

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

## International Journal of Surgery Case Reports

journal homepage: [www.casereports.com](http://www.casereports.com)

# Achalasia: A case report on its effect during surgical decision making for laparoscopic sleeve gastrectomy in the young morbidly obese patient

Rodolfo J. Oviedo, MD, FACS<sup>a,b,\*</sup>, Chase W. Sofiak, BS<sup>c</sup>, Bruce M. Dixon, BA<sup>c</sup><sup>a</sup> Capital Regional Surgical Associates, 2626 Care Drive, Suite 206, Tallahassee, FL, 32308, USA<sup>b</sup> Florida State University College of Medicine, Clinical Assistant Professor of Surgery, 1115 W Call St, Tallahassee, FL 32304, USA<sup>c</sup> Alabama College of Osteopathic Medicine, Class of 2017, 445 Health Sciences Blvd, Dothan, AL 36303, USA

## ARTICLE INFO

## Article history:

Received 19 May 2016

Received in revised form 28 June 2016

Accepted 28 June 2016

Available online 7 July 2016

## Keywords:

Achalasia

Morbid obesity

POEM (per-oral endoscopic myotomy)

Laparoscopic sleeve gastrectomy

Bariatric surgery

Heller myotomy

## ABSTRACT

**INTRODUCTION:** Achalasia is a condition that occurs when the lower esophageal sphincter (LES) fails to properly relax, combined with slowing/failure of esophageal peristalsis. This is seen clinically by not allowing solids and liquids to pass easily into the stomach. Achalasia is not historically associated with morbid obesity, yet dual treatment of morbid obesity and achalasia is becoming more prominent due to the worldwide obesity epidemic.

**PRESENTATION OF CASE:** Achalasia is typically a disease that affects non-obese adults over the age of 55, which makes the discussion of this case report unique in that our patient is a 23 year-old woman who successfully underwent per-oral endoscopic myotomy (POEM) in preparation for a future laparoscopic sleeve gastrectomy. There is sparse literature on combining laparoscopic Heller myotomy (LHM) and partial fundoplication versus POEM with either restrictive or malabsorptive minimally invasive bariatric procedures.

**DISCUSSION:** LHM and partial fundoplication have long been considered the gold standard surgical treatment for achalasia by disrupting both the longitudinal and circular muscle layers of the LES. The newer, less invasive, POEM technique will be compared to the gold standard LHM and Dor fundoplication in this uncharacteristically young morbidly obese achalasia patient. The decision to pursue a laparoscopic sleeve gastrectomy over a laparoscopic Roux-en-Y gastric bypass was multifactorial due to the patient's concerns regarding malabsorption of vitamins and nutrients in the event of a future pregnancy.

**CONCLUSION:** The patient has already undergone a POEM procedure, which was chosen to maintain the gastric fundus, cardia, and gastroesophageal junction (GEJ) architecture as opposed to a LHM with Dor fundoplication, which would have altered the anatomy, thus making a concomitant laparoscopic sleeve gastrectomy an unfeasible option.

© 2016 The Author(s). Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Achalasia is a condition that consists of failure of LES relaxation in addition to lack of proper esophageal peristalsis during swallowing. It classically occurs in non-obese adults over the age of 55 years [1]. Achalasia and morbid obesity are two conditions that do not classically occur together. Because of this rarity, there is not a current gold standard of surgical care when combining surgical procedures for both morbid obesity and achalasia. Laparoscopic Heller myotomy, along with pneumatic balloon dilation, have been

the model surgical and endoscopic treatments of achalasia, respectively [2]. The relatively newer POEM has produced good clinical results. POEM is a less invasive procedure that is done completely through endoscopy. Only the inner circular layer of muscle is cut to make a tunnel into the proximal stomach, as compared to both the circular and longitudinal muscle fibers disruption produced during a LHM. In addition to our patient opting for the newer and less invasive POEM, we also decided that a laparoscopic sleeve gastrectomy would be best to perform after the POEM versus a laparoscopic Roux en Y gastric bypass. A laparoscopic sleeve gastrectomy would normally be affected by a LHM due to both procedures altering the architecture of the gastric fundus, cardia, and GEJ, yet a POEM is able to avoid this problem due to its less invasive nature and its lack of significant influence on the gastric architecture. We determined that the POEM would provide additional benefit over the gold standard LHM in our patient with achalasia, particularly when

\* Corresponding author at: 2626 Care Drive, Suite 206, Tallahassee, FL, 32308, USA.

