

Lower Esophageal Thickening Due to a Laparoscopic Adjustable Gastric Band

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Abstract

Laparoscopic adjustable gastric band (LAGB) is a surgical device to treat obesity that is widely used and generally considered to be safe. We report an adverse event related to the physiological and mechanical changes that occur after LAGB placement, namely chronic obstruction resulting in marked lower esophageal thickening.

Introduction

The laparoscopic adjustable gastric band (LAGB) is a surgical device widely used to treat obesity. Placement creates a small pouch at the top of the stomach, which is intended to slow and reduce the consumption of food. Adverse events are uncommon, but are typically related to mechanical problems like over-inflation of the band, improper band placement, asymmetric migration (slippage) of the distal stomach above the band, or disruptions of the device.¹

Case Report

A 47-year-old woman presented with complaints of post-operative pain and dysphagia after a cholecystectomy. Her medical history was significant for Barrett's esophagus, hiatal hernia, and obesity, which was treated with LAGB. Lower esophageal thickening was seen as an incidental finding on an abdominal CT performed to investigate her abdominal discomfort (Figure 1). A subsequent esophagogastroduodenoscopy (EGD) identified a lower esophageal narrowing, which was endoscopically dilated, resulting in minimal relief of her dysphagia symptoms.

She developed progressively worsening dysphagia and pain. A barium swallow showed esophageal dysmotility and spontaneous gastroesophageal reflux. A repeat EGD with esophageal biopsies showed chronically inflamed squamous mucosa without evidence of Barrett's esophagus. An MRCP to rule out pancreatitis showed lower esophageal thickening (Figure 2). EGD with EUS to rule out an esophageal mass revealed a thickened lower esophageal wall (6.4 mm), with prominent thickening of the muscularis propria (≤ 3.9 mm; Figure 3).

High-resolution esophageal manometry revealed a 5-cm hiatal hernia with hypotensive lower esophageal sphincter and intact peristalsis (Figure 4). There was bolus pressurization between the esophagogastric junction and the LAGB, which caused reflux from the hernia back into the esophagus. Her symptoms did not improve with medication and band deflation, so she was referred for removal of the band and a Roux-en-Y gastric bypass. She is currently asymptomatic and doing well 6 months after surgery.

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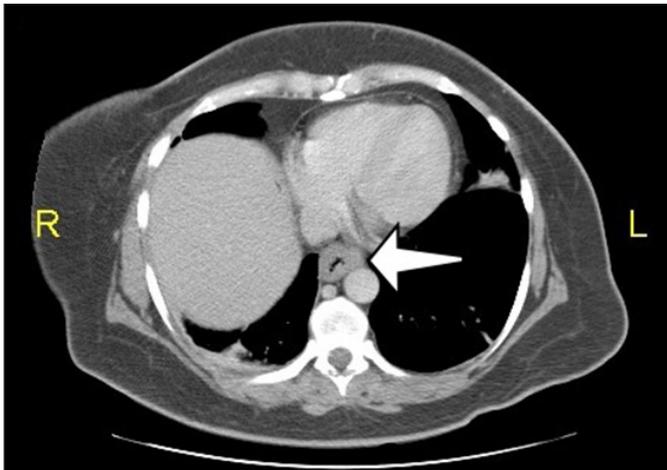


Figure 1. Abdominal CT of the lower esophagus showing a thickened esophagus (arrow).

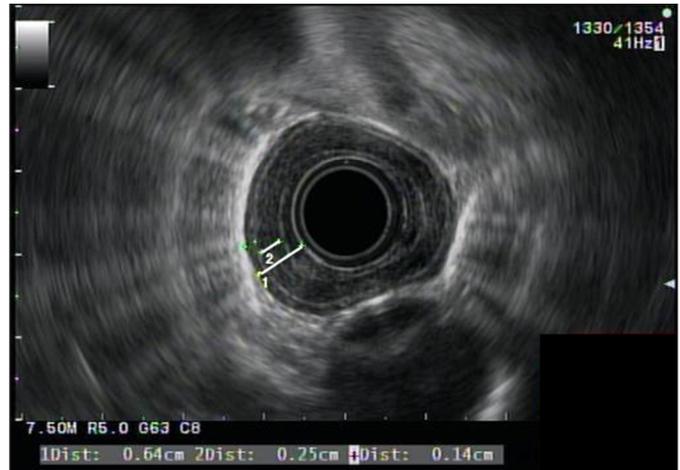


Figure 3. Endoscopic ultrasound showing the thickened esophageal wall (total 6.4 mm), muscularis propria layer (3.9 mm), and inner circular layer (2.5 mm).

