Roux-en-Y gastric bypass as primary management of hiatal hernia in the obese patient

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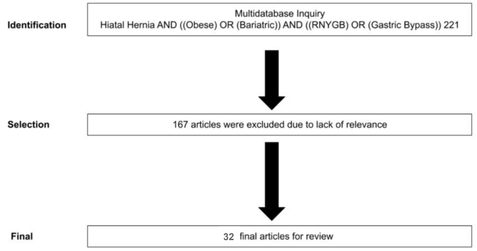
Introduction

- The aim of this paper is to review the literature regarding management of hiatal hernias (HH) in obese patients with a laparoscopic or robotic assisted Roux-en-Y gastric bypass (RNYGB).
- Numerous studies have shown that patients with a BMI greater than 30 have an increased risk of developing both a hiatal hernia and GERD due to increased intra-abdominal pressure secondary to visceral fat content. Hiatal hernias have a prevalence of 20-50% among obese bariatric surgery candidates. Hiatal hernia repair (HHR) and fundoplication is the standard surgical management of symptomatic hiatal hernias.

Methods

- A comprehensive electronic database search was performed in PubMed, Google Scholar, and referenced manuscripts to identify all the articles that reported hiatal hernia repair in morbidly obese patients and HHR with RNYGB.
- Primary endpoints include basic science research, epidemiology, surgical management, clinical data outlining pathophysiology, risk factors, and outcomes. Secondary endpoints included symptomatic and asymptomatic hiatal hernia recurrence and recurrence requiring intervention. The length and modalities of follow-up were extracted from the results.

Figure 1: Flowsheet of Article Selection



Results

Patient Selection

- GERD symptoms are worsened with obesity in part due to increased intra-abdominal pressure in addition to other reasons. This pressure may also be a pathologic cause of hiatal hernias. Hiatal hernias are also associated with reflux symptoms [1-6].
- It is reasonable to surmise that a procedure controlling weight loss such as RNYGB at the same time as HHR would be beneficial in improving overall reflux symptomatology and decreasing chance of having a recurrent HH [5, 7].
- When comparing reoperation on patients that have undergone antireflux procedures, dysphagia is the most common reason for non obese vs obese patients whose most common reason is HH recurrence [8].

Results (Continued)

Technique of Repair

- There is a large amount of variability of ways to perform HHR and RNYGB.
  - Frequent bougie size for HHR was 36 French
  - Cruroplasties were performed posteriorly most frequently with primary suture repair consisting of either non absorbable braided or barbed sutures in interrupted or plicated fashion. Mesh reinforcement was widely variable with biosynthetic tissue matrices in some studies.
  - RNYGB was performed either anteocolic or retrocolic with a slight majority of anteoclic in most studies reviewed.
  - Roux limbs ranged in size from 150-200cm and biliopancreatic limbs ranged from 50-70cm.
  - Robotic assisted laparoscopic were found in one study to require less blood transfusions than traditional laparoscopic. [7, 10-27].

Safety and Complications

- RNYGB with HHR has similar types of complications as compared to RNYGB, HHR, and antireflux operations individually. Multiple studies including those with propensity matching have shown no difference in complication rates between patients undergoing RNYGB and those with RNYGB and HHR. Reoperations do occur, but are not at a higher rate than HHR or antireflux operations. There is also some data that patients with previous fundoplication can safely be converted to RNYGB [6-7, 11-21, 23, 25, 26-30].

Outcomes and Efficacy

- Recurrence rates after hiatal hernia repairs can reach up to 40%, especially in obese patient population. Logarajah et al did a retrospective analysis on 37 patients who had RNYGB for symptomatic hiatal hernia, with mean BMI of 36.8. There was a 78.4% decrease in symptoms of heartburn, dysphagia, or regurgitation at follow up appointments. There were no recurrences of hiatal hernias.
- Another study, Chaudhry et al, showed that 89% of patients preoperatively required anti-reflux medications compared to post procedure with RNYGB, where 33% of patients required anti-reflux medications [32].
- A retrospective 6-year study including patients with giant hiatal hernia after antireflux procedures was completed. Authors reviewed 220 cases that underwent repeat interventions after antireflux procedures and found that 50-75% of patients had HH. 21 patients had redo fundoplication, 6 of which had collis gastroplasty; 23 underwent RNYGB, 2 of which had "short esophagus" or less than 2cm of intra-abdominal esophagus. They argue that RNYGB with HHR has better results in short esophagus patients than HHR [25].

Results (Continued)

Outcomes and Efficacy (Continued)

- A single center did a retrospective review on postoperative LRNYGB with fundoplication take down and revisional HHR from 2011 to 2018. The most common reason for reoperation after antireflux procedures is due to hiatal hernia recurrence or slipped fundoplication. Failure rate of revisional HHR is close to 60% and have higher postoperative complications. 95% of patients undergoing RNYGB will have improvement in GERD symptoms. 30-day post-operative complications were 10% with 1 post-op leak and 1 post-op bleed requiring transfusion. 12-month post-operative complication rate was 26% and included 4 GJ strictures needing dilation and 1 internal hernia needing laparoscopic repair. Median BMI decrease was 14.4 at 12 months and 16.3 at 24 months. 6 of 13 preoperative patients on PPI were on reduced dose or off PPI postoperatively. Postoperatively 15 patients total required antiacid suppression at some point after surgery with 5 for GERD, 3 for epigastric pain, 3 for NSAID prophylaxis and 1 for stricture. Improvements in type II DM occurred in 6 out of 6 patients, hypertension improved in 8 of 14 patients and OSA in 6 of 14 patients. Authors note their study supports that RNYGB is beneficial in patients with PEH and failed fundoplication. Length of follow up and tracking acid suppression therapy is a strength of their study [6].
- Another prospective single study included patients with BMI > 35 and refractory GERD who had RNYGB for GERD control. Patients were treated with low dose Ranitidine in the post-operative setting to prevent anastomotic ulcers, but this dose was nontherapeutic for GERD symptoms. The use of antiacid medications after surgery was less than 10% in patients. Results showed that the antireflex mechanism of RNYGB is a combination of acid reduction secondary to gastric stapling and reduced intra-abdominal pressure by weight loss [26].

Conclusion

- HHR and fundoplication is the current standard surgical treatment for symptomatic hiatal hernias in the obese patient. However, this population is at a much higher risk of hernia recurrence. The literature supporting standardization of RNYGB for the management of hiatal hernias in the bariatric surgery population is currently lacking high quality evidence. However, case reports and small case series do support the concomitant repair of hiatal hernias at the time of RNYGB with equivalent morbidity, mortality, and weight loss outcomes for obese individuals.

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