TOOLS AND TECHNIQUES

Gastric plications for weight loss: distal primary obesity surgery endoluminal through a belt-and-suspenders approach

A 40-year-old woman with lifelong obesity presented for consultation regarding a weight-loss procedure. Despite trying several weight-loss programs, she had been able to lose only 10 to 15 pounds and was unable to maintain this weight loss. Her medical history included polycystic ovary syndrome, hyperlipidemia, gallstone disease, and cholecystectomy. Her family history was notable for obesity, type 2 diabetes, and hypertension. Her physical examination results were notable for a weight of 228 pounds, height of 62 inches, and body mass index of 41.7 kg/m^2. She had previously declined bariatric surgery and wished to undergo a less invasive approach.

Currently, 2 categories of devices are approved by the U.S. Food and Drug Administration for the endoscopic treatment of obesity: intragastric balloons and aspiration therapy. Additionally, 2 endoscopic devices are approved for tissue approximation in the stomach. They include the overstitch endoscopic suturing system (Apollo Endosurgery, Austin, Tex, USA) and the incisionless operating platform (IOP) (USGI Medical San Clemente, Calif, USA).[1,2] After discussing all surgical and endoscopic options, the patient decided to undergo an endoscopic sleeve procedure with use of the IOP system, also known as the distal primary obesity surgery endoluminal (POSE) procedure.

POSE involves the use of the IOP system to create full-thickness plications in the stomach to induce weight loss. The IOP consists of a 54F flexible transport, which has a control handle allowing 4-way tip deflection. The transport has 4 working channels to accommodate an ultraslim endoscope for visualization, a g-Lix for tissue grasping, and a g-Prox for the placement of snowshoe-shaped tissue anchors (Fig. 1). Traditionally, the POSE procedure involves placement of plications in the fundus and distal body to reduce the stomach volume (Fig. 2).[3] A small study showed that traditional POSE was associated with reduced gastric accommodation

Figure 1. Incisionless operating platform.

Figure 2. Traditional primary obesity surgery endoluminal procedure involving placement of plications in the fundus and distal gastric body. (From Jirapinyo P, Thompson CC. Endoscopic bariatric and metabolic therapies: surgical analogues and mechanisms of action. Clin Gastroenterol Hepatol 2017;15:619-30. Used with permission.)

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Written transcript of the video audio is available online at www.VideoGIE.org.

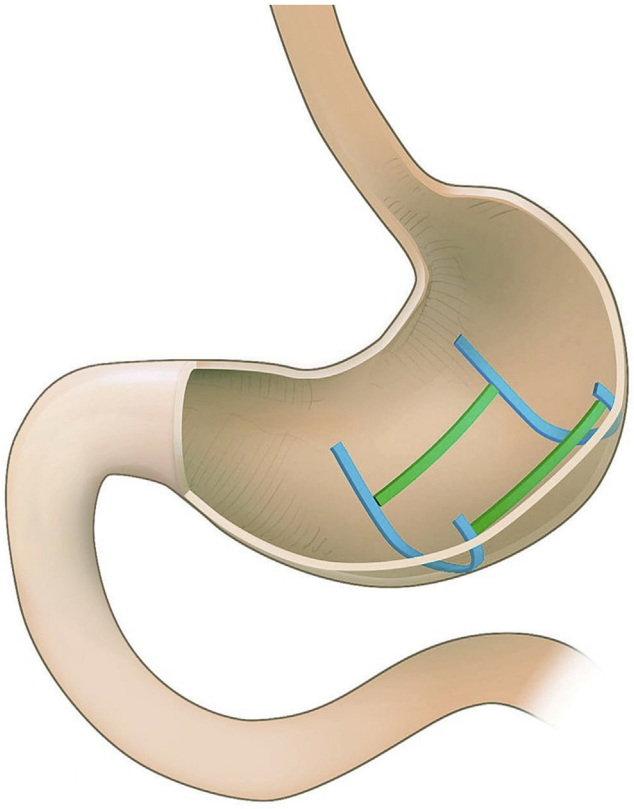

Figure 3. Distal primary obesity surgery endoluminal procedure via a belt-and-suspenders approach involving placement of plications solely in the gastric body, sparing the fundus. *Blue lines* represent the belt plications, which reduce the circumference of the stomach. *Green lines* represent the suspender plications, which reduce the length of the stomach.

