

Surgical Treatment of Gastroesophageal Reflux Disease



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KEYWORDS

- Gastroesophageal reflux disease • Laparoscopic antireflux surgery • Hiatal hernia
- Fundoplication

KEY POINTS

- Gastroesophageal reflux disease is abnormal distal esophageal acid exposure that results in bothersome symptoms. It is caused by the failure of endogenous antireflux barriers, including the lower esophageal sphincter and esophageal clearance mechanisms.
- Appropriate preoperative patient evaluation increases the likelihood that gastroesophageal reflux disease–related symptoms will improve after laparoscopic antireflux surgery.
- In patients that have a clinical history suggestive of gastroesophageal reflux disease, diagnostic testing should include ambulatory pH monitoring, esophageal manometry, esophagogastroduodenoscopy, and upper gastrointestinal series.
- Correct construction of the fundoplication reduces the risk of postoperative dysphagia caused by an inappropriately tight fundoplication, posterior herniation of gastric fundus, and slipped fundoplication.
- Recurrent symptoms of gastroesophageal reflux disease should be evaluated with esophageal manometry and ambulatory pH testing.
- Reoperative antireflux surgery should be performed by experienced gastroesophageal surgeons.

INTRODUCTION

Gastroesophageal reflux disease (GERD) is the most common benign medical condition of the stomach and esophagus. GERD is defined by abnormal distal esophageal acid exposure that is associated with patient symptoms. Most patients who present to their primary medical doctor with typical GERD symptoms (ie, heartburn and regurgitation) never undergo formal diagnostic evaluation and are effectively managed with nonoperative therapy, specifically proton pump inhibitors (PPIs). PPIs are so effective at decreasing

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Abbreviations

BOS	Bronchiolitis obliterans syndrome
EGD	Esophagogastroduodenoscopy
FEV ₁	Forced expiratory volume in 1 second
GEJ	Gastroesophageal junction
GER	Gastroesophageal reflux
GERD	Gastroesophageal reflux disease
IPF	Idiopathic pulmonary fibrosis
LARS	Laparoscopic antireflux surgery
LES	Lower esophageal sphincter
PEH	Paraesophageal hernia
PPI	Proton pump inhibitor
UGI	Upper gastrointestinal series

gastric acid production that they provide some improvement in typical GERD-related symptoms in nearly all patients with GERD. Consequently, an empirical trial of PPI therapy has become viewed as both diagnostic and therapeutic for patients that present with typical GERD symptoms. Moreover, improvement in GERD symptoms with the initiation of PPI therapy is considered a predictor of good response to antireflux surgery.

In patients that experience persistent, life-limiting symptoms despite maximal PPI therapy, a formal diagnostic evaluation should be completed. This evaluation includes ambulatory esophageal pH monitoring, esophageal manometry, upper gastrointestinal series (UGI), and esophagogastroduodenoscopy (EGD). For patients who exhibit elevated distal esophageal acid exposure and life-limiting symptoms despite maximal medical therapy, antireflux surgery should be strongly considered. Importantly, patients that experience no improvement in their symptoms with PPI use may not have GERD; surgeons must carefully consider alternative causes before offering surgical treatment. Endoscopic evidence of severe esophageal injury (eg, ulcerations, peptic strictures, and Barrett esophagus) can be considered evidence of gastroesophageal reflux (GER); however, these findings should not be considered an indication for operative therapy by themselves.

The application of laparoscopy to antireflux surgery has decreased perioperative morbidity, hospital length of stay, and cost compared with open operations. Conceptually, laparoscopic antireflux surgery (LARS) is straightforward; however, the correct construction of a fundoplication requires significant operative experience and skills in complex laparoscopy. In patients who present with late complications of antireflux surgery, including recurrent GERD and dysphagia, reoperative antireflux surgery can be effectively performed. Compared with first-time operations, however, reoperative antireflux surgery is technically more challenging, associated with a higher risk for perioperative complications, and results in less durable symptom improvement. Therefore, compared with first-time antireflux surgery, surgeons should have a higher threshold for offering patients reoperation; reoperations should be performed by experienced, high-volume gastroesophageal surgeons.

The purpose of this article is to review the surgical management of GERD, including relevant preoperative and postoperative patient care, operative technique, and the common complications of LARS and their management.

RELEVANT ANATOMY, PHYSIOLOGY, AND PATHOPHYSIOLOGY

Endogenous antireflux mechanisms include the lower esophageal sphincter (LES) and spontaneous esophageal clearance. GERD results from the failure of these endogenous antireflux mechanisms.

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