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SAGES Evidence-Based Guidelines for Surgical Treatment of Gastroesophageal Reflux Disease

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FROM SOCIETY OF AMERICAN GASTROINTESTINAL ENDOSCOPIC SURGEONS > FEATURED ARTICLE

Gastroesophageal reflux disease (GERD) has long been recognized as a significant public health concern as heartburn afflicts nearly two thirds of US adults at some point in their lives and accounts for 4 to 5 million physician office visits every year. This article represents a synopsis of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) guidelines for the surgical treatment of GERD. These guidelines are developed by the SAGES guidelines committee after a systematic review and grading of the available evidence and are approved by the SAGES Board of Governors.

The following scale for evidence grading was used:
Grade A—High-level, well-performed studies with uniform interpretation and conclusions by the expert panel
Grade B—High-level, well-performed studies with varying interpretation and conclusions by the expert panel
Grade C—Lower level evidence with inconsistent findings and/or varying interpretations or conclusions by the expert panel

Before considering surgery, objective documentation of gastroesophageal reflux is mandatory. This can often be achieved by flexible esophagoscopy if esoph-

agitis or Barrett's changes are seen but in their absence a 24-hour ambulatory esophageal pH-metry study is needed for confirmation of GERD. When the diagnosis of reflux is objectively confirmed, surgical therapy should be considered in individuals who have failed medical management, opt for surgery despite successful medical management, have complications of GERD, or have extra-esophageal manifestations of GERD such as asthma, hoarseness, cough, chest pain, aspiration. Preoperative investigations that may be needed before surgery include EGD, pH-metry, esophageal manometry, barium swallow, and sometimes gastric emptying studies.

To date, seven randomized controlled trials with follow-up ranging from 1 to 10.6 years have compared surgical with medical treatment for GERD. Based on this high quality evidence, surgical therapy for GERD is an equally effective alternative to medical therapy and should be offered to appropriately selected patients by appropriately skilled surgeons (Grade A). For surgery to compete with medical treatment, it has to be associated with minimal morbidity and cost (Grade A). Laparoscopic antireflux surgery is

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effective at restoring the mechanical barrier to reflux with significant improvements in the lower esophageal sphincter pressure and acid reflux exposure, can be performed safely with minimal perioperative morbidity and mortality, and leads to high patient satisfaction rates and improved quality of life (grade A).

In regards to the optimal surgical approach, the available evidence suggests that laparoscopic fundoplication should be preferred over its open alternative as it is associated with superior early outcomes (shorter hospital stay and return to normal activities, and fewer complications) and no significant differences in late outcomes (failure rates) (Grade A). Nevertheless, antireflux surgeons should be aware that laparoscopic fundoplication takes longer to perform and has a higher incidence of reoperations at least in the short term (Grade A). For patients with typical GERD symptoms laparoscopic antireflux surgery leads to significant improvement in rates of dysphagia, heartburn, and regurgitation (grade A). On the other hand, while atypical symptoms improve in a majority of patients after antireflux surgery, symptom persistence is higher compared with patients with typical symptoms and surgeons should therefore carefully select and counsel these patients preoperatively (Grade B). Importantly, patients should also be counseled preoperatively about the reported rates of symptom relapse and resumption of acid reducing medications long time after antireflux surgery (grade A).

In regards to the type of fundoplication, twelve randomized controlled trials and two metaanalyses suggest that partial fundoplication is associated with less postoperative dysphagia, fewer reoperations, and similar patient satisfaction and effectiveness in controlling GERD compared with total fundoplication up to five years after surgery (Grade A). Furthermore, a tailored approach to esophageal motility appears unwarranted (Grade B). Nevertheless, the paucity of long-term follow-up data (>5 years) that compare the effectiveness of the procedures makes it hard to recommend one type of fundoplication over the other especially in an era where the long-term effectiveness of surgical treatment for GERD