E-mail addresses: [rodolfo.j.oviedo@gmail.com](mailto:rodolfo.j.oviedo@gmail.com) (R.J. Oviedo), [sofiakcw@acomedu.org](mailto:sofiakcw@acomedu.org) (C.W. Sofiak), [dixonbm@acomedu.org](mailto:dixonbm@acomedu.org) (B.M. Dixon).

combined with a laparoscopic sleeve gastrectomy for her morbid obesity in the near future.

## 2. Presentation of case

A 23-year-old morbidly obese (BMI of 43 kg/m<sup>2</sup>) woman presented to our service for elective laparoscopic cholecystectomy with the diagnosis of chronic cholecystitis and symptomatic cholelithiasis. Surgery was aborted due to aspiration pneumonia upon induction of general anesthesia. The patient was seen on follow up with resolved cholecystitis, but complained of dysphagia to solids for 4 months with progressive worsening. She described daily episodes of dysphagia with meals and vomiting/regurgitation of food products during sleep and when lying supine for extended periods of time. Her medical history includes morbid obesity, gastroesophageal reflux disease (GERD), asthma, chronic headaches from pseudotumor cerebri, and polyarticular joint pain. The patient had no abdominal pain or neck masses on physical exam. She tried unsuccessfully on multiple occasions to lose weight since the age of 15 years old through diet and exercise, which led to her interest in pursuing bariatric surgery.

Upper endoscopy showed a dilated esophagus with distal tapering, a type 1 hiatal hernia, and *H. pylori* positive gastritis (treated with triple antibiotic therapy). Achalasia was also confirmed by upper gastrointestinal (UGI) barium contrast swallow study. Careful discussion led to the agreement of undergoing a POEM procedure as opposed to LHM ± fundoplication. The POEM was successfully completed at a major academic tertiary facility in a nearby city by an experienced gastroenterologist, with no complications. The patient is now progressing on the bariatric protocol for a future laparoscopic sleeve gastrectomy, which will be a feasible option due to the lack of gastric fundus, cardia, or GEJ alteration with the POEM that has been performed. The issue of potential iron, calcium, vitamin, and nutrient malabsorption with the gastric bypass was an additional source of concern for the patient, who wishes to become pregnant in a few years [3]. This is part of the reason she opted for a laparoscopic sleeve gastrectomy.

## 3. Discussion

Scarce literature exists on the topic of selecting the correct combination for both the treatment of achalasia and morbid obesity. The patient, being a 23 year old morbidly obese woman, makes the discussion even more of a rarity. A 10 year study ending in 2006 showed that achalasia is strongly age-dependent, with the youngest group (<18 years old) making up 2.6% of the study's achalasia hospitalizations. In that same paper, there was a linear increase in incidence of achalasia per patient age until the highest age group (65–84 years old) made up 39% of hospitalizations [4]. While postoperative complications are significantly less frequent with the younger age groups (<45 years old), achalasia needs to remain in the clinical differential when treating the adolescent and young adult patient with similar symptoms [5].

