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Original article

Laparoscopic Roux-en-Y gastric bypass for treatment of symptomatic paraesophageal hernia in the morbidly obese: medium-term results

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Abstract

Background: The ideal surgical approach for treatment of symptomatic paraesophageal hernias (PEH) in obese patients remains elusive. The objective of this study was to assess the safety, feasibility, and effectiveness of combined laparoscopic PEH repair and Roux-en-Y gastric bypass (RYGB) for the management of symptomatic PEH in morbidly obese patients.

Methods: Fourteen patients with symptomatic PEH and morbid obesity (body mass index [BMI] > 35 kg/m²) underwent laparoscopic PEH repair with RYGB between 2008 and 2011. Demographic characteristics and preoperative and perioperative details were analyzed. Patients were contacted in October 2013 for follow-up. BMI, reflux symptoms, and disease-specific quality of life (QoL) data were obtained.

Results: There were 11 females (79%). Median age and preoperative BMI were 48 years and 42 kg/m², respectively. Mean operative time was 180 minutes, with median length-of-stay of 4 days. There were no perioperative deaths, and 5 patients experienced postoperative complications including 1 gastrojejunostomy leak. Complete follow-up with a median follow-up interval of 35 months was available in 9 (64%) patients. The median % excess weight loss was 67.9%. Thirty-three percent required antisecretory medications for reflux control, compared to 89% preoperatively. Seventy-eight percent of patients reported good to excellent QoL outcomes assessed by the Gastroesophageal Reflux Disease Health-Related Quality of Life questionnaire. Overall, 89% of patients were satisfied with their operation and would undergo the procedure again.

Conclusion: Combined laparoscopic PEH repair and RYGB is a safe, feasible, and effective treatment option for morbidly obese patients with symptomatic PEH, and offers good to excellent disease-specific quality-of-life outcomes at medium-term follow-up. To date, this is the largest series with the longest follow-up in this unique patient population. (Surg Obes Relat Dis 2014;■:00–00.) © 2014 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Paraesophageal hernia; Roux-en-Y gastric bypass; Morbid obesity; Laparoscopy

Obesity has reached pandemic proportions and is a major public health concern. Currently, the prevalence of obesity is near 35% in the United States [1]. Morbidly obese (body

mass index [BMI] > 35 kg/m²) patients are at high risk for developing multiple medical co-morbidities including diabetes, hypertension, hyperlipidemia, coronary artery disease, obstructive sleep apnea, gastroesophageal reflux disease (GERD), and hiatal hernias [2].

The prevalence of hiatal hernias in the morbidly obese population may be as high as 40%, mainly due to increased intra-abdominal pressure [3,4]. The majority of these are

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sliding hiatal hernias, though paraesophageal hernias (PEH) constitute a smaller, but significant proportion of the total. Laparoscopic PEH repair with concomitant fundoplication has become the treatment of choice for symptomatic patients, with excellent long-term results and patient satisfaction [5]. It remains unclear, however, whether this approach yields optimal outcomes for morbidly obese patients. Laparoscopic repair of PEH in conjunction with a bariatric procedure, such as Roux-en-Y gastric bypass (RYGB) or sleeve gastrectomy (SG), represents an attractive alternative to traditional repair.

This study reviews our institutional experience with combined laparoscopic PEH repair and RYGB in morbidly obese patients over a 4-year period. The primary goals of this study were to assess the safety and feasibility of this approach in a cohort at high risk for failure of the standard laparoscopic repair. Secondary aims were to evaluate its effectiveness in achieving symptom control and weight loss and the subsequent effect on disease-specific quality of life (QoL). To date, this report represents the largest series of morbidly obese patients who have undergone a combined laparoscopic PEH repair and RYGB, as well as the longest follow-up interval in a cohort that has had laparoscopic PEH repair combined with a bariatric operation.

Methods

Patients

We performed a retrospective review of all patients undergoing laparoscopic PEH repair between 2008 and 2011 at The Ohio State University Wexner Medical Center under a protocol approved by the Institutional Review Board. Morbidly obese patients (BMI > 35 kg/m²), who underwent simultaneous laparoscopic PEH repair and RYGB (n = 14) were identified and included in this study.

Patient demographic characteristics, clinical presentation, imaging, American Society of Anesthesiologists classification, operative time, estimated blood loss, length of stay, complications, BMI, and % excess weight loss (%EWL) were analyzed. Patients were contacted by telephone in October 2013. Four patients were lost to follow-up, 1 died of unrelated causes, and 9 completed the follow-up interview. Reflux symptoms were assessed using the Gastroesophageal Reflux Symptom Score and disease-specific QoL outcomes were measured by the validated Gastroesophageal Reflux Disease Health-Related Quality of Life (GERD-HRQL) questionnaire.

Operative technique

Peritoneal access was obtained using a Veress needle or open Hassan trocar approach, and 4 working trocars were introduced. A self-retaining liver retractor was used to retract the left lobe of the liver and expose the diaphragmatic crura. The diaphragmatic hiatus was dissected and the

hernia sac reduced in its entirety and resected as necessary for gastric pouch creation. The thoracic esophagus was mobilized to achieve maximum intra-abdominal esophageal length and allow sufficient visualization of the hiatus to perform a primary posterior cruroplasty using interrupted 0 weight woven polyester sutures.

The jejunum was divided 50 cm distal to the ligament of Treitz, and a stapled jejunojejunostomy was created 150 cm distal to the first bowel division, thus creating a 150-cm Roux limb. The mesenteric defect was closed with a running nonabsorbable suture. A 25-mm end-to-end anastomosis stapler anvil was then introduced into the stomach through a gastrotomy, and a 30-mL pouch was created with linear staplers. The end-to-end anastomosis stapler was then placed into the proximal Roux limb, and a gastrojejunostomy was created in an antecolic, antegastric fashion. Intraoperative endoscopy was performed to inspect the anastomosis and test staple-line integrity. A closed suction drain was left adjacent to the gastrojejunostomy. It should be noted that although these procedures were performed by multiple surgeons, each utilized the same technique of hernia dissection and RYGB.

Postoperative management

Postoperatively, all patients were managed according to a standardized postoperative pathway for laparoscopic gastric bypass. Briefly, patients went directly from the recovery unit to the floor with telemetry. Nasogastric tubes were not regularly used. A low calorie, noncarbonated liquid diet was started on the first postoperative day and advanced on the second. We did not routinely obtain postoperative imaging studies, and intra-abdominal drains were removed before discharge. Postoperative nutritional support was provided to all patients whether they initially presented for bariatric surgery or management of paraesophageal hernia.

Analysis

Data were analyzed using Stata 12 (Statacorp, College Station, TX). All data are presented as median (range) or number (%) as appropriate. The paired Student's *t* test was used for statistical comparison of quantitative data. A *P* value < .05 was considered statistically significant.

Results

Between 2008 and 2011, a total of 140 patients underwent laparoscopic PEH repair at our institution. Fourteen of these patients were morbidly obese (BMI > 35 kg/m²) and also underwent a concurrent RYGB. Eleven (79%) were female. The median age was 48.0 (29–68) years at the time of surgery, and the median BMI was 42.0 (35–63) kg/m².

Eight (57%) patients presented with symptomatic PEH, while the remainder had a primary complaint of morbid obesity. All 14 patients described significant reflux

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