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Roux-En-Y Gastric Bypass and Hiatal Hernia Repair with Prosthetic Reinforcement: A Surgical Alternative in Patients with Hiatal Hernia and Obesity: A Case Report

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Abstract

Introduction: The coexistence of hiatal hernia and obesity represents a therapeutic challenge because of the association with gastroesophageal reflux disease and the risk of recurrence. In selected patients, hiatal hernia repair combined with Roux-en-Y gastric bypass may provide both effective reflux control and metabolic benefits. However, the use of prosthetic reinforcement should be individualized because the available evidence remains controversial.

Objective: To describe the postoperative course of a patient with obesity and a type III hiatal hernia treated with laparoscopic hiatal hernia repair with prosthetic reinforcement and Roux-en-Y gastric bypass at a secondary-level general hospital.

Case presentation: A 71-year-old man with class II obesity (BMI >35 kg/m²), a long-standing history of GERD, and previously documented hiatal hernia was evaluated. In 2025, he developed worsening reflux and wheezing refractory to medical therapy. Computed tomography demonstrated a type III mixed hiatal hernia, with a hernia sac measuring 91 × 95 mm and a 60-mm hiatal defect. Upper gastrointestinal endoscopy confirmed a type III hiatal hernia. Laparoscopic surgery was performed, consisting of reduction of the herniated stomach, hiatal repair with prosthetic reinforcement, and Roux-en-Y gastric bypass. The postoperative course was favorable. During follow-up, the patient reported no dysphagia or recurrent reflux symptoms and had lost 19 kg at six months.

Discussion: In patients with obesity and complex hiatal hernia, Roux-en-Y gastric bypass combined with hiatal hernia repair with mesh should be individualized according to the size of the defect, tension of the crural closure, and quality of the diaphragmatic crura, as this is not a routine procedure.

Conclusion: Prosthetic mesh reinforcement may represent an option for hiatal defect repair in selected patients undergoing Roux-en-Y gastric bypass, with potentially favorable outcomes in patients with obesity, as observed in the present case.

Keywords: Gastroesophageal reflux disease (GERD); Roux-en-Y gastric bypass (RYGB); Hernia recurrence

Introduction

Hiatal hernia is defined as the displacement of abdominal structures through the esophageal hiatus and may be associated with gastroesophageal reflux disease (GERD), dysphagia, and

respiratory symptoms in more severe cases. Obesity increases intra-abdominal pressure, thereby promoting reflux, and may adversely affect the durability of conventional antireflux surgery. Contemporary guidelines recommend individualized treatment according to hernia type, anatomy, symptoms, and patient characteristics [1]. In patients with obesity and GERD, Roux-en-Y gastric bypass (RYGB) represents an alternative to conventional surgical procedures such as fundoplication, as it provides the additional benefit of weight control when combined with hiatal repair in selected cases [2,3]. Prosthetic reinforcement of the hiatal repair remains controversial. Long-term follow-up of a randomized clinical trial did not demonstrate a significant reduction in recurrence with nonabsorbable mesh and reported a greater burden of dysphagia in some patients [4]. Other studies have attempted to identify anatomical variables that may help determine which patients could benefit from prosthetic reinforcement, including defect size, tension of the crural closure, and hernia sac volume [5]. In bariatric surgery, a meta-analysis of bioabsorbable mesh suggested a lower recurrence rate compared with isolated cruroplasty, although the authors emphasized the need for further long-term evidence [6].

Objective

To describe the clinical course of a patient with obesity and a type III mixed hiatal hernia treated with laparoscopic hiatal repair with prosthetic reinforcement and Roux-en-Y gastric bypass at a secondary-level general hospital, while integrating the available evidence.

Case Presentation

A 71-year-old man was evaluated. Relevant medical history included esophageal and gastric varices diagnosed in July 2025, with no reported treatment, subclinical hypothyroidism, and class II obesity with a BMI >35 kg/m². No other relevant medical history was identified in relation to the current condition. In 2009, the patient developed dyspepsia, GERD, and epigastric pain. Initial upper gastrointestinal endoscopy revealed a 2-cm sliding hiatal hernia and Helicobacter pylori infection, for which he received targeted treatment. In 2015, he experienced recurrence of symptoms, including retrosternal pain and wheezing. Symptomatic treatment was modified for nonspecific chronic antral gastropathy with a proton pump inhibitor, dietary measures, and inhaled bronchodilators, resulting in partial improvement. In July 2025, the patient developed worsening reflux and wheezing without an adequate response to medical treatment. A diagnostic workup was initiated with Chest and abdominal computed tomography performed on July 10, 2025 (Figures 1,2) demonstrated a type III mixed hiatal hernia, with an approximately 91 × 95 mm hernia sac and a 60-mm hiatal defect. Panendoscopy gastrointestinal endoscopy performed on July 15, 2025 (Figure 3) confirmed a type III mixed hiatal hernia, small esophageal varices (grade I according to the Dagradi/Baveno classification), Sarin type IGV1 fundal varices, erythematous gastropathy, duodenogastric reflux, and nonspecific chronic duodenitis. Gastric biopsies obtained on July 23, 2025 were benign and showed moderate chronic gastritis, mild activity, and changes compatible with chemical gastropathy.



