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Laparoscopic Nissen Fundoplication

The Nissen fundoplication has been and remains one of the most popular, if not the most popular, procedures performed for gastroesophageal reflux disease (GERD). The efficacy of this operation has been demonstrated in controlled clinical trials and, though not in complete concordance, the available data support the use of this procedure for the treatment of complicated gastroesophageal reflux disease. The popularity of the Nissen fundoplication surged with the advent of laparoscopy in the mid-1990s, and the annual number of these procedures performed in the United States subsequently underwent several doublings. Since this period, however, the enthusiasm of referring physicians for the Nissen fundoplication seems to have waned somewhat; it may have been that this procedure was overutilized in the quest to “stamp out” gastroesophageal reflux disease. Nevertheless, a well-performed Nissen procedure in the selected patient for the appropriate indication remains a proven therapy.

Since its introduction in the 1950s, the Nissen operation has undergone a number of technical modifications and refinements. The current “best approach” for the performance of a Nissen operation is somewhat controversial, and the literature is full of opinions with very little good-quality, controlled data to support them. Having said this, we will describe in this chapter what we believe to be the important technical aspects of this procedure, based on our experience and that of others. In brief, these technical features include (1) complete mobilization of the fundus of the stomach with division of the short gastric vessels; (2) extensive mobilization of the esophagus in the lower mediastinum such that 3 to 5 cm of the distal esophagus will lay below the diaphragm without tension; (3) preservation of the vagal nerves; (4) suture closure of the esophageal hiatus, with prosthetic reinforcement of the crural repair for large hiatal defects; and (5) creation of a short (2–3 cm), floppy, 360-degree wrap using the fundus only.

OPERATIVE INDICATIONS

The first-line treatment for gastroesophageal reflux disease is, of course, medical therapy, and not surgery. The indication for surgical correction of gastroesophageal reflux disease is relative, meaning that the decision to operate typically is worked out between the patient and his/her physician. In general, a Nissen fundoplication is performed in the patient in whom medical therapy for gastroesophageal reflux disease has failed. The definition of “medical failure” is intentionally left loose; examples would

include (1) a patient who is noncompliant with medication, (2) a patient who has persistent regurgitation while on maximal medical therapy, (3) a patient with reflux-induced asthma while on maximal medical therapy, and (4) a patient who simply chooses to have operative treatment of his/her gastroesophageal reflux disease. Stronger relative indications for an antireflux procedure include severe erosive esophagitis which has not responded adequately to medical therapy and esophageal metaplasia (Barrett’s esophagus) complicated by dysplasia. To reiterate, there are few if any absolute indications for a Nissen fundoplication; the point in time at which surgical therapy is chosen over medical therapy is patient- and physician-dependent.

Fundoplication, and in particular Nissen fundoplication, has been the most popular procedure employed when surgical treatment has been elected to correct gastroesophageal reflux disease. Recently, several endoscopic therapies have emerged for gastroesophageal reflux disease, including endoscopic plication of the gastroesophageal junction or application of radiofrequency energy to the gastroesophageal junction. These therapies appear to have limited utility in the patient with uncomplicated gastroesophageal reflux disease who do not have a concomitant hiatal hernia. The long-term (e.g., 10-year) follow-up to these endoluminal therapies is incomplete, so it is difficult to make a firm recommendation regarding laparoscopic versus endoscopic treatment of gastroesophageal reflux disease. The endoscopic therapies may be useful in the patient who is at high risk for general anesthesia or pneumoperitoneum, or who simply does not want to have any external surgical incisions. Patient education would be paramount in these situations.

Other antireflux procedures have been used to treat gastroesophageal reflux disease, including the partial (Toupet) fundoplication. One of the rationales for this procedure has been to decrease the incidence of postoperative dysphagia, especially in patients with esophageal dysmotility. For instance, the Toupet procedure commonly is employed in conjunction with an esophagomyotomy for achalasia. In our own experience, however, we have utilized the floppy Nissen fundoplication for this clinical scenario, and postoperative dysphagia has not been a problem (see Suggested Reading). In general, we do not believe that the presence of esophageal dysmotility is a contraindication to a floppy 360-degree wrap. Absence of motility is a different issue, but such a patient would be better served by esophageal replacement rather than an antireflux procedure.