

# Endoscopic Sleeve Gastroplasty is an Effective Treatment for Obesity in a Veteran With Metabolic and Psychiatric Comorbidities

Philip Kozan, MD<sup>a</sup>; Mehran Kashefi, DO<sup>a,b</sup>; Maria Romanova, MD<sup>a,b</sup>; Jennifer M. Kolb, MD, MS<sup>a,b</sup>

**Background:** Obesity is a chronic disease associated with several metabolic comorbidities. Weight loss interventions, such as bariatric surgery and endoscopic procedures like endoscopic sleeve gastroplasty (ESG), are known to improve obesity-related health conditions. However, there is limited data on the impact of endoscopic procedures on psychiatric disorders. Our report aims to describe the clinical course of a veteran with psychiatric comorbidities that prevented him from proceeding with bariatric surgery, and ultimately underwent an ESG.

**Case Presentation:** A 59-year-old male veteran with severe obesity had limited exercise capability and poor quality of life due to a large ventral hernia. The patient's dietary, lifestyle modification, and medication-assisted weight loss attempts were

unsuccessful. A planned weight loss surgery was canceled due to anxiety and a panic attack. He underwent ESG with a successful total body weight loss of 16.7% at 12 months. Subsequent improvement in metabolic and psychiatric comorbidities ultimately enabled the patient to undergo ventral hernia repair, which significantly improved his quality of life.

**Conclusions:** This report demonstrates that ESG may be an option for weight loss in patients with psychiatric comorbidities and can lead to significant clinical improvement in multiple obesity-associated comorbidities. This case further highlights the value of endoscopic procedures as alternatives to bariatric surgery in select cases when lifestyle changes and medications have not been effective, and surgery may not be a viable option.

Author affiliations can be found at the end of this article.

**Correspondence:**

Philip Kozan  
(pkozan@mednet.ucla.edu)

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Obesity is a growing worldwide epidemic with significant implications for individual health and public health care costs. It is also associated with several medical conditions, including diabetes, cardiovascular disease, cancer, and mental health disorders.<sup>1</sup> Comprehensive lifestyle intervention is a first-line therapy for obesity consisting of dietary and exercise interventions. Despite initial success, long-term results and durability of weight loss with lifestyle modifications are limited.<sup>2</sup> Bariatric surgery, including sleeve gastrectomy and gastric bypass surgery, is a more invasive approach that is highly effective in weight loss. However, these operations are not reversible, and patients may not be eligible for or may not desire surgery. Overall, bariatric surgery is widely underutilized, with < 1% of eligible patients ultimately undergoing surgery.<sup>3,4</sup>

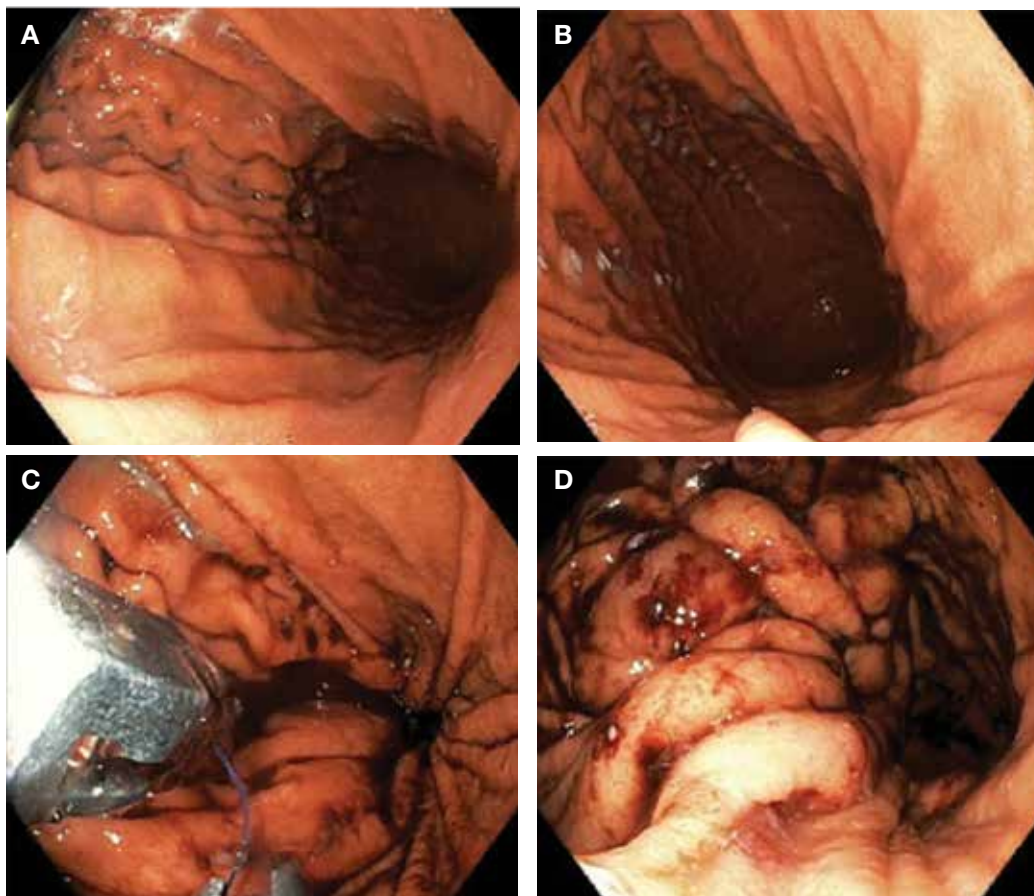
Endoscopic bariatric therapies are increasingly popular procedures that address the need for additional treatments for obesity among individuals who have not had success with lifestyle changes and are not surgical candidates. The most common procedure is the endoscopic sleeve gastroplasty (ESG), which applies full-thickness sutures in the stomach to reduce gastric volume, delay gastric emptying, and limit

