Endoscopic gastric plication for the treatment of GERD and underlying class I obesity

Pichamol Jirapinyo, MD, MPH,1,2 Christopher C. Thompson, MD, MSc1,2

GERD is a common gastrointestinal disorder that affects approximately 25% of the U.S. population.1 Several studies have demonstrated a higher prevalence of GERD in patients with obesity compared to those with a normal body mass index (BMI).2 Specifically, a gain of at least 3.5 kg/m² in BMI is associated with a 3-fold increase in rates of GERD compared with those with a stable BMI.3 Potential mechanisms include an increase in intragastric pressure, transient relaxations of the lower esophageal sphincter, prevalence of hiatal hernia, esophageal dysmotility, and a decrease in lower esophageal sphincter pressure in patients with obesity.4-7

Approximately 30% of patients with GERD are refractory to proton pump inhibitors and may benefit from surgical fundoplication.8 Nevertheless, the long-term efficacy of fundoplication is suboptimal in patients with obesity, with a recurrence rate of 31% compared with 4.5% in those with a normal BMI.8 Furthermore, sleeve gastrectomy, which is the most common bariatric surgery, is a reflux-inducing procedure, and gastric bypass is rarely performed in patients with class I obesity.10-12 Therefore, management of refractory GERD in this population remains challenging.

In this video (Video 1, available online at www.giejournal.org), we demonstrate a novel use for endoscopic gastric plication to treat GERD and class I obesity in a single session.

The device is cleared by the Food and Drug Administration for general tissue approximation. It consists of a 54F flexible endoscope with 4 working channels that accommodate an ultrathin endoscope, a helix, and a tissue approximation instrument (Fig. 1).

The first part of the procedure focuses on the antireflux component (Fig. 2). This step is performed in a retroflexed fashion. The device is used to place plications at the gastroesophageal (GE) junction 270 degrees around the cardia (Fig. 3). This helps tighten the GE junction and elongate the intra-abdominal esophagus. Once the antireflux part is completed, the device is unretroflexed to perform the bariatric component of the procedure (Fig. 4). For this step, plications are placed in the gastric body sparing the fundus.13 Specifically, a belt-and-suspenders plication pattern is used with the belt plications reducing the width (Fig. 5) and the suspender plications reducing the length of the stomach (Fig. 6). The longitudinal plications in the body pull the GE junction distally, further reinforcing the antireflux effect.

In this case, the GE junction was pulled down by 4 cm and the gastric body was shortened by 12 cm. Real-time esophageal function test showed that the distensibility index at the GE junction decreased from 7 to 3 mm²/mm Hg and the high-pressure zone was lengthened by 2 to 3 cm.

Figure 1. Incisionless operating platform.
At 6 months, the patient reported complete resolution of reflux symptoms off proton pump inhibitor and required no other antireflux medications. She also experienced a 15.8% total weight loss with a 5-point decrease in BMI. At 12 months, she remained asymptomatic from an acid reflux standpoint. Because the patient lived out of state and the follow-up visit was conducted virtually, an accurate weight could not be obtained at this visit. Nevertheless, she reported that her weight was likely stable.

In conclusion, this video demonstrates successful single-session endoscopic gastric plication to treat GERD with underlying class I obesity. Further study to assess long-term outcomes and objective data is warranted.
DISCLOSURE

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Abbreviations: BMI, body mass index; GE, gastroesophageal.

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Brigham and Women’s Hospital, Boston, Massachusetts (1), Harvard Medical School, Boston, Massachusetts (2).

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Figure 5. Belt plications are placed perpendicular to the gastric length to narrow the stomach.

Figure 6. Suspenders plications are placed parallel to the gastric length to shorten the stomach.