Figure 1: *Coronal chest computed tomography demonstrated a hiatal hernia with a 94-mm defect and migration of gastric contents, with the hernia sac extending toward the left hemidiaphragm and located within the posterior mediastinum, compatible with a type III hiatal hernia.*

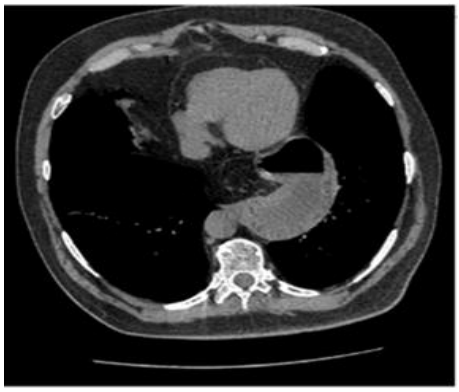


Figure 2: *Axial chest computed tomography demonstrated an intrathoracic stomach within the posterior mediastinum, anatomically anterior to the descending aorta, with an air-fluid level.*

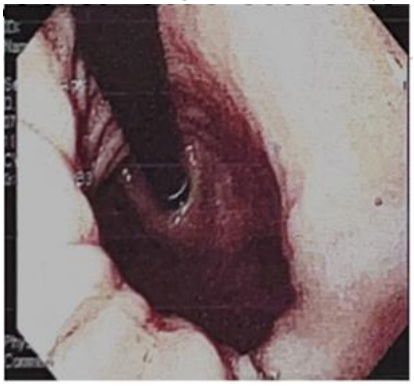


Figure 3: *Gastrointestinal endoscopy with retroflexed visualization at the cardia demonstrated widening of the esophageal hiatus, incompetence of the gastroesophageal junction, and proximal displacement of the gastroesophageal junction associated with a hernia cavity, compatible with a type III mixed hiatal hernia.*

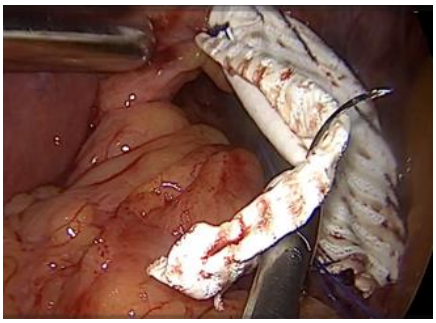


Figure 4: *Intraoperative image demonstrating a 5-cm hiatal defect with herniation of omental contents through the hiatus. The herniated contents were reduced into the abdominal cavity without evidence of incarceration or vascular compromise.*

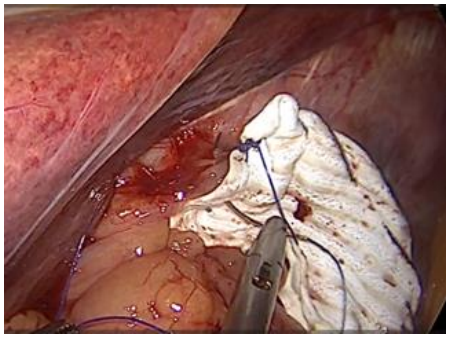


Figure 5: *Intraoperative image following complete reduction of the herniated contents and repair with prosthetic ePTFE (expanded polytetrafluoroethylene) mesh reinforcement secured with continuous polypropylene sutures.*

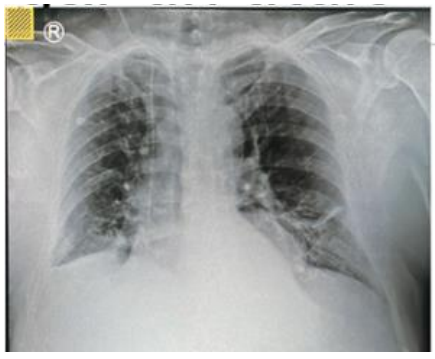


Figure 6: *Postoperative anteroposterior chest radiograph demonstrating adequate reduction of the hernia sac, without intrathoracic air-fluid levels, pleural effusion, or demonstrable pleuropulmonary collections.*

Surgical treatment

After completion of the preoperative evaluation, laparoscopic surgery was performed on August 19, 2025. Intraoperative findings included an enlarged stomach, with approximately three-quarters of the stomach located within the left hemithorax, and a 5 × 5 cm esophageal hiatus. Adhesiolysis was performed, followed by reduction of the stomach into the abdominal cavity. Gastric stapling was subsequently performed. The hiatal defect was repaired with ePTFE (expanded polytetrafluoroethylene) mesh reinforcement secured with a continuous 2-0 polypropylene suture (Figures 4,5), followed by Roux-en-Y reconstruction with a jejunojejunal anastomosis and gastrojejunostomy was created between the gastric pouch and the Roux limb. The pneumatic leak test was negative.