food intake while keeping the fundus intact compared with sleeve gastrectomy. This procedure is typically considered in patients with body mass index (BMI)  $\geq 30$ , who do not qualify for or do not want traditional bariatric surgery. The literature supports robust outcomes after ESG, with studies demonstrating significant and sustained total body weight loss of up to 14% to 16% at 5 years and significant improvement in  $\geq 1$  metabolic comorbidities in 80% of patients.<sup>5,6</sup> ESG adverse events (AEs) include abdominal pain, nausea, and vomiting that are typically self-limited to 1 week. Rarer but more serious AEs include bleeding, perforation, or infection, and occur in 2% of cases based on large trial data.<sup>5,7</sup>

Although the weight loss benefits of ESG are well established, to date, there are limited data on the effects of endoscopic bariatric therapies like ESG on mental health conditions. Here, we describe a case of a veteran with a history of mental health disorders that prevented him from completing bariatric surgery. The patient underwent ESG and had a successful clinical course.

## CASE PRESENTATION

A 59-year-old male veteran with a medical history of class III obesity (42.4 BMI),



**FIGURE.** Endoscopic Sleeve Gastropasty

A, Gastric body preintervention; B, marking the stomach body using argon plasma coagulation to guide suture placement; C, gastric body plication using endoscopic suturing system; D, gastric body after suturing.

obstructive sleep apnea, hypothyroidism, hypertension, type 2 diabetes mellitus, and a large ventral hernia was referred to the MOVE! (Management of Overweight/Obese Veterans Everywhere!) multidisciplinary high-intensity weight loss program at the US Department of Veterans Affairs (VA) West Los Angeles VA Medical Center (WLAAMC). His psychiatric history included generalized anxiety disorder, posttraumatic stress disorder (PTSD), and panic disorder, managed by the Psychiatry Service and treated with sertraline 25 mg daily, lorazepam 0.5 mg twice daily, and hydroxyzine 20 mg nightly. He had previously implemented lifestyle changes and attended MOVE! classes and nutrition coaching for 1 year but was unsuccessful in losing weight. He had also tried liraglutide 3 mg daily for weight loss but was unable to tolerate it and

reported worsening medication-related anxiety.

The patient declined further weight loss pharmacotherapy and was referred to bariatric surgery. He was scheduled for a surgical sleeve gastrectomy. However, on the day he arrived at the hospital for surgery, he developed severe anxiety and had a panic attack, and it was canceled. Due to his mental health issues, he was no longer comfortable proceeding with surgery and was left without other options for obesity treatment. The veteran was extremely disappointed because the ventral hernia caused significant quality of life impairment, limited his ability to exercise, and caused him embarrassment in public settings. The hernia could not be surgically repaired until there was significant weight loss.

