

Peroral Endoscopic Myotomy in a Patient With Gastric Bypass, a Therapeutic Challenge in the Management of Postoperative Achalasia

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ABSTRACT

Achalasia is a rare esophageal motor disorder characterized by incomplete relaxation of the lower esophageal sphincter and ineffective contraction of the esophageal body. This condition is not often associated with obesity; however, in recent years, cases of achalasia after bariatric surgery have been described. We describe the case of a 30-year-old female patient with a history of gastric sleeve surgery in 2018, which, 4 years after the intervention, presented with dysphagia, regurgitation, and weight loss. A diagnosis of achalasia was made, and peroral endoscopic myotomy was performed.

KEYWORDS: achalasia; POEM; bariatric surgery; endoscopy

INTRODUCTION

Achalasia is a rare esophageal motor disorder characterized by incomplete relaxation of the lower esophageal sphincter and ineffective contraction of the esophageal body.¹ This disease has an annual incidence of 1–5 cases per 100,000 people and a prevalence of 7–32 cases per 100,000 people worldwide.² Its main manifestation is dysphagia, which is present in up to 90% of patients, followed by regurgitation in up to 75% of cases, and chest pain and heartburn in 50% and 40% of cases, respectively.³ Achalasia usually causes significant weight loss and, therefore, does not usually coexist with obesity. However, in recent years, cases of achalasia have been

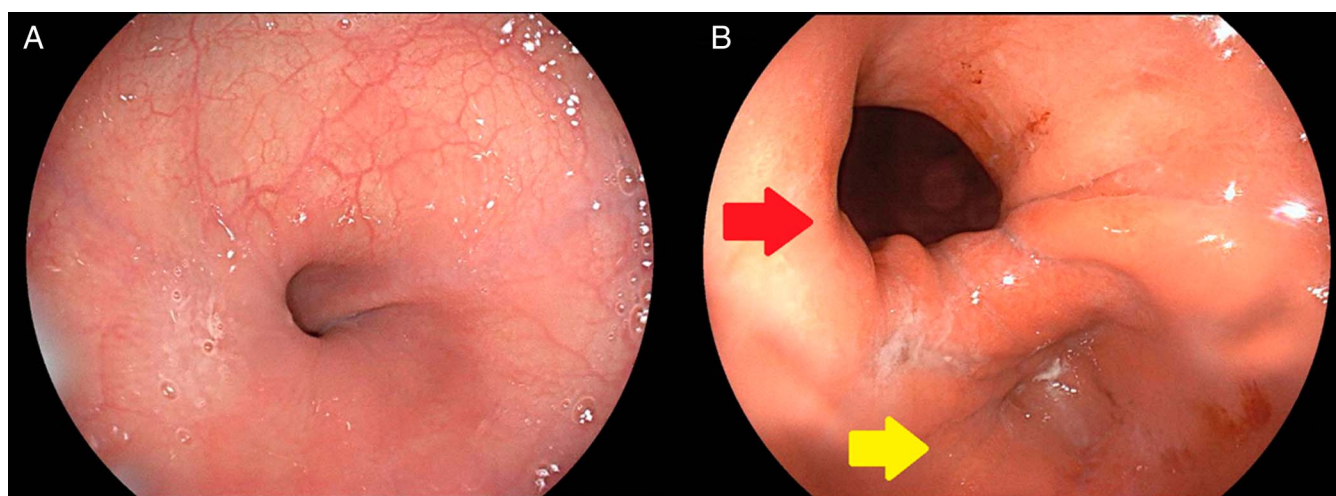


Figure 1. Upper endoscopy. (A) Esophageal dilatation with a decreased lumen at the level of the gastroesophageal junction. (B) Proximal third of the gastric body (yellow arrow), narrowed area at the level of the middle third of the gastric body (red arrow).

