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Surgical perspectives

Gastroesophageal reflux disease and surgical treatment: what, when, where, who, how and why?

Enfermedad por reflujo gastroesofágico y tratamiento quirúrgico: ¿Que, cuando, donde, quien, como y por qué?

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What, when, where, who and why? These are crucial questions to answer regarding gastroesophageal reflux disease (GERD) — a prevalent entity¹ that is defined as the presence of symptoms and/or epithelial injury secondary to excessive retrograde flow of the gastroduodenal contents to the esophagus. Physiological reflux, which does not damage or produce symptoms, is unlike pathological reflux, which can be symptomatic without esophagitis (non-erosive reflux disease [NERD], or esophagitis A, B of the Los Angeles classification) or with esophagitis (C or D) and Barrett’s esophagus. These clinical situations having been defined with the aim to unify their correct management, especially when surgical treatment is considered.²

It is impossible to determine the triggering cause of this process, but it is evident that the lower esophageal sphincter plays a leading role, as its folding and shortening are influenced by nutrition, aerophagy, gastric distention and gastric emptying.¹ Another mechanism identified in the literature is the progressive dilation of the cardia, an anatomical expression of the separation of the 2 muscular bands that form the sphincter that determines its incompetence. Furthermore, peripheral and central mechanisms can modulate afferent signals from the esophagus and modify symptoms.

Diagnostic testing includes esophagogastroduodenoscopy with biopsies and 24-h pH monitoring. The diagnosis of

pathological reflux (PGER) is established with the presence of grade C or D esophagitis, Barrett’s esophagus, peptic stenosis and/or an acid exposure time of the esophagus greater than 6% over 24 h. A complete clinical history, manometry, impedance-pH monitoring, barium swallow test, EndoFlip, etc, improve the understanding of complex cases, patients with extraesophageal symptoms, and particularly candidates for surgery.³

The importance of this disease lies in the fact that it can severely and chronically affect the quality of life, socialization, and occupational activities of patients, while also requiring permanent treatment and entailing high costs for both patients and healthcare systems.

Today, good medical treatment is available, so it has not been easy to reach a consensus on the indications for surgical treatment. Even though it would seem obvious to indicate surgery in the event of failure of medical treatment, this is the least frequent indication by experts since patients with the best response to antireflux surgery are those with typical symptoms, who often respond well to proton pump inhibitors (PPI).⁴

Given the above, we believe that antireflux surgery is indicated for the management of patients with observed evidence of PGER after a period of correct and controlled medical treatment, with marked symptoms (particularly regurgitation), including patients who have severe esophagitis

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(grades C or D), associated hiatal hernias, patients with Barrett's esophagus, cases complicated by ulcer or stenosis, and patients with reflux secondary to scleroderma.^{4,5}

According to the literature, the 10-year results have proven surgery to be efficient in 80% of cases, but this rate declines during subsequent years.⁵ Therefore, it does not seem advisable to rush the indication in very young patients if they have satisfactory medical control and no endoscopic signs of risk, as well as in patients who are emotionally unstable or who attribute a group of unrelated symptoms or discomforts to the reflux.

It is evident that surgery should be performed by surgeons with experience in esophagogastric surgery or who have been trained at high-volume medical centers. Today, laparoscopic antireflux surgery (including the robotic approach) is standard, and its morbidity is very low (although it can be serious and complex), while mortality is almost zero; as a result, these patients can be included in outpatient or short-stay surgery programs.^{6,7}

The aim of surgery is to improve symptoms, suspend medication, and prevent any progression or complications of the disease by recomposing the protective mechanisms, calibrating the dilated cardia, restoring sphincter actions, and narrowing the hiatus of the diaphragm.

The Nissen fundoplication (360° wrap) is performed under the hiatus, covering the abdominal esophagus and the cardia symmetrically, with no double compartments or excessive tightening, division of the short vessels and associated closure of the crura. This technique is recommended by our group and performed by a large number of surgeons, supported by its performance over time and results. Its use is debatable in patients with ineffective esophageal motility, scleroderma, and elderly patients; in these cases, partial funduplications are proposed, which present less dysphagia and similar long-term results for reflux control.^{7–10}

In patients with long-segment Barrett's esophagus, our group suggests fundoplication associated with distal gastrectomy and Roux-en-Y bypass. In obese patients with a BMI greater than 30 kg/m² and PGER, gastric bypass may be a solution, but both their reflux and obesity should be evaluated in a multidisciplinary manner, given that a certain percentage of cases may present reflux symptoms during follow-up.¹¹

Other alternatives include the use of flexible magnetic rings around the cardia, which are the modern version of the Angelchik ring and run the risk of suffering the same fate by not demonstrating objective long-term effectiveness, while increasing morbidity considerably.¹²

In addition, there are many anti-reflux devices and techniques designed to be used endoscopically. Several have failed, while others that seek to recreate conventional surgery (such as full-thickness suturing techniques) are currently being developed, but their long-term results have still not been reported.

Nissen published his technique 67 years ago,¹³ and much progress has been made since then, but we still have a way to go to address unresolved questions.

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