Postoperative course

The patient had a favorable postoperative course. A liquid enteral diet was initiated on postoperative day 3. Bowel peristalsis was present, with no vomiting, signs of bowel obstruction, or clinical evidence of an anastomotic leak. Follow-up radiography (Figure 6) demonstrated adequate reduction of the hernia sac without postoperative complications. The patient was discharged on postoperative day 6 and continued outpatient follow-up. During follow-up, he denied dysphagia or oral intolerance and reported no recurrent reflux symptoms. A 19-kg weight loss was documented at six months.

Discussion

Type III hiatal hernia combines displacement of the gastroesophageal junction with a paraesophageal component. In patients with obesity, this condition is particularly relevant because excess body weight and increased intra-abdominal pressure have been associated with GERD and an increased risk of recurrence following conventional antireflux procedures [1,2]. Clinical series involving patients with morbid obesity and symptomatic paraesophageal hernia have demonstrated that RYGB combined with hiatal repair may achieve acceptable symptom control and weight loss [7]. Likewise, comparative studies have reported lower recurrence rates when hiatal hernia repair is combined with bariatric surgery compared with fundoplication in patients with obesity [8]. The safety of concomitant hiatal repair and bariatric surgery has been evaluated in several cohorts. A national analysis found that simultaneous paraesophageal hernia repair and bariatric surgery did not globally increase short-term morbidity or mortality, although outcomes varied according to the bariatric procedure performed [9]. In an administrative claims-based cohort, concomitant hiatal hernia repair was associated with different patterns of reintervention and healthcare utilization between sleeve gastrectomy and RYGB, emphasizing the importance of individualized patient selection [10]. Other series involving repair of large paraesophageal hernias combined with RYGB have reported technical feasibility and favorable clinical outcomes

[11], including carefully selected elderly patients [12]. The most recent evidence continues to support RYGB as a reasonable option for patients with obesity and paraesophageal hernia, although it cannot be considered a universal strategy. A contemporary series of primary RYGB with concomitant paraesophageal hernia repair reported acceptable perioperative outcomes in patients with obesity [13]. In a 15-year institutional experience, paraesophageal hernia repair combined with RYGB was associated with lower short-term recurrence and metabolic benefit in patients with a BMI ≥35 kg/m² [14]. Similarly, a 2025 cohort reported a lower rate of hernia recurrence among patients with obesity who underwent paraesophageal hernia repair combined with concomitant bariatric surgery compared with isolated repair [15].

Regarding mesh reinforcement, its use should not be considered a standard approach. The 2024 SAGES guidelines consider the evidence comparing mesh reinforcement with suture-only repair to be equivocal and do not support routinely recommending one strategy over the other [1]. The randomized clinical trial with 13 years of follow-up also failed to demonstrate a sustained benefit of nonabsorbable mesh reinforcement in reducing recurrence [4]. Therefore, the decision should be individualized based on defect size, tension of the crural closure, quality of the diaphragmatic crura, type of prosthesis, and the risk of complications such as dysphagia or mesh erosion [5,6]. The risk of recurrence increases with larger initial hiatal defects, early postoperative nausea, heavy lifting, and obesity. Most studies evaluating the risk of hiatal hernia recurrence have included patients with a mean BMI <30 kg/m², with the majority of hernias repaired using this technique being type III hernias [3]. In the present case, the large 5-cm hiatal defect, significant intrathoracic component, and obesity supported the decision to perform reinforced hiatal repair in association with RYGB. The absence of dysphagia, oral intolerance, or recurrent reflux symptoms during follow-up, together with a 19-kg weight loss at six months, represents a favorable clinical outcome.

Conclusion

Laparoscopic repair of a type III hiatal hernia combined with Roux-en-Y gastric bypass may be considered an alternative in selected patients with obesity and GERD, particularly when simultaneous treatment of the hiatal pathology and the metabolic component is desired. Available evidence reports successful outcomes with this approach. Prosthetic reinforcement should be individualized rather than routinely employed, as evidence regarding its benefit in preventing recurrence remains inconsistent and potential complications, including dysphagia, may occur. Mesh reinforcement may be considered in selected patients with larger defects in whom the anticipated benefits outweigh the potential risks. In the present case, clinical and weight-related outcomes at six months were favorable, with no complications attributable to the hiatal repair reported during follow-up.

Conflict of Interest

The authors declare no conflict of interest.

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