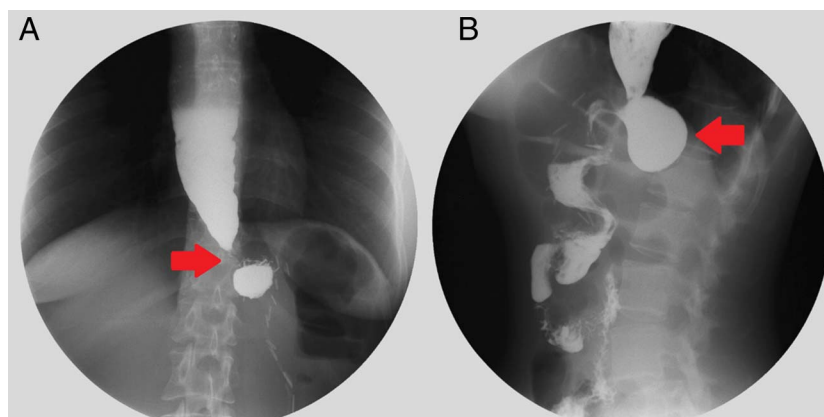


Figure 2. Esophagogram. (A) Dilation of the middle and distal esophagus, with a thread-like passage through the esophagogastric junction (red arrow). (B) Area of narrowing at the level of the middle third of the gastric body with retention of contrast in the residual fundus (red arrow).

described after bariatric surgery, possibly because of anatomical changes associated with the surgical procedure, neurological damage during the procedure, or endocrine alterations because of alterations in gastric secretions.⁴

CASE REPORT

We describe the case of a 30-year-old woman, with a history of gastric sleeve surgery in 2018, who presented with dysphagia, regurgitation, and weight loss 4 years after surgery. An upper endoscopy was performed, which revealed a dilated esophagus with food debris in its lumen and an aperistaltic segment in its distal third, with resistance to the passage of the endoscope at

the gastroesophageal junction and a redundant gastric fundus with resistance to the passage of the endoscope at the corpus (Figure 1). The esophagogram revealed significant dilatation of the middle and distal esophagus with a filiform passage of the contrast agent through the esophagogastric junction and an area of narrowing at the level of the middle third of the gastric body with retention of contrast agent in the residual fundus (Figure 2). Because achalasia was suspected based on the esophagogram, esophageal manometry was performed, which revealed an alteration in the relaxation of the lower esophageal sphincter, with a mean integrated relaxation pressure (IRP) of 19.6 mm Hg (normal IRP < 12 mm Hg) with abnormal esophageal motility with 100% failed waves and a distal