is questioned. It should also be noted that a body of literature suggests that anterior partial fundoplication may be less effective in the long term (Grade B) and retrospective data suggests that partial fundoplication may not be as effective as total in the long run (Grade C). Surgeons who treat GERD and are appropriately trained in minimally invasive techniques may minimize postoperative dysphagia by choosing a partial fundoplication (Grade A) or a short total fundoplication (1.5 to 2 cm) over a large bougie (56 French) (Grade C) and maximize the effectiveness of the procedure by choosing a total fundoplication (Grade C) or a longer (at least 3 cm) posterior fundoplication (Grade C). It should also be noted that there are regional differences in expert opinion and practice in the choice of fundoplication type for GERD with most North American experts choosing a total fundoplication due to concerns for the long term effectiveness of the procedure. In regards to division of the short gastric vessels, when the fundus can be wrapped around the esophagus without significant tension, no division of the short gastrics seems necessary (Grade A); division should be undertaken, however, when a tension-free fundoplication cannot be accomplished (Grade B). Crural closure should be strongly considered during fundoplication when the hiatal opening is large and mesh reinforcement may be beneficial in decreasing the incidence of wrap herniation (Grade B). Anterior crural closure may be associated with less postoperative dysphagia, but additional evidence is needed. The placement of an esophageal dilator during the creation of laparoscopic fundoplication (56 French) is advisable as it leads to decreased postoperative dysphagia but should be weighed against a small risk of esophageal injury (Grade B). Laparoscopic reoperative antireflux surgery is feasible, safe, and effective but has higher complication rates compared with primary repair and should be undertaken only by experienced surgeons using a similar approach to primary fundoplication (Grade B). Like any other surgical procedure, laparoscopic antireflux surgery is subject to a learning curve, which may impact patient



outcomes. Therefore, surgeons with little experience in advanced laparoscopic techniques and fundoplication in particular should have expert supervision during their early experience with the procedure to minimize morbidity and improve patient outcomes (Grade B). On the other hand, reoperative antireflux surgery should be performed in a high-volume center by an experienced foregut surgeon (Grade B).

Due to concerns for higher failure rates after fundoplication in the morbidly obese patient (BMI >35 kg/m²) and the inability of fundoplication to address the underlying problem (obesity) and its associated comorbidities, gastric bypass should be the procedure of choice when treating GERD in this patient group (Grade B). Surgeons should be aware that fundoplication in patients demonstrating poor compliance with PPI therapy preoperatively or with poor response to preoperative PPI treatment is associated with poorer outcomes (Grade C). Age should not be considered a contraindication for antireflux surgery in otherwise acceptable operative candidates, as outcomes in this patient group are similar to outcomes of younger patients (Grade C). Care should be taken to minimize early postoperative severe gagging, belching, and vomiting as weak evidence suggests that they may lead to anatomical failure of fundoplication (Grade C). A partial wrap should be considered in patients

with a preoperative diagnosis of major depression, as it may lead to better postfundoplication outcomes in this patient group that tends to have generally inferior outcomes (Grade C).

Detection of Barrett's esophagus with adenocarcinoma involving the submucosa or deeper excludes the patient from anti-reflux surgery and demands comprehensive stage-specific therapy (esophagectomy, chemotherapy, and/or radiation therapy) (Grade A). Antireflux surgery does not alter the need for continued surveillance endoscopy in patients with Barrett's esophagus. Patients who have undergone endoscopic ablative therapy and anti-reflux surgery should continue surveillance endoscopy according to their baseline grade of Barrett's (Grade A). The available evidence is inconclusive about the resolution or improvement of Barrett's after antireflux surgery.

Despite the availability of several randomized controlled trials and metaanalyses the available literature has several limitations including small patient samples, variable reporting of outcome parameters, short follow-up periods, absence of technique standardization across studies, and single institution studies which introduce bias into the reported outcomes.

For the complete "Guidelines for surgical treatment of gastroesophageal reflux disease", visit <http://www.sages.org/publications/guidelines>.

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