and delayed gastric emptying as possible mechanisms of weight loss.[4] Previous studies showed the efficacy of POSE with a range of 4.95% to 19.1% total weight loss at 6 to 15 months.[3-7] Subsequently, a meta-analysis pooling these data showed that POSE was associated with 12.1% total weight loss at 6 months and 13.2% at 12 to 15 months, with high heterogeneity.[8]

It has been hypothesized that focusing on the gastric body may have a greater effect on gastric motility.

In this video (Video 1, available online at www.VideoGIE.org), we demonstrate a novel POSE technique focusing on placement of plications solely in the gastric body, sparing the fundus, in an attempt to augment the effect on gastric emptying. The procedure, known as distal POSE, uses a belt-and-suspenders pattern (Fig. 3). First, the distal belt plications are placed in the distal body along the posterior surface extending to the anterior aspect of the greater curvature to reduce the width of the stomach (Fig. 4). Subsequently, 2 rows of suspender plications are formed in the midgastric body along the anterior aspect of the greater curvature (Fig. 5) and posterior aspect of the greater curvature (Fig. 6), respectively. These suspender plications reduce the stomach longitudinally, shortening its length. Finally, the proximal belt plications are created in the proximal body to further decrease the cross-sectional area of the proximal stomach (Fig. 7). At the end of the procedure, although no direct plications have been placed, the fundus is reduced because of the longitudinal plications in the body. Additionally, a substantial reduction of length and width is noted in the gastric body (Fig. 8).

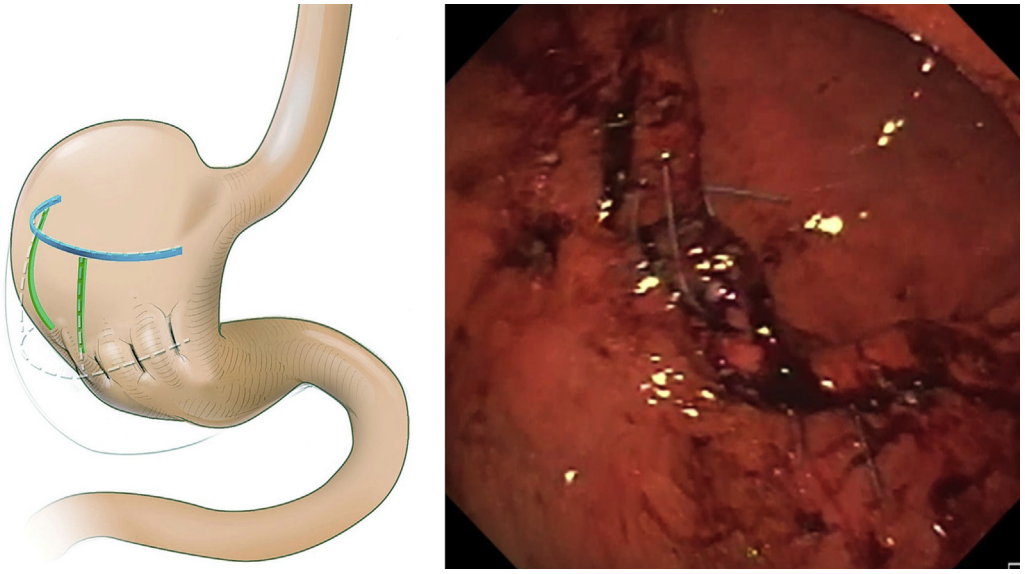

Figure 4. Distal belt plications at the distal gastric body along the posterior surface extending to the anterior aspect of the greater curvature.