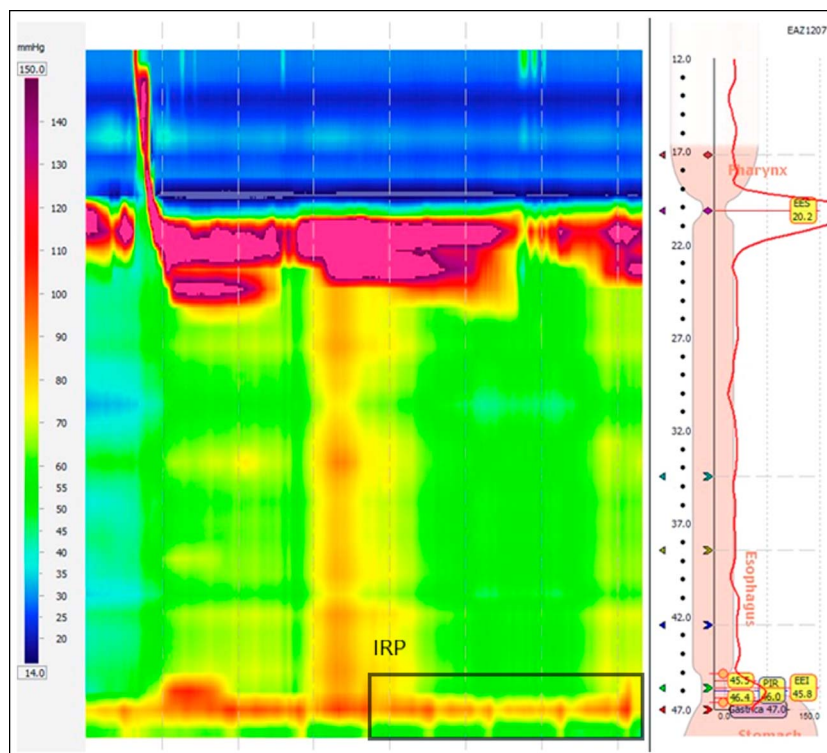


Figure 3. Esophageal manometry revealed alterations in relaxation of the lower esophageal sphincter, with an average integrated relaxation pressure of 19.6 mm Hg, and a manometric pattern of type 2 achalasia according to the Chicago classification v4.0.

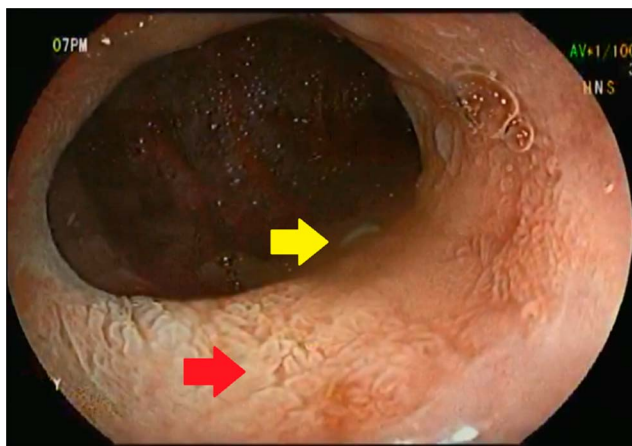


Figure 4. Upper endoscopy image showing a 2-cm gastric remnant (yellow arrow) and suture material (red arrow).

contractile integral <100 mm Hg with panesophageal pressure in 100% of waves with 100% failed swallows, defining a manometric pattern of achalasia type 2 according to the Chicago

Classification v4.0 (Figure 3).⁵ With these findings, the patient was considered to have pseudoachalasia in relation to the surgical history of the gastric sleeve, so conversion surgery was performed to gastric bypass, documenting the presence of adhesions between the gastric chamber and the lower surface of the left hepatic lobe, producing an obstructive rotation of the upper part of the gastric body and an obstructive rotation of the gastric body at the level of the incisura angularis.

The patient was referred to our service 2 months after the reintervention because of the persistence of symptoms. At that time, a second esophagogram revealed persistent esophageal dilatation with filiform passage of the contrast agent at the esophagogastric junction and slow esophageal emptying. After reviewing the previous studies and the nonresponse to gastric bypass surgery, the patient was considered to have type II achalasia, with an initial Eckardt score of 10 points, and would benefit from endoscopic peroral endoscopic myotomy (POEM). Preoperative endoscopy revealed a dilated esophagus with food debris inside and a gastric remnant of approximately

