Obesity Surgery
https://doi.org/10.1007/s11695-024-07083-x

MULTIMEDIA ARTICLE

Nissen Sleeve as a Redo Surgery Post Gastric Banding for Non-responders to Weight Loss and Therapy-Resistant Reflux

Aiman Ismaeil[1,2] · **Bruno Dillemans**[1]

Received: 7 July 2023 / Revised: 26 January 2024 / Accepted: 26 January 2024

Abstract

Roux-en-Y gastric bypass (LRYGB) would be the procedure of choice for non-responders of weight loss and patients with reflux symptoms (GERD). However, not every patient is a candidate for RYGB, and sometimes, the patient can insist only on alternatives other than malabsorption procedures, as was the case with our patient. We report a case with symptomatic GERD who underwent a successful Nissen sleeve gastrectomy after band removal. To our knowledge, this is the first case using Nissen sleeve as a redo surgery after a previous bariatric procedure.

Keywords Nissen sleeve · Rossetti sleeve · D-sleeve · R-sleeve · Gastric banding · Laparoscopic sleeve gastrectomy · Gastroesophageal reflux disease · Bariatric surgery · Fundoplication

Introduction

Long-term non-responders and band-related issues have doomed the band as a successful primary bariatric surgical surgery, despite the fact that O'Brien recently described adequate weight reduction (42.8%EWL) after 10 years of laparoscopic gastric banding (LGB) [1]. Over the 26-year follow-up period, Hjorth et al. studied the incidence of revisional bariatric surgery among patients in the Swedish Obese Subjects (SOS) project, concluding that revisional surgery is most commonly seen following LGB (40.7%) and the conversion was primarily to LRYGB [2]. As removal of the band will lead to weight gain, most patients opt for a conversion procedure.

Currently, LRYGB and sleeve gastrectomy (LSG) are the most commonly performed revisional surgeries following band failure [3]. Still, there is no consensus on which conversion technique is best. Many outcomes regarding LGB revisional surgery have been reported, but the majority of the studies have small sample sizes [4–8]. LRYGB would be the procedure of choice when patients present with worsening reflux symptoms from gastric banding postoperatively and weight regain [9]. Nevertheless, 10.7% of all patients undergoing LRYGB develop GERD [10]. Furthermore, LRYGB is contraindicated in a small portion of patients who have inflammatory bowel disease or intestinal adhesions due to previous surgery or other abnormalities of the abdomen (such as a large ventral hernia of the abdominal wall). Moreover, some patients are unwilling to undergo LRYGB due to alterations in anatomy and the possibility of long-term complications, such as chronic abdominal pain, internal herniation, vitamin deficiencies, and diarrhea [11, 12].

The Nissen sleeve (N-sleeve) is a novel surgical procedure initially described by Nocca et al. for patients with morbid obesity and GERD [13]. The N-sleeve is a combination of an antireflux procedure (Nissen fundoplication) and LSG. Results of 365 patients with morbid obesity and GERD who underwent N-sleeve suggest the Nissen sleeve appears to be a safe surgical technique with an acceptable

Key points
- A new variant, the Nissen sleeve, as a redo surgery following a previous bariatric procedure was described.
- Another alternative option for patients with severe reflux and morbid obesity who are unwilling or unable to undergo RYGB.
- The Nissen sleeve looks to be a safe surgical method as a redo operation with an acceptable early postoperative complication rate after the initial learning curve and later technical adjustments.

✉ Aiman Ismaeil
dr.aymanmandour@yahoo.com

Bruno Dillemans
bruno.dillemans@azsintjan.be

[1] Department of Bariatric Surgery, Sint-Jan Brugge-Oostende AV, Ruddershove 10, 8000 Brugge, AZ, Belgium

[2] Department of General Surgery, Faculty of Medicine, Aswan University, Aswan, Egypt

Published online: 03 February 2024

early postoperative complication rate [14]. Furthermore, Olmi et al. did a randomized clinical study and reported that adding fundoplication to LSG seemed to be an effective alternative to classic LSG in preventing de novo GERD [15]. We report a case with symptomatic GERD who underwent a successful Nissen sleeve gastrectomy after band removal. To our knowledge, this is the first case using Nissen sleeve as a redo surgery after a previous bariatric procedure.

Methods

A 34-year-old female patient with a past history of LGB in 2001 and a subsequent weight loss of 40 kg (BMI 34 to 20 kg/m^2), reposition banding in 2002 owing to dislocation, and removal in 2010 due to reflux and passage issues. She presented to our hospital in 2019 with weight regain (weight 101 kg, BMI 38) and comorbidities like GERD symptoms, psychological burden, and snoring. Her laboratory investigations showed iron deficiency (48 µg/dL), folic acid deficiency (3.7 µg/L), Vit D deficiency (21.2 ng/mL), normal cholesterol level, and normal glycemia. Upper GI endoscopy showed a large sliding hiatal hernia with GERD grade D (LA classification). Also, the upper GI series confirmed reflux and sliding hiatal hernia. Therefore, the decision was made to proceed with RYGB, but the patient refused as she wanted to prepare for a triathlon and was afraid of diarrhea or sugar deficiency during the competition. As an alternative, a Nissen sleeve was offered, and a cruroplasty was to repair the sliding hernia.