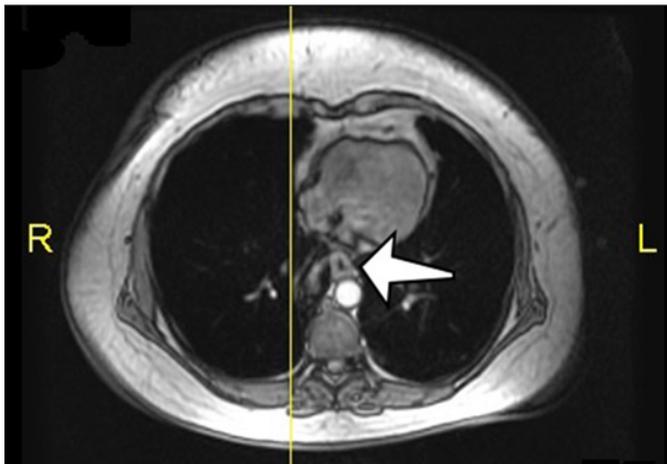


Figure 2. MRCP showing the thickened esophagus (arrow).

Discussion

LAGB has been used to treat obesity since 1992. The first outpatient LAGB procedure in the United States was performed in 2003, and until recently, was the most popular form of bariatric surgery. The long-term effects of LAGB are now being appreciated. Our patient presented with dysphagia about 5 years after placement of the gastric band. LAGB can produce chronic obstruction, which causes bolus pressurization as the esophagus works against a closed outlet, leading to anatomical changes such as thickening of the muscularis propria proximal to the lower esophageal sphincter, and functional changes like reflux of gastric contents into the esophagus.² This is easily differentiated from the mucosal thickening caused by esophagitis, which does not involve the muscularis propria. To our knowledge,

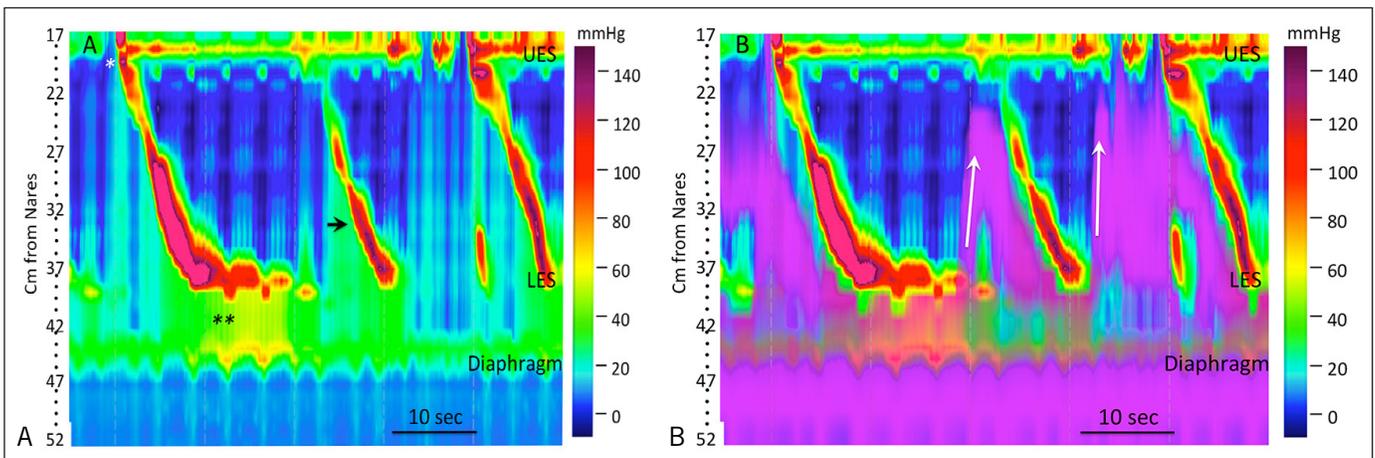


Figure 4. High-resolution esophageal manometry of a hiatal hernia through a laparoscopic band. Positions of the upper esophageal sphincter (UES), lower esophageal sphincter (LES), and diaphragm are identified. (A) A single asterisk (*) indicates a wet swallow followed by a high-amplitude peristaltic contraction. This produces pressurization of the swallowed bolus in the hernia pouch (**), indicating outflow obstruction from the hernia. The LAGB and diaphragm appear to be at the same location. The arrow indicates a secondary peristaltic contraction, not associated with a swallow. (B) Impedance is added to identify bolus movement. The magenta color is the swallowed bolus. Note that the first peristaltic contraction clears the esophagus of the swallowed bolus. When the hernia pressurizes and the LES tone decreases, the bolus refluxes back into the esophagus (arrows).

this has not been reported previously, possibly because the hypertrophy takes time to develop. This may become frequently diagnosed as more LAGB operations are performed worldwide and the post-operative follow-up duration increases.

Disclosures

Author contributions: J. Makker collected the data, and wrote and edited the manuscript. J. Conklin provided the manometry image and reviewed the manuscript. VR Muthusamy provided endoscopic imaging, revised the manuscript, approved the final draft, and is the article guarantor.

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