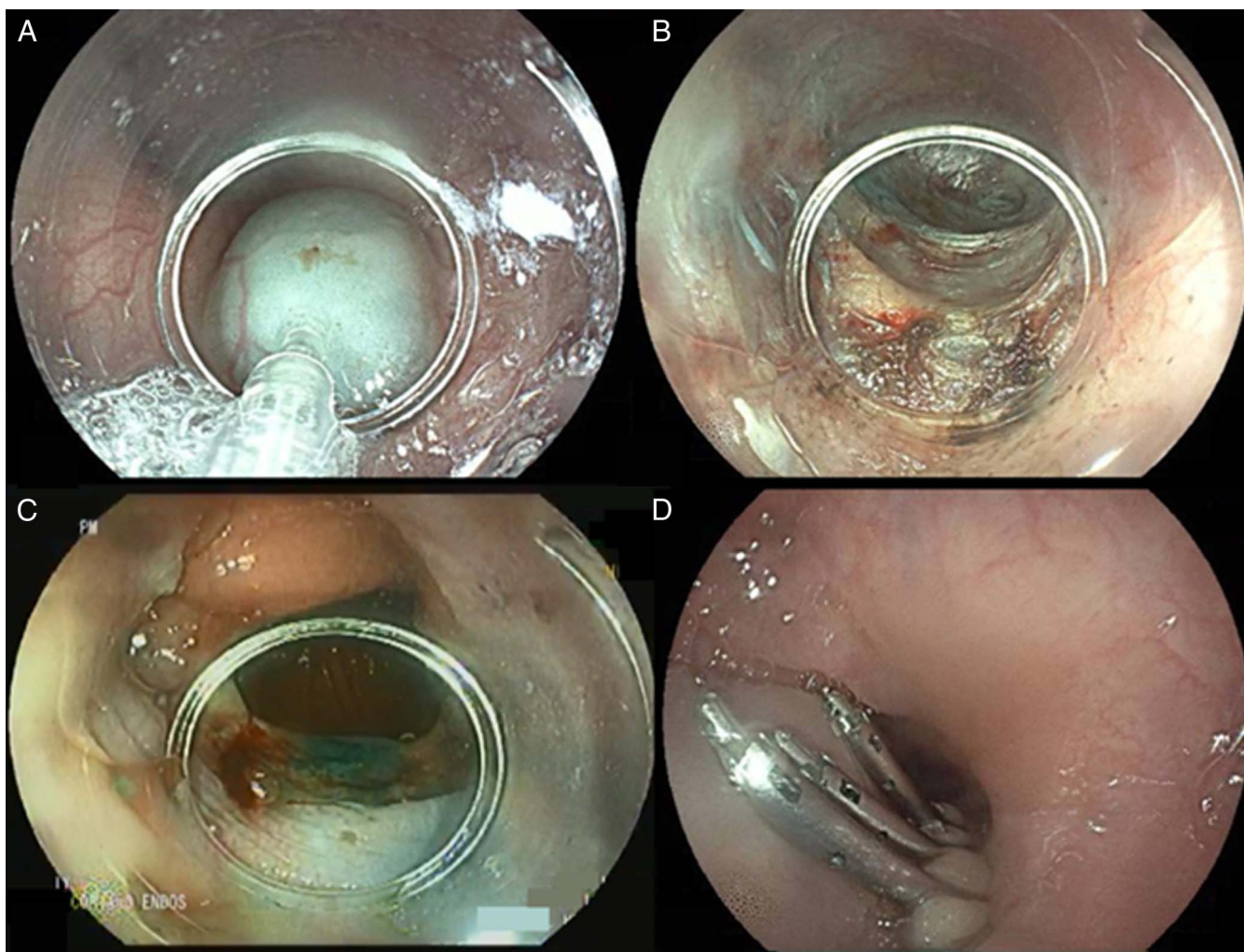


Figure 5. Procedure: (A) Submucosal injection of a mixture of hypertonic saline, methylene blue, and gentamicin. (B) Submucosal tunnel. (C) Methylene blue marks the level of the cardia. (D) Mucosal apposition.

2 cm with the presence of a wide gastrojejunal anastomosis with mechanical suture (Figure 4). Despite the technical limitations because of the anatomical alterations previously described, the small gastric remnant, a POEM with a posterior approach was performed through TriangleKnife, with a 4-cm myotomy at the esophagus level and 2 cm at the cardia level up to the gastrojejunal anastomosis (Figure 5).

The patient did not present any complications, requiring only 24 hours of in-hospital surveillance, achieved early discharge, and showed significant clinical and symptomatic improvement, with a postoperative Eckardt score of 1/12, which was maintained at the 3-month follow-up. A timed postprocedural esophagogram revealed adequate passage of the contrast agent at the esophagus, with residual stenosis of 5 mm at the esophagogastric junction (Figure 6).