The patient's decision to undergo a successful POEM, and her progress on the bariatric protocol for laparoscopic sleeve gastrectomy are based on her age, medical history, and unique circumstances in contrast to adhering to a definite gold standard combination treatment for her two conditions. The patient suffers from morbid obesity as well as GERD. Both the LHM with Dor fundoplication and POEM provide statistically similar incidences of dysphagia and GERD post-operatively. However, a 2014 study showed that POEM patients achieved less blood loss, lower pain scale scores, and shorter intraoperative times [6]. Additionally, a fundoplication would alter the same surgical anatomy as the laparoscopic sleeve gastrectomy would. Without the

fundoplication, the patient's dysphagia and risk of post-operative GERD would likely worsen [7]. The both restrictive and malabsorptive laparoscopic Roux en Y gastric bypass was decided against in favor of the restrictive laparoscopic sleeve gastrectomy due to the more substantial need for nutritional supplementation and intense nutrient and vitamin level monitoring with the bypass. A laparoscopic Roux en Y gastric bypass would not have been an entirely wrong choice for this patient, however. In fact, it would have improved and potentially even eradicated her GERD. Nevertheless, the patient chose to undergo a laparoscopic sleeve gastrectomy due to her wishes for an uneventful future pregnancy.

## 4. Conclusion

Surgical judgment plays a fundamental role in the decision-making process, particularly when a therapeutic plan entails treating multiple conditions for which a gold standard is yet to be determined. This is the case of a 23 year old female patient with both morbid obesity resistant to lifestyle modifications and symptomatic achalasia. The patient's age, pre-operative GERD, and plans for a future pregnancy led to the choice of a POEM, with no complications, in addition to a subsequent laparoscopic sleeve gastrectomy in the near future.

### Conflicts of interest

none.

### Funding

none.

### Ethical approval

none.

### Consent

No patient identifiers.

### Author contribution

Rodolfo J. Oviedo, MD, FACS: design, writing, editing; Chase W. Sofiak, BS: writing; Bruce M. Dixon, BA: data collection.

### Guarantor

Rodolfo J. Oviedo, MD, FACS.

### References

- [1] B.K. Enestvedt, J.L. Williams, A. Sonnenberg, *Epidemiology and practice patterns of achalasia in a large multi-centre database*, *Aliment. Pharmacol. Ther.* 33 (11) (2011) 1209–1214.
- [2] G.E. Boeckstaens, V. Annese, S.B. des Varannes, et al., *Pneumatic dilation versus laparoscopic Heller's myotomy for idiopathic achalasia*, *N. Engl. J. Med.* 364 (2011) 1807–1816.
- [3] M.S. Trumpy, C. Gasteyger, M. Suter, R.C. Gaillard, V. Giusti, *Comment on: nutritional deficiencies after Roux-en-Y gastric bypass for morbid obesity often cannot be prevented by standard multivitamin supplementation*, *Nutr. Clin. Pract.* 24 (3) (2009) 419–420.

- [4] A. Sonnenberg, Hospitalization for achalasia in the united states 1997–2006, *Digestive Dis. Sci.* 54 (8) (2009) 1680–1685, <http://dx.doi.org/10.1007/s10620-009-0863-8>.
- [5] R. Salvador, M. Costantini, F. Cavallin, L. Zanatta, E. Finotti, C. Longo, G. Zaninotto, Laparoscopic Heller myotomy can be used as primary therapy for esophageal achalasia regardless of age, *J. Gastrointest. Surg.* 18 (1) (2014) 106–111, <http://dx.doi.org/10.1007/s11605-013-2334-y>, discussion 112.
- [6] S.M. Chan, J.C. Wu, A.Y. Teoh, H.C. Yip, E.K. Ng, J.Y. Lau, P.W. Chiu, Comparison of early outcomes and quality of life after laparoscopic Heller's cardiomyotomy to peroral endoscopic myotomy for treatment of achalasia, *Digestive Endoscopy* 28 (1) (2015) 27–32.
- [7] W.O. Richards, A. Torquati, M.D. Holzman, L. Khaitan, D. Byrne, R. Lutfi, K.W. Sharp, Heller myotomy versus Heller myotomy with dor fundoplication for achalasia, *Ann. Surg.* 240 (3) (2004) 405–415.

#### Open Access

This article is published Open Access at [sciedirect.com](http://sciedirect.com). It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.