approached this operation laparoscopically, resecting the sac, reducing the stomach into the abdomen, taking down the fundoplication, and restoring the anatomy of the stomach just as we would approach a re-do antireflux procedure.¹ The large hiatus was then closed around the esophagus by approximating the crura posteriorly with interrupted 2–0 silk sutures. We then placed a 60F bougie in the stomach, alongside the lesser curvature to help tailor the gastrectomy. The resection started at the antrum on the greater curve 10cm proximal to the pylorus. Multiple loads of an endoscopic linear stapler (EndoGIA, US Surgical Corp, Norwalk, CT) loaded with 4.8-mm staples in the body and with 3.5-mm staples in the thinner fundus were applied. The gastric resection included the fundus and greater curve side of the body, essentially leaving a “tube” along the lesser curve of the stomach, leaving some laxity in the stomach around the 60F bougie (**Figure 2**). A

gastropexy was accomplished by suturing the stomach to the left crus. Intraoperative esophagogastrosopy confirmed that no narrowing of the sleeve, bleeding, or staple line leakage occurred. Clear liquids given after an upper gastrointestinal series performed on the second postoperative day showed no leakage (**Figure 3**). The patient was discharged 4 days after the operation.

At 18 months after her operation, the patient had complete resolution of her postprandial chest pain, cough, dyspnea, and dysphagia. Moreover, she had no clinical evidence of a recurrent hernia, has lost 57 pounds, and has a body mass index (BMI) of 35.

DISCUSSION

This is the first report of a laparoscopic sleeve gastrectomy to treat a paraesophageal hernia. Potential advantages of this approach include¹: prevention of potential complications, such as gastric volvulus, should the hiatal repair

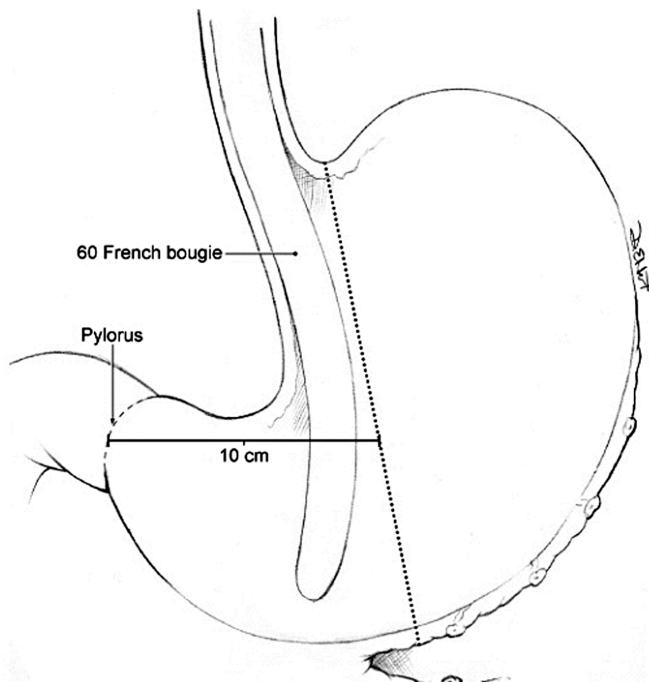


Figure 2. Schematic representation of the sleeve gastrectomy.

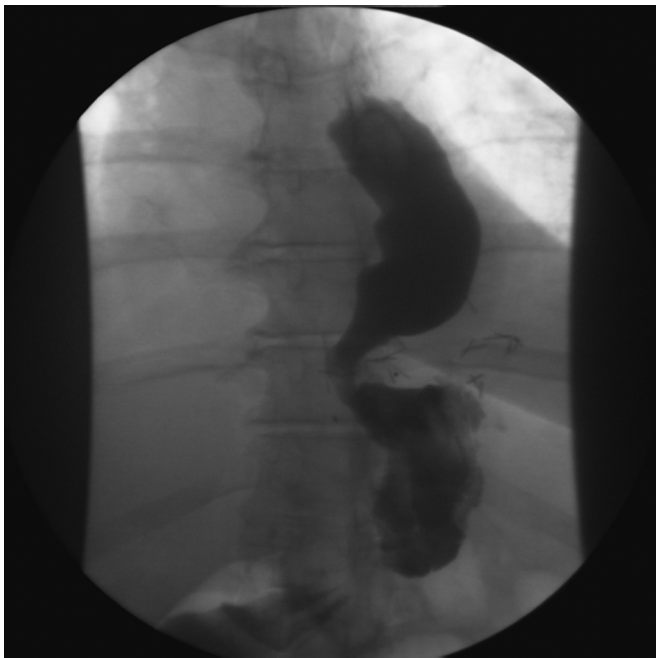


Figure 3. Postoperative upper gastrointestinal tract after the sleeve gastrectomy.