DISCUSSION

Achalasia is a rare esophageal motor disorder that affects nitric oxide-producing inhibitory neurons, causing a loss of peristalsis in the distal esophagus and impaired relaxation of the lower esophageal sphincter.⁶ Although achalasia and obesity rarely coexist, there is increasing epidemiological evidence linking these 2 conditions.⁷ On the one hand, a higher prevalence of achalasia has been described in the obese population without a history of previous bariatric surgery.^{7,8} Robust evidence suggests that this higher incidence is facilitated by several factors, such as increased abdominal pressure, which represents an obstacle to the progression of the bolus into the abdominal cavity; a higher prevalence of gastroesophageal reflux, which is a known risk factor for esophageal dysmotility; and hormonal

factors, such as increased plasma leptin concentration, which has been linked to decreased gastric and intestinal motility.⁴ Second, bariatric surgery seems to be a risk factor for postoperative achalasia. Factors that could favor the development of postoperative achalasia include the section of the vagal branches, particularly if a hiatal hernia is present, and a greater increase in abdominal pressure after bariatric procedures that restrict the lumen, in addition to the obstructive effect on the esophagogastric junction that these procedures generate in the gastric remnant, as in the case of our patient.^{4,7}

In recent years, a notable increase in the prevalence of obesity has been observed, which has been accompanied by an increase in the demand for bariatric surgery. However, over time, we have begun to observe the long-term complications of these interventions, among which postoperative esophageal motor disorders stand out. These patients represent a diagnostic challenge, and little is known about the best therapeutic approach in this scenario. Surgical management in these cases can be technically complex considering postoperative adhesions and altered anatomy.^{6,9} POEM is a minimally invasive endoscopic management option that is becoming the first-line treatment in patients with achalasia, with clinical success rates of up to 94%, even in patients undergoing other endoscopic therapies (botulinum toxin injection and pneumatic balloon dilation) or surgeries (Heller laparoscopic myotomy).⁹

To date, there is limited evidence on the use of POEM in patients with previous bariatric surgery and postoperative achalasia. Although there are questions about the technical feasibility of this procedure in patients with previous bariatric surgery because of factors such as possible anatomical and functional alterations of the gastroesophageal junction, the presence of fibrotic areas, and the decrease in the space of the gastric chamber that could limit the creation of the submucosal tunnel and the subsequent myotomy, different case reports and case series have shown that the POEM procedure can be performed with optimal technical and clinical success rates, without increasing the rate of complications described for this procedure.^{4,9-11} This was demonstrated by Bomann et al. in one of the series with the largest number of patients to date, where 16 patients with previous bariatric surgery (14 gastric bypass and 2 gastric sleeve) underwent POEM, demonstrating a clinical success rate of 93.8%.¹⁰

In our case, the major limitation was the reduced space of the cardia, although the endoscopic intervention was performed appropriately without any type of intraoperative or postoperative complication, additionally reduced the hospital stay to 24 hours and showed an adequate clinical response.

Bariatric surgery seems to be a risk factor for the development of postoperative achalasia. POEM seems to be a safe and effective procedure in this setting, and the information available to date suggests that this procedure could be considered the first treatment option in these patients, although, at present, we do



Figure 6. Postsurgery esophagography was performed, with adequate passage of contrast medium at the level of the esophagus and residual stenosis of 5 mm at the esophagogastric junction.

not have information on the long-term effects of this intervention in these patients.

However, the available information is still limited, and prospective studies with a larger number of patients are needed to provide clear recommendations.

DISCLOSURES

Author contributions: All authors made substantial contributions to the conception and design, administrative support, provision of study materials or patients, collection and assembly of data, data analysis and interpretation, manuscript writing, and final approval of manuscript. AC Córdoba Guzmán is the article guarantor.

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Informed consent was obtained for this case report.

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