Complications Following Surgery for Gastroesophageal Reflux Disease and Achalasia

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KEYWORDS

• Achalasia • Antireflux surgery • Complications • Nissen fundoplication • Toupet fundoplication • Treatment of complications

KEY POINTS

- A thorough preoperative workup is essential for good outcomes in surgery for achalasia or reflux disease.
- An understanding of the evolution and advances of laparoscopic surgery paired with careful surgical technique improve patient satisfaction and outcomes.
- Although unusual, complications do occur. The surgeon must be adept at managing these problems.
- Reoperations for functional esophageal disorders are far more complicated than first-time operations and should be performed in high-volume centers that have extensive experience performing reoperations.

INTRODUCTION

Gastroesophageal reflux disease (GERD) and motility disorders of the esophagus, such as achalasia, are functional disorders with a broad spectrum of presenting symptoms. Good surgical outcomes are dependent on the physician's clear understanding of the pathophysiology of the disease and on the selection of an appropriate surgical procedure. To achieve good postoperative outcomes, a thorough diagnostic examination and individualized, carefully performed surgical techniques are critical.

Operative techniques for laparoscopic antireflux surgery and achalasia have evolved over the past 20 years, and are now relatively standardized. The LOTUS trial reported use of certain standardized surgical maneuvers with impressive postoperative results, including an overall postoperative complication rate of only 3%.[1] Almost all operations for reflux or achalasia are now attempted laparoscopically, at least for first-time surgery. Compared with open surgery, the laparoscopic approach is associated with fewer complications and shorter hospital stays,[2] and conversion to open surgery is needed in fewer than 2.5% of cases.[3,4] Because the laparoscopic approach to antireflux surgery was adopted hastily in the early 1990s, undesirable results sometimes occurred in the early era. Proponents of laparoscopy are still trying to recover from the tarnished reputation of laparoscopic antireflux surgery; however, surgical

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treatment of patients with achalasia, hiatal hernia, and GERD has evolved into what should now be recognized as highly successful, cost-effective management for these diseases. As reported by Stefanidis and colleagues,[5] the results of at least 7 randomized controlled trials (RCTs) have been published that show antireflux surgery to be superior to medical management for alleviating symptoms of GERD. As with any surgical intervention, complications do occur. Some are unpredictable; however, surgeons who pay close attention to a patient's initial symptoms, possess a clear understanding of the underlying pathophysiology of that particular patient, and apply modern laparoscopic techniques will reliably achieve good outcomes. Complications occur at least twice as frequently in reoperations.[6] Reoperations should therefore be performed at centers of excellence by experienced surgeons.[7]

Unfortunately, the esophagus is a relatively unforgiving organ and the best time to repair a functional disorder is at the time of the first surgery. Bearing this in mind, we cannot emphasize enough that great care must be exercised before functional surgery is offered to a patient who presents with foregut symptoms.

ANTIREFLUX SURGERY

Preoperative Examination

A considerable amount of research has been published regarding the necessary tests that should be performed before antireflux surgery is considered. At Norton Thoracic Institute in Phoenix, AZ, we routinely perform endoscopy, manometry, and barium esophagograms, gleaning complementary information from each study. This helps us to understand the whole picture, to better comprehend the patient's symptoms, and to select the best course of treatment. Impedance and pH studies should be carried out when significant diagnostic uncertainty exists or when a diagnosis of GERD cannot be made based on endoscopy. The pH studies are useful to rule out reflux as a potential source of the problem in patients with complex symptoms.

Proton pump inhibitors (PPIs) can alleviate symptoms for most patients with mild GERD or a minimal hiatal hernia. The widespread use of PPIs has resulted in a shift in the presenting symptoms of patients referred for surgery over the past 2 decades, as PPIs have been shown to control heartburn symptoms relatively well, even for extended periods of time. Patients are now more commonly referred for surgical correction of a large paraesophageal hernia or for an intrathoracic stomach. These patients frequently have symptoms related to the hernia itself, including anemia, chest pain or discomfort, early satiety, and bloating. Although surgery for these patients is often complicated, it can still usually be performed laparoscopically. Specific techniques that should be considered for these cases are discussed below.

COMPLICATIONS OF ANTIREFLUX SURGERY

Major complications associated with antireflux surgery are uncommon, and perioperative mortality rates are very low. In 2006, Dominitz and colleagues[8] reported a perioperative mortality rate of 0.8% after antireflux surgery, but a more recent study using the Nationwide Inpatient Sample of more than 15,000 patients showed a much lower mortality rate of 0.08%.[9] Moreover, this report also demonstrated that, despite the progressive age increase in patients undergoing antireflux surgery and their larger number of comorbidities, the operative mortality of antireflux surgery has decreased by 50% over the past decade.[9]

Intraoperative Complications

Aspiration during intubation

Patients undergoing antireflux surgery usually have a hiatal hernia and the lower esophageal sphincter (LES) is frequently defective. Great care should be exercised when these patients are intubated for an operation, as they are at very high risk of aspiration. Rapid-sequence induction with cricoid pressure and inclining the torso 45° are useful techniques to avoid aspiration. If aspiration is suspected, a bronchoscopy should be performed immediately to evaluate the extent of pulmonary soilage and to clear the airways. If gross soilage is suspected, it may be prudent to cancel the procedure and reschedule it for a later time, after the patient has had an opportunity to recover from the aspiration event.

Viscus injury from trocar insertion

Intestinal injuries usually can be repaired laparoscopically. Trocar injuries are now quite infrequent as a result of increased surgeon experience and blunt-tipped trocars, some of which offer camera visualization of the layers of the abdominal wall. Once the camera port is inserted, all other port insertions should be performed under camera visualization. Some surgeons still prefer the use of a traditional spring-loaded Veress needle. In all cases, it is critical that the surgeon pay close attention if the patient has had previous abdominal surgery, as intra-abdominal adhesions may exist.

Complications after retractor placement

Retractors are usually needed to retract the liver, but injury to the liver may result from their use.[10]