fail,² moderate, safe weight loss associated with a sleeve gastrectomy, and³ all the benefits of a laparoscopic approach. Although 1 and 2, and perhaps 3, could also be

achieved via a total gastrectomy with esophagojejunostomy, the risk of the surgery would be substantially higher, and the patient would also have to bear the long-term sequelae associated with a total gastrectomy.

There were several factors in this patient that made us reluctant to use the more traditional approach of hernia reduction, sac excision, hiatal closure, and Nissen fundoplication that we¹ and others have advocated.^{2,4,10} First, this was not a primary but a recurrent hernia. Reoperative surgery for failed hiatal hernia repair is associated with even higher recurrence rates than those reported for initial repairs. Second, this patient was morbidly obese with a BMI of 46. Failure rates of antireflux operations for patients who are morbidly obese and have gastroesophageal reflux disease (GERD) are so high that most authors recommend not performing fundoplications in these patients.⁹ For this reason, a Roux-en-Y gastric bypass or a total gastrectomy is preferred for patients with GERD and morbid obesity. Although it was discussed, we chose not to perform a gastric bypass in this patient because in patients with prior gastric surgery it has a fairly high anastomotic leak rate. Furthermore, this patient's advanced age (70 years) further increased her risk. It has been shown that gastric bypass has a 3-fold increase in mortality rate in patients over 55 years of age.¹¹ We thought a sleeve gastrectomy, along with the hiatal closure, was an attractive alternative for this patient, offering many of the advantages of a gastric bypass without the risk of anastomotic disruption.

We also felt that, should our hiatal closure fail, the risk of gastric volvulus would be substantially decreased, as there was no fundus available for axial rotation. Furthermore, the mass effect of the fundus in the mediastinum and the symptoms associated with it would be prevented if the fundus had been removed.^{2,12}

A sleeve gastrectomy is, itself, not a new operation. It was initially described by Lagace et al¹³ and Marceau et al^{10,14} as a restrictive component of a biliopancreatic diversion for patients with morbid obesity. More recently, sleeve gastrectomy has been recommended by some authors as an initial procedure in a 2-stage approach to patients with super obesity (BMI greater than 50 kg/m²).¹⁷ In this approach, after substantial weight loss from the sleeve gastrectomy, these patients are offered a biliopancreatic diversion with duodenal switch or Roux-en-y gastric bypass. Although some risk exists of staple line complications, such as bleeding or leakage, risks are much lower than those for a gastrojejunostomy or esophagojejunostomy. For example, the sleeve gastrectomy has a 0.5% leakage

rate,¹⁵ which compares favorably with Roux-en-y gastric bypass or esophagojejunostomy, which range from 1% to 5%.^{11,16}

Lastly, we thought this approach could be entirely carried out via laparoscopy. This would provide the attendant benefits associated with magnification, good exposure of the hiatus, precision, and a reduction of the operative risk when compared with that for open approaches.⁶ Furthermore, the metabolic and functional complications associated with gastric bypass, such as diarrhea and vitamin, mineral, and protein deficiency,^{10,13-15} might be avoided with a sleeve gastrectomy. Indeed, by leaving intact the lesser curvature, vagal innervation to the antrum and pylorus is preserved and gastric emptying continues normally.^{10,13}

CONCLUSION

We treated an elderly, morbidly obese patient who presented with a large, complex recurrent hernia with a dissection and resection of the sac, reduction of the stomach, hiatal closure, and sleeve gastrectomy. We have shown that sleeve gastrectomy can be safely performed. Although more experience with this procedure will help define its role, we feel that a sleeve gastrectomy is a viable addition to the current surgical armamentarium for the treatment of complex paraesophageal hernias.

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