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REVIEW ARTICLE

Post-fundoplication symptoms and complications: Diagnostic approach and treatment☆

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Abstract Laparoscopic Nissen fundoplication is currently considered the surgical treatment of choice for gastroesophageal reflux disease (GERD) and its long-term effectiveness is above 90%. Adequate patient selection and the experience of the surgeon are among the predictive factors of good clinical response. However, there can be new, persistent, and recurrent symptoms

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reflux disease;
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Heartburn

after the antireflux procedure in up to 30% of the cases. There are numerous causes, but in general, they are due to one or more anatomic abnormalities and esophageal and gastric function alterations. When there are persistent symptoms after the surgical procedure, the surgery should be described as ''failed''. In the case of a patient that initially manifests symptom control, but the symptoms then reappear, the term ''dysfunction'' could be used. When symptoms worsen, or when symptoms or clinical situations appear that did not exist before the surgery, this should be considered a ''complication''. Postoperative dysphagia and dyspeptic symptoms are very frequent and require an integrated approach to determine the best possible treatment. This review details the pathophysiologic aspects, diagnostic approach, and treatment of the symptoms and complications after fundoplication for the management of GERD.

PALABRAS CLAVE
Funduplicatura;
Enfermedad por reflujo gastroesofágico;
Disfagia;
Pirosis

Síntomas y complicaciones posfunduplicatura: abordaje diagnóstico y tratamiento

Resumen En la actualidad la funduplicatura laparoscópica tipo Nissen se considera el tratamiento quirúrgico de elección para la enfermedad por reflujo gastroesofágico (ERGE) y su efectividad a largo plazo es mayor del 90%. Dentro de los factores predictores de buena respuesta clínica están la adecuada selección del paciente y la experiencia del cirujano. Sin embargo, la prevalencia de síntomas nuevos, persistentes y recurrentes posteriores al procedimiento antirreflujo puede ser de hasta un 30%. Las causas son múltiples pero en general se deben a una o más alteraciones en la anatomía y en la función esofagogástrica. Ante la persistencia de los síntomas posterior al procedimiento quirúrgico se debería de utilizar el término «falla». En el caso de que un paciente inicialmente manifieste control de sus síntomas y posteriormente estos reaparezcan, se pudiera emplear el término «disfunción». Por otra parte, ante el empeoramiento de los síntomas o la aparición de síntomas o situaciones clínicas que no existían antes de la cirugía, debe de considerarse una «complicación». La disfagia postoperatoria y los síntomas dispépticos son muy frecuentes y requieren un abordaje integral para poder determinar el mejor tratamiento posible. En esta revisión se detallan los aspectos fisiopatológicos, de diagnóstico y tratamiento de los síntomas y las complicaciones posteriores a la funduplicatura para el manejo de la ERGE.

Introduction

Current indications for the surgical treatment of gastroesophageal reflux disease (GERD) include at least some of the following situations: *a)* symptomatic erosive GERD in young patients with adequate response to proton pump inhibitors (PPIs), *b)* evidence of large hiatal hernia or lower esophageal sphincter (LES) dysfunction, *c)* patients that wish to suspend treatment due to cost or convenience, *d)* intolerance to medical treatment, and *d)* severe symptoms, especially with nocturnal reflux and regurgitation.[1]

It is also recognized that before undergoing surgery, subjects must be thoroughly and adequately evaluated to corroborate that their symptoms are related to GERD. This is done through endoscopic studies, esophagram, outpatient pH study, and esophageal manometry. This preoperative approach is essential and can confirm the surgical indication or not, and in some cases, predict response.

Among all the surgical procedures, the laparoscopic Nissen fundoplication is considered the procedure of choice and its long-term effectiveness is above 90%, similar to that of the PPIs.[2–5] Adequate patient selection and the experience of the surgeon are the predictive factors of good clinical response. However, symptom control generally decreases over time (90% at 3 years vs 67% at 7 years),[4,5] even though this response expectedly varies, depending on the type of fundoplication (360º, 270 º, or 180º).

The main pathophysiologic mechanism for GERD is an increase in the transient LES relaxations. Only 10% of the patients have sphincter hypotonia and in some patients the length of the abdominal LES segment is short. The barrier function of the LES depends on its basal pressure that confers valve competence and on the concordance between the LES and the impingement with the diaphragmatic crura; the LES undergoes an opening during the phases of the respiratory cycle and when it is subjected to tension from gastric distension. The resulting incompetence exposes the esophageal mucosa to acid.[6,7] The fundoplication (360º) around the distal esophagus strengthens the valve, preventing reflux, and promotes the correction of the short intra-abdominal segment and the concordance of the diaphragmatic impingement on the esophageal hiatus.[7]