



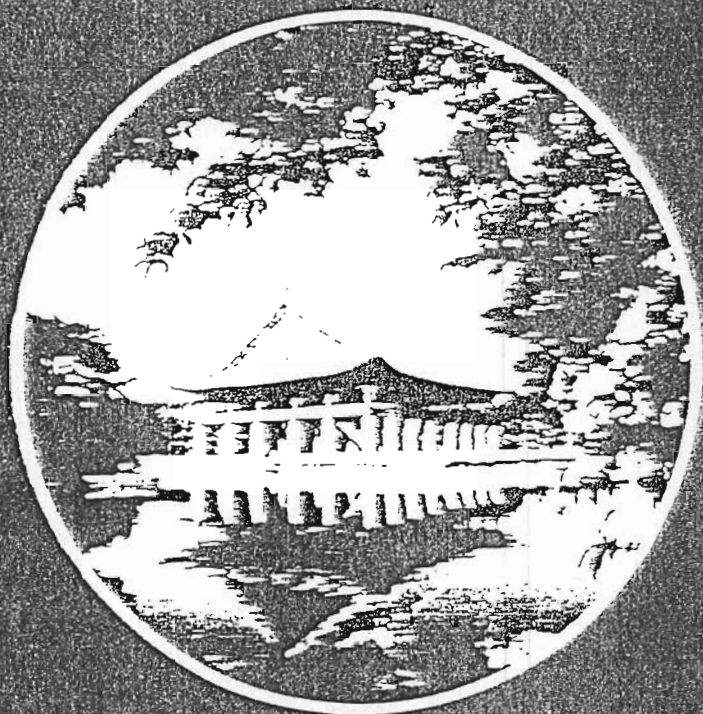
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# Minimally invasive surgery of the esophagus

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## SUMMARY

The laparoscopic antireflux procedure, especially Nissen fundoplication, has evolved into the surgical treatment of choice for gastroesophageal reflux disease. The goal of laparoscopic operation is to duplicate the technique and result of open operation. Paraesophageal hernia also may be treated with a laparoscopic approach. Minimally invasive Heller myotomy is the procedure of choice for achalasia. Minimally invasive esophageal tumor resection is not far past the case report stage.

## REVIEW

**Treatment of gastroesophageal reflux disease.** Laparoscopic Nissen fundoplication was first reported in 1991.<sup>11,17</sup> It has evolved into the procedure of choice in most centers when operative treatment of gastroesophageal reflux disease (GERD) is elected. This change has occurred without the benefit of controlled trials, similar to the change which occurred in the treatment of symptomatic cholelithiasis. The improvement in patient related factors has been such (see below) that a controlled trial probably will not be performed. Laparoscopic Nissen fundoplication will be the main topic in this review.

**Indications.** The indications for open operative treatment of GERD have been complicated disease (ulcer, bleeding, stricture, dysplasia), and noncompliance with or refractoriness to medication. The indications for minimally invasive treatment of GERD are in evolution and are not standardized, but in general more patients are choosing operative treatment now that laparoscopic surgery is available. Many uncomplicated GERD patients who have their symptoms controlled by but are

rare.<sup>8</sup> A general consensus is that the laparoscopic view of the hiatus is better than the open view; this may make injury such as splenic laceration less common compared with laparoscopic operation.<sup>16</sup> Other complications include pneumonia,<sup>2</sup> trocar site hernia,<sup>2,7</sup> and pulmonary embolism.<sup>7</sup> Conversion, although not a complication, occurs in less than 5% of patients and usually is due to bleeding or technical difficulties.<sup>2,8,16,19</sup>

**Failure.** A poor (Visick III-IV) result has been noted in less than 10% of patients.<sup>20,28,32</sup> Operative failure implies recurrent reflux, bloating, or dysphagia which severely impacts on the patient's lifestyle.<sup>19,20,28,32,35,36</sup> Recurrent reflux may be secondary to breakdown of the wrap or recurrence of the hiatal hernia. The integrity of the fundoplication may be protected by using nonabsorbable suture, anchoring the wrap to the diaphragm, and performing posterior cruroplasty. Dysphagia usually is secondary to a tight fundoplication; this may be prevented by creating a floppy fundoplication around the esophagus (not the stomach body).<sup>14,30,31</sup>

**Treatment of paraesophageal hernia.** Most surgeons would agree that paraesophageal hernia should be repaired promptly after diagnosis, because even the asymptomatic hernia can present with strangulated gastric volvulus. Elective laparoscopic paraesophageal herniorrhaphy is safe and feasible.<sup>6,9,10,27,33</sup> The hernia may be repaired with posterior cruroplasty (simple sutures); prosthetic mesh repair of the hernia also has been described.<sup>3,15,22</sup> It is controversial whether or not to perform an antireflux procedure in conjunction with the herniorrhaphy. Paraesophageal hernia repair requires extensive dissection at the esophageal hiatus which can destroy the physiologic antireflux mechanism; an intraabdominal fundoplication prevents reflux and also may be a buttress against recurrent hernia.

