

CONSTANTINE T. FRANTZIDES, SCOTT N. WELLE, MINH B. LUU, AND ANDREW M. POPOFF

Laparoscopic Esophagomyotomy with Nissen Fundoplication

The videos associated with this chapter are listed in the Video Contents and can be found on the accompanying DVDs and on Expertconsult.com.

Achalasia is a rare primary esophageal motility disorder characterized by progressive dysphagia. Although the degree may vary among individuals, dysphagia is present in all patients affected by the disorder. Other symptoms, such as chest pain, epigastric pain, odynophagia, regurgitation, vomiting, heartburn, and weight loss, may also be present. Physiologic features include aperistalsis of the esophageal body, normal to high lower esophageal sphincter (LES) resting pressures, and a lack of LES relaxation on swallowing. Treatments are aimed at relieving dysphagia by disrupting the LES musculature or promoting its relaxation. Short-term relief of dysphagia can be achieved with endoscopic botulinum toxin injections or pneumatic dilations. Endoscopic treatment of achalasia was the preferred method in the 1970s and 1980s despite many reports showing the superiority of an esophagomyotomy over dilation. Esophagomyotomy was first described by Heller in 1913 and later modified to a single anterior myotomy. Although the thoracic approach has been widely used to perform the myotomy, the abdominal approach has emerged as the preferred approach by the surgical community. In cases of reoperative myotomy due to incomplete proximal myotomy or a hostile upper abdomen from previous surgeries, the thoracic approach may be useful. Laparoscopic esophagomyotomy was popularized in the 1990s and has become the treatment of choice for patients with achalasia. Long-term relief of dysphagia in the 90% range, minimal postoperative pain, short hospitalization, and overall patient satisfaction contribute to its wide acceptance. Symptoms of postoperative reflux, which can be as high as 60%, can be reduced with the addition of a fundoplication. A balance must be maintained between controlling reflux and avoiding a significant increase in resistance caused by the fundoplication to an aperistaltic esophageal body. The superiority of the complete (Nissen) wrap over partial (Dor, Toupet) wrap in controlling reflux symptoms has been well demonstrated in the treatment of gastroesophageal reflux disease (GERD). The decision to perform a partial versus a complete fundoplication remains controversial, although most fundoplications performed after a myotomy are partial. Several reports show an increased incidence of dysphagia with a complete fundoplication compared with a partial fundoplication. We believe the difference in dysphagia rates represents technical error of the fundoplication rather than a significant difference in the resistance of the complete wrap. We routinely perform a short floppy Nissen fundoplication after an esophagomyotomy with a low incidence of postoperative dysphagia. On

the accompanying DVD (as well as on Expert Consult), we have included a video of a laparoscopic esophagomyotomy with Nissen fundoplication as an update and contrast to the procedure described in Chapter 2 of the *Atlas of Minimally Invasive Surgery*, 2009 (see Suggested Readings at the end of this chapter). The fine dissection and tips described here are the result of years of experience of the senior author (CTF), and we hope the viewer will gain the valuable insight necessary to perform the operation successfully.

OPERATIVE INDICATIONS

Dysphagia with manometric findings consistent with achalasia is an indication for surgery. Short-term relief can be achieved with endoscopic injection with botulinum toxin (Botox) or pneumatic dilation. These nonoperative interventions carry a small risk for perforation and may result in scarring, which will increase the risk for mucosal injury during surgical myotomy.

PREOPERATIVE EVALUATION, TESTING, AND PREPARATION

Patients with symptoms of dysphagia should be questioned for the severity, frequency, and concurrent presence of heartburn, chest pain, regurgitation, and significant weight loss. Upper gastrointestinal contrast study may show the characteristic tapering of the distal esophagus (bird's beak deformity). A megaesophagus is indicative of advanced disease and may result in a lower success rate. All patients, especially elderly patients with dysphagia and weight loss, should have an upper endoscopy to evaluate for cancer. Biopsy and further evaluation with endoscopic ultrasound (EUS) should be performed for lesions suspicious for cancer. Esophageal manometry is the gold standard to diagnose achalasia. Manometric findings of tertiary or aperistaltic waveforms, normal to high LES pressures, and high receptive LES pressures are consistent with achalasia. Manometry is especially useful to differentiate achalasia from other esophageal motility disorders such as diffuse esophageal spasm, nutcracker esophagus, and severe GERD. Patients with heartburn who have undergone endoscopic dilation should have a pH study to differentiate pathologic reflux due to dilation from food stasis due to poor esophageal emptying. Nutritional status should be optimized