Surgical management

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While most patients’ symptoms are satisfactorily controlled with PPIs and other medications, surgery remains an import ant option. The indications for surgery include (i) incomplete symptom control with medical management, (ii) intolerance of, or unwillingness to comply with, long-term medical therapy , (iii) regurgitation despite medication (less well amenable to PPI), (iv) presence of a large hiatus hernia, (v) complica arising from GORD, and (vi) extraoesophageal symptoms. The predictors of good surgical outcome include typical GORD symptoms, PPI responders, presence of hiatus hernia and pres ence of GORD complications, e.g. reflux oesophagitis (grade B or above) and non-dysplastic Barrett’s oesophagus. Factors leading to poor surgical outcomes are normal preoperativ monitoring when performed o ff PPI, functional heartburn, EOO, connective tissue diseases and extreme obesity . Careful preoperative counselling is essential. Risks of anti reflux surgery include a small mortality rate (0.1–0.5%), failed operation (5–10%) and side e ff ects such as dysphagia, gas bloat or abdominal discomfort (10%). When perfor med well in appropriately selected patients, 80–90% of patients should be satisfied with the result of the operation. Wilhelm His , 1831–1904, Professor of Anatomy , Leipzig, Germany . Rudolph Nissen , 1896–1981, Professor of Surgery , Istanbul, Turkey , and later Basel, Switzerland. André M T oupet , 1915–2015, surgeon, St Cloud Hospital, Senior Consultant, University of Paris, France, proposed his technique in 1963. Jacques Dor , 1904–1997, thoracic surgeon, Marseilles, France. Anthony Watson , contemporary , surgeon, Royal Free Hospital, London, UK. Antireflux operations have three essential components: (i) restoration of an intra-abdominal segment of the oesoph - agus, (ii) crural repair, and (iii) some form of reinforcement of the LOS by the upper stomach (fundoplication) or by a prosthesis placed around the intra-abdominal oesophagus. The major types of antireflux operations were all devel - oped in the 1950s. For many years, the relative merits of tho - racic and abdominal approaches were hotly debated. With the introduction of laparoscopy , laparoscopic fundoplication with hiatal reconstruction is the standard approach. The mech - anism of fundoplication is to create a ‘floppy’ valve around the OGJ and to restore the angle of His. It has the e ff ect of increasing LOS basal pressure, lessening TLOSR and r educ - ing the capacity of the gastric fundus, thereby enhancing gas - tric emptying. The di ff erent types of fundoplication have been compared extensively in clinical trials but the superiority of one over the others could not be shown. Complete fundoplication (Nissen) is associated with a higher incidence of short-term dysphagia but is most durable in reflux control. P artial fundoplication, whether performed posteriorly (Toupet) or anteriorly (Dor, Wa tson), has fewer short-term side e ff ects, although this is at the expense of a slightly higher long - term failure rate (Figure 66.16). The most common side e ff ect of fundoplication is short- term dysphagia, related presumably to tissue oedema and inflammation. It usually resolves within 3 months of surgery . Some patients may experience ‘gas-b loat syndrome’, especially after a complete fundoplication. Typically , the patient would complain of gaseous distension of the abdomen and failure to belch or vomit, together with an increase in flatulence. In the last decade, a magnetic prosthesis has become available to reinforce the LOS after hiatal reconstruction (Figur e 66.17). This has a similar e ffi cacy to fundoplication in - the mid- to long

term and has fewer gas-bloat side e ff ects. The magnetic ring prosthesis consists of titanium-coated magnetic beads, connected by titanium wire. The physics of the magnets allows a lower attraction force when the beads are separated. This property of ‘relaxation’ is a more physiological sphincter tions to allow food passage and is less likely to create oesophageal outflow obstruction. This device is contraindicated in patients with major motility disorders, ine ff ective oesophageal motility - or connective tissue disease. e pH Summary box 66.2 Laparoscopic fundoplication /uni25CF - /uni25CF /uni25CF

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HRM and pH monitoring are recommended investigations before consideration of surgical treatment pH monitoring con /f_i rms GORD and HRM assesses oesophageal body function and LOS characteristics Surgery should be tailored to oesophageal motility

Complications of antireflux surgery and revisional surgery Structurally , a wrap can be too tight or too loose. It can also be partially or completely disrupted, herniated or slipped. Struc tural laxity can give rise to recurrent or persistent GORD. Too long or too tight a fundoplication can give rise to dysphagia and gas-bloat syndrome. Endoscopy , contrast radiography and functional testing can assess the anatomy responsible and guide further management. Management strategies include a PPI for recurrent acid reflux, endoscopic dilatation of stenosis and surgical revision as a last resort. A tight complete fundoplication can be rem edied by conversion to a partial fundoplication. For patients with anatomical failure and refractory symptoms, revisional surgery carries a lower chance of success; in some patients, local re vision is technically impossible, as often there will be adhesion formation and altered anatomy . Transient dysphagia is common after both fundoplication and magnetic sphincter augmentation. For the latter, there may be more prolonged dysphagia requiring dilatation or, rarely , migration and ero sion (0.15%). Removal of the device is required in 2.7% of patients; the majority can be accomplished endoscopically or laparoscopically . Endoscopic treatment Several endoscopic treatments have been tested that attempt to augment a failing LOS. Transoral incisionless fundoplication mimics classic fundoplication by recreating the dynamics of the angle of His using an endoscopic stapling device. Meta-analysis demonstrates improvement in clinical response compared with PPIs; however, oesophageal acid exposure time and reflux episodes are not significantly improved and PPI usage increases with time. Radiofrequency ablation (RFA) is another strategy to remodel the LOS by reducing compli ance. Again, it partially improves quality of life but does not normalise pH exposure time and almost 50% of patients still require PPI at follow-up. Antireflux mucosectomy makes use of the endoscopic mucosal resection (EMR) tec hnique to remove subcardiac mucosa while preserving a 1-cm gap at the lesser and greater curves. The contraction and scarring shown improvement in both quality of life and acid reflux. A significant proportion of patients require balloon dilatation for stenosis. These procedur es have been applied to patients with only small hiatus hernias or none at all, so only a small proportion of patients are suitable. Recently argon plasma coagulation has been used to accomplish the same subcardiac mucosal injury instead of EMR. Technically this is much less demanding than EMR.

Oesophagus Right crus Figure 66.17 Magnetic sphincter augmentation. Intraoperative photograph following hiatus hernia repair. The magnetic sphincter is implanted around the lower oesophagus, in between the posterior vagus nerve (white arrows) and the oesophageal wall.

Revision #1
Created 2025-12-31 15:24:35 UTC by Omar Ayman
Updated 2025-12-31 15:24:35 UTC by Omar Ayman