A bariatric endoscopy program within the Division of Gastroenterology was developed

and implemented at the WLAVAMC in February 2023 in conjunction with MOVE! The patient was referred for consideration of an endoscopic weight loss procedure. He was determined to be a suitable candidate for ESG based on his BMI being > 40 and personal preference not to proceed with surgery to lose enough weight to qualify for hernia repair. The veteran underwent an endoscopy, which showed normal anatomy and gastric mucosa. ESG was performed in standard fashion (Figure).<sup>8</sup> Three vertical lines were made using argon plasma coagulation from the incisura to 2 cm below the gastroesophageal junction along the anterior, posterior, and greater curvature of the stomach to mark the area for endoscopic suture placement. Starting at the incisura, 7 full-thickness sutures were placed to create a volume reduction plication, with preservation of the fundus. The patient did well postprocedure with no immediate or delayed AEs and was discharged home the same day.

### Follow-up

The veteran followed a gradual dietary advancement from a clear liquid diet to pureed and soft texture food. The patient's weight dropped from 359 lbs preprocedure to 304 lbs 6 months postprocedure, a total body weight loss (TWBL) of 15.3%. At 12 months the veteran weighed 299 lbs (16.7% TBWL). He also had notable improvements in metabolic parameters. His systolic blood pressure decreased from > 140 mm Hg to 120 to 130 mm Hg and hemoglobin A<sub>1c</sub> dropped from 7.0% to 6.3%. Remarkably, his psychiatrist noted significant improvement in his overall mental health. The veteran reported complete cessation of panic attacks since the ESG, improvements in PTSD and anxiety, and was able to discontinue lorazepam and decrease his dose of sertraline to 12.5 mg daily. He reported feeling more energetic and goal-oriented with increased clarity of thought. Perhaps the most significant outcome was that after the 55-lb weight loss at 6 months, the patient was eligible to undergo ventral hernia surgical repair, which had previously contributed to shame and social isolation. This, in turn, improved his quality of life, allowed him to start walking again, up

to 8 miles daily, and to feel comfortable again going out in public settings.

### DISCUSSION

Bariatric surgeries are an effective method of achieving weight loss and improving obesity-related comorbidities. However, only a small percentage of individuals with obesity are candidates for bariatric surgery. Given the dramatic increase in the prevalence of obesity, other options are needed. Specifically, within the VA, an estimated 80% of veterans are overweight or obese, but only about 500 bariatric surgeries are performed annually.<sup>9</sup> With the need for additional weight loss therapies, VA programs are starting to offer endoscopic bariatric procedures as an alternative option. This may be a desirable choice for patients with obesity (BMI > 30), with or without associated metabolic comorbidities, who need more aggressive intervention beyond dietary and lifestyle changes and are either not interested in or not eligible for bariatric surgery or weight loss medications.

Although there is evidence that metabolic comorbidities are associated with obesity, there has been less research on obesity and mental health comorbidities such as depression and anxiety. These psychiatric conditions may even be more common among patients seeking weight loss procedures and more prominent in certain groups such as veterans, which may ultimately exclude these patients from bariatric surgery.<sup>10</sup> Prior studies suggest that bariatric surgery can reduce the severity of depression and, to a lesser extent, anxiety symptoms at 2 years following the initial surgery; however, there is limited literature describing the impact of weight loss procedure on panic disorders.<sup>11-14</sup> We suspect that a weight loss procedure such as ESG may have indirectly improved the veteran's mood disorder due to the weight loss it induced, increasing the ability to exercise, quality of sleep, and participation in public settings.

This case highlights a veteran who did not tolerate weight loss medication and had severe anxiety and PTSD that prevented him from going through with bariatric surgery. He then underwent an endoscopic weight loss procedure. The ESG helped him

successfully achieve significant weight loss, increase his physical activity, reduce his anxiety and panic disorder, and overall, significantly improve his quality of life. More than 1 year after the procedure, the patient has sustained improvements in his psychiatric and emotional health along with durable weight loss, maintaining > 15% of his total weight lost. Additional studies are needed to further understand the prevalence and long-term outcomes of mental health comorbidities, as well as weight loss outcomes in this group of patients who undergo endoscopic bariatric procedures.

## CONCLUSIONS

We describe a case of a veteran with severe obesity and significant psychiatric comorbidities that prevented him from undergoing bariatric surgery, who underwent an ESG. This procedure led to significant weight loss, improvement of metabolic parameters, reduction in anxiety and PTSD, and enhancement of his quality of life. This case emphasizes the unique advantages of ESG and supports the expansion of endoscopic bariatric programs in the VA.

## Author affiliations

<sup>a</sup>David Geffen School of Medicine at University of California Los Angeles

<sup>b</sup>Veterans Affairs Greater Los Angeles Health Care System, California

## Author disclosures

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## Disclaimer

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## Ethics and consent

Patient informed consent was obtained for the purpose of this case report.

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