International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Conversion from Roux-En-Y Gastric Bypass to Sadi-S, with a Gastro-Gastric Jejunal Bridge as a Treatment of Obesity Recidivism: Case Report

Victor Dib[1], Carlos Madalosso[2], Gabriela Scortegagna[3], Rui Ribeiro[4]

[1]Victor Dib Institute, Manaus, AM, Brazil
Corresponding Author Email: *victormussadib@gmail.com*

[2]Gastrobese Clinic, Passo Fundo, RS, Brazil
gbbariatrica[at]gmail.com

[3]Gastrobese Clinic, Passo Fundo, RS, Brazil
gtscortegagna[at]gmail.com

[4]Hospital Lusíadas Amadora, Amadora, Lisbon, Portugal
ruijsribeiro[at]gmal.com

Abstract: ***There is a considerable weight regain after the Roux-en-Y gastric bypass (RYGB) surgery. Surgical conversion to more powerful metabolic techniques, like one anastomosis duodenal switch with sleeve gastrectomy (SADI-S), can be effective in this scenario, but surgically challenging. This case report aims to demonstrate technical modifications that simplifies the conversion of Roux-en-Y gastric bypass to SADI-S, in