**Treatment of achalasia.** Minimally invasive operation is now the preferred operative approach for achalasia. Heller myotomy may be performed either laparoscopically or thoracoscopically with excellent results.<sup>26,29,37</sup> There is a tendency to perform an antireflux procedure in addition to the myotomy if done laparoscopically, because the dissection at the esophageal hiatus necessitated by this approach may ablate the physiologic antireflux mechanism.

**Treatment of esophageal tumors.** Thoracoscopic enucleation of benign esophageal tumors has been described, and appears to be a logical treatment for this type of lesion.<sup>1b</sup> Thoracoscopic and laparoscopic transhiatal esophagectomy for malignancy has been performed in small numbers.<sup>15,23</sup> This procedure should be considered experimental.

## REFERENCES

1. AYE RW, HILL LD, KRAEMER SJ et al. Early results with the laparoscopic Hill repair. *Am J Surg* 167:542-546, 1994.
- 1a. BITTNER HB, MEYERS WC, BRAZER SR et al. Laparoscopic Nissen fundoplication: operative results and short-term follow-up. *Am J Surg* 167:193-200, 1994.
- 1b. BONAVINA L, SEGALIN A, ROSATI R et al. Surgical therapy of esophageal leiomyoma. *J Am Coll Surg* 181:257-262, 1995.
2. CADIERÉ GB, HOUBEN JJ, BRUYNS J et al. Laparoscopic Nissen fundoplication: technique and preliminary results. *Br J Surg* 81:400-403, 1994.
3. CARLSON MA, FRANTZIDES CT. Prosthetic reinforcement of posterior cruroplasty during laparoscopic hiatal herniorrhaphy. *Surg Endosc*, in press.
4. CHAMPAULT G. Gastroesophageal reflux: treatment by laparoscopy, 940 cases [French]. *Ann Chirurg* 48:159-164, 1994.
5. CHAMPION G, RICHTER JE, VAEZI MF et al. Duodenogastroesophageal reflux: relationship to pH and importance in Barrett's esophagus.

- physiologic comparison of laparoscopic and open Nissen fundoplication. *J Am Coll Surg* 180:385-393, 1995.
32. PITCHER DE, CURET MJ, MARTIN DT et al. Successful management of severe gastroesophageal reflux disease with laparoscopic Nissen fundoplication. *Am J Surg* 168:547-554, 1994.
33. PITCHER DE, CURET MJ, MARTIN DT et al. Successful laparoscopic repair of paraesophageal hernia. *Arch Surg* 130:590-596, 1995.
34. RATTNER DW, BROOKS DC. Patient satisfaction following laparoscopic and open antireflux surgery. *Arch Surg* 130:289-294, 1995.
35. SIEWERT JR, STEIN HJ, FEUSSNER H. Reoperations after failed antireflux procedures. *Ann Chir Gynaecol* 84:122-128, 1995.
36. SWANSTROM L, WAYNE R. Spectrum of gastrointestinal symptoms after laparoscopic fundoplication. *Am J Surg* 167:538-541, 1994.
37. SWANSTROM LL, PENNINGS J. Laparoscopic esophagomyotomy for achalasia. *Surg Endosc* 9:286-292, 1995.
38. SWANSTROM LL, MARCUS DR, GALLOWAY GQ. Laparoscopic Collis gastroplasty is the treatment of choice for the shortened esophagus. *Am J Surg* 171:477-481, 1996.
39. TRUS TL, LAYCOCK WS, BRANUM G et al. Intermediate follow-up of laparoscopic antireflux surgery. *Am J Surg* 171:32-35, 1996.
40. VAEZI MF, RICHTER JE. Synergism of acid and duodenogastroesophageal reflux in complicated Barrett's esophagus. *Surgery* 117:699-704, 1995.
41. WARING JP, HUNTER JG, ODDSDOTTIR M et al. The preoperative evaluation of patients considered for laparoscopic antireflux surgery. *Am J Gastroenterol* 90:35-38, 1995.
42. WATSON DI, JAMIESON GG, MITCHELL PC et al. Stenosis of the esophageal hiatus following laparoscopic fundoplication. *Arch Surg* 130:1014-1016, 1995.
43. WEERTS JM, DALLEMAGNE B, HAMOIR E et al. Laparoscopic Nissen fundoplication: detailed analysis of 132 patients. *Surg Laparosc Endosc* 3:359-364, 1993.