Under general anesthesia, the abdomen was insufflated using a Veress needle and placement scoop trocar, and four additional working channels under scope were inserted. The pars flaccida was opened, also, taking down the gastrogastric sutures from the previous band. The esophagus was mobilized to allow the gastroesophageal (GE) junction to be 2 cm below the crura and tension free. The hiatus was dissected, and the vagus nerves were visualized and preserved. A cruroplasty was performed using Endostitch with Ethibond 2/0 wire. A 40 Fr gastric tube was inserted, and a 3-cm-wide fundoplication was created with three stitches; the middle stitch was fixed in the esophagus. Then, a sleeve gastrectomy was performed. The leak test was negative, and the resected stomach was removed.

Results

The postoperative course was uneventful, and at the 6-week follow-up, her weight was 90 kg, which corresponds to a BMI of 33.9. The patient was symptoms free; she had no reflux anymore with no medication and no vomiting. One year follow-up, she was still in good condition. Her weight was 77 kg, which corresponds to a BMI of 28.5, and stable, which had the impression of being able to eat more, but also exercise a lot. No reflux complaints and PPI drugs have been stopped after 2 weeks postoperative and are no longer needed.

Conclusion

Nissen sleeve could be a viable alternative option for patients with severe reflux and morbid obesity after a laparoscopic band who are unwilling or unable to undergo RYGB.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11695-024-07083-x.

Declarations

Ethical Approval The procedure performed in the study was in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained in the study.

Conflict of Interest The authors declare no competing interests.

References

1. O'Brien PE, Hindle A, Brennan L, et al. Long-term outcomes after bariatric surgery: a systematic review and meta-analysis of weight loss at 10 or more years for all bariatric procedures and a single-centre review of 20-year outcomes after adjustable gastric banding. Obes Surg. 2019;29(1):3–14.
2. Hjorth S, Naslund I, Andersson-Assarsson JC, et al. Reoperations after bariatric surgery in 26 years of follow-up of the Swedish obese subjects study. JAMA Surg. 2019;154(4):319–26.
3. Mahawar KK, Nimeri A, Adamo M, et al. Practices concerning revisional bariatric surgery: a survey of 460 surgeons. Obes Surg. 2018;28(9):2650–60.
4. Angrisani L, Vitiello A, Santonicola A, et al. Roux-en-Y gastric bypass versus sleeve gastrectomy as revisional procedures after adjustable gastric band: 5-year outcomes. Obes Surg. 2017;27(6):1430–7.
5. Elnahas A, Graybiel K, Farrokhyar F, et al. Revisional surgery after failed laparoscopic adjustable gastric banding: a systematic review. Surg Endosc. 2013;27(3):740–5.
6. Gonzalez-Heredia R, Masrur M, Patton K, et al. Revisions after failed gastric band: sleeve gastrectomy and Roux-en-Y gastric bypass. Surg Endosc. 2015;29(9):2533–7.
7. Khoursheed M, Al-Bader I, Mouzannar A, et al. Sleeve gastrectomy or gastric bypass as revisional bariatric procedures: retrospective evaluation of outcomes. Surg Endosc. 2013;27(11):4277–83.
8. Al-Kurd A, Grinbaum R, Mizrahi I, et al. A comparison between one- and two-stage revisional gastric bypass. Surg Endosc. 2019;33(5):1459–64.
9. Debergh I, Defoort B, De Visschere M, et al. A one-step conversion from gastric banding to laparoscopic Roux-en-Y gastric

bypass is as safe as a two-step conversion: a comparative analysis of 885 patients. Acta Chir Belg. 2016;116(5):271–7.
10. Peterli R, Wolnerhanssen BK, Peters T, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss in patients with morbid obesity: the SM-BOSS Randomized Clinical Trial. JAMA. 2018;319(3):255–65.
11. Quezada N, Leon F, Jones A, et al. High frequency of internal hernias after Roux-en-Y gastric bypass. Obes Surg. 2015;25(4):615–21.
12. Shoar S, Nguyen T, Ona MA, et al. Roux-en-Y gastric bypass reversal: a systematic review. Surg Obes Relat Dis. 2016;12(7):1366–72.
13. Nocca D, Skalli EM, Boulay E, et al. Nissen sleeve (N-sleeve) operation: preliminary results of a pilot study. Surg Obes Relat Dis. 2016;12(10):1832–7.
14. Nocca D, Galtier F, Taleb S, et al. Peri-operative morbidity of Nissen sleeve gastrectomy: prospective evaluation of a cohort of 365 patients, beyond the learning curve. Obes Surg. 2022;32(7):1–7.
15. Olmi S, Cesana G, Gambioli A, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic sleeve + Rossetti fundoplication on weight loss and de novo GERD in patients affected by morbid obesity: a randomized clinical study. Obes Surg. 2022;32(5):1451–8.