

# Application of Peroral Endoscopic Myotomy (POEM) in the Treatment of Achalasia in Post-Bariatric Patients: Case Reports and Analysis of Efficacy and Safety

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**Abstract:** This paper discusses the application of Peroral Endoscopic Myotomy (POEM) in the treatment of achalasia in post-bariatric patients. Achalasia is an esophageal motility disorder characterized by malfunction of the lower esophageal sphincter (LES) and esophageal aperistalsis. POEM has emerged as a promising and less invasive technique for the treatment of this condition, particularly in patients with previous bariatric surgery. We present two cases of post-bariatric patients with achalasia successfully treated through POEM. The first case involved a 52-year-old man who had undergone Roux-en-Y Gastric Bypass (RYGB) 10 years ago, presenting symptoms of progressive dysphagia. The second case involved a 24-year-old woman who underwent a Roux-en-Y gastric bypass (RYGB) in 2015, with intense dysphagia. Both patients underwent POEM, resulting in significant improvement of symptoms. We discuss the efficacy of POEM in the treatment of achalasia in post-bariatric patients. Previous studies have reported positive short-term results with POEM in patients with previous RYGB, indicating that the technique is feasible and safe in this patient group. POEM offers a less invasive approach, avoiding the need for open surgical access, which can be challenging in post-bariatric patients due to scarring, adhesions, and anatomical distortions.

**Keywords:** Peroral Endoscopic Myotomy (POEM), Achalasia, Bariatric Surgery, Dysphagia, Lower Esophageal Sphincter, Esophageal Motility Disorders

## Introduction

Achalasia is an esophageal motility disorder characterized by incomplete relaxation of the lower esophageal sphincter (LES), increased LES tone, and esophageal aperistalsis. It is considered the most common primary disorder of esophageal motility, although its incidence is relatively low, occurring in approximately 0.03-1/100,000 individuals per year. Achalasia affects men and women equally and can occur at any age. The diagnosis can currently be easily made based on high-resolution manometry (HRM) recordings.

In 2010, Inoue et al. introduced the new technique of Peroral Endoscopic Myotomy (POEM) for the treatment of esophageal achalasia, as a modification of Pasricha's endoscopic submucosal myotomy technique, used to treat esophageal motility disorders such as esophageal achalasia and diffuse esophageal spasm (DES). Endoscopic myotomy in patients who have already undergone bariatric surgery can be a technical challenge, due to scars and adhesions resulting from surgery, as well as anatomical distortions that can interfere with the creation of a submucosal tunnel and/or the performance of endoscopic myotomy. However, there is a lack of

scientific studies demonstrating the results of POEM in patients with previous bariatric surgery, such as Roux-en-Y gastric bypass (RYGB) or Sleeve. The current literature is mainly composed of small case series and case reports documenting the results of POEM in patients with previous RYGB. In addition, a recent study revealed that achalasia is a prevalent late complication of bariatric surgery.

## Case Report

We present a series of two cases of post-bariatric patients diagnosed with achalasia and treated through Peroral Endoscopic Myotomy (POEM). The first, a 52-year-old male patient, underwent Roux-en-Y Gastric Bypass (RYGB) 10 years ago. He began to experience regurgitation and progressive dysphagia for solids and liquids in the last two years. Serology for Chagas' disease was carried out, which was reactive. Serigraphy demonstrated tertiary waves and narrowing of the lower esophageal sphincter (LES). Based on the diagnosis of achalasia, the patient underwent Peroral Endoscopic Myotomy (POEM). The procedure was performed successfully, without complications. The patient presented a satisfactory evolution, with resolution of symptoms to the current time.



The second case was a 24-year-old female patient who underwent Roux-en-Y gastric bypass (RYGB) surgery in 2015. In 2021, she developed an intense sensation of dysphagia, especially for solids. After a complete etiological investigation, no specific cause for dysphagia was identified, and a failure in LES relaxation of idiopathic origin was defined. The patient underwent Peroral Endoscopic Myotomy (POEM) as treatment. The procedure was carried out

without complications, and the patient presented a favorable evolution, with resolution of symptoms until the current follow-up.

These cases illustrate the efficacy of Peroral Endoscopic Myotomy (POEM) as a treatment approach for achalasia in post-bariatric patients. Both patients were successfully treated, showing significant symptom improvement following the procedure.



**Image 1:** Incision in the esophageal mucosa.



**Image 2:** Dissection plane between the mucosa and muscularis propria.



**Image 3:** Submucosal tunnel.

### Discussion

Achalasia is a rare neurodegenerative disease of the esophagus that mainly involves the myenteric plexus of the esophagus, particularly the lower esophageal sphincter (LES), the vagal trunks, and the dorsal vagal nucleus, leading to LES's inability to relax and loss of esophageal peristalsis. These pathological changes correlate with the clinical, manometric, radiological, and pathological manifestations of achalasia.

The main symptoms reported by the patients included in this study were dysphagia, meal schedule, weight loss, and deterioration of quality of life. Patients who reported moderate to severe dysphagia (at every meal or even at each swallow) showed a higher degree of esophageal dilation in the barium radiological study. Most patients had been experiencing dysphagia for more than a year, without any recent changes in symptoms.

Peroral Endoscopic Myotomy (POEM) has emerged as a promising modality for the treatment of patients with achalasia. Recent studies have reported excellent short-term results in patients with achalasia treated with POEM, although long-term data are limited.

In our review, the POEM procedure was not considered technically more challenging in patients with previous bariatric surgery, such as Roux-en-Y gastric bypass (RYGB) or vertical gastrectomy, compared to patients without previous bariatric surgery. None of the reports attributed additional difficulties to adhesions or anatomical changes. In accordance with our findings, previously published small case series have shown that POEM is feasible,

effective, and safe in patients with previous bariatric surgery.

Although the number of cases in this study is limited, the results support the use of POEM as a viable treatment option for achalasia in patients with previous bariatric surgery. The procedure has shown promising short-term results and offers a less invasive approach compared to traditional surgical interventions. Further research is needed to assess the long-term outcomes and potential benefits and risks associated with POEM in this specific patient population.

### Conclusion

In conclusion, Peroral Endoscopic Myotomy (POEM) proves to be a promising and effective option in the treatment of achalasia in patients with previous bariatric surgery. The case reports presented demonstrated satisfactory results, with significant improvement of dysphagia and weight gain. Both patients experienced improvement in the quality of life post-procedure. In comparison to traditional surgical interventions, POEM offers a less invasive approach and could potentially avoid the complications associated with open surgical procedures, particularly in post-bariatric patients.

The challenges associated with this patient population, including the technical difficulty related to previous surgical adhesions and anatomical changes, were successfully managed during the POEM procedures. Despite limited data, our findings align with previous case series that demonstrate the feasibility, safety, and effectiveness of POEM in post-bariatric patients with achalasia.

However, this study has limitations due to the small sample size and the lack of long-term follow-up. Future studies with larger sample sizes and longer follow-up periods are needed to establish more definitive conclusions regarding the safety and efficacy of POEM in post-bariatric patients with achalasia. Moreover, comparing the effectiveness of POEM to other treatment modalities for achalasia in this patient population would provide valuable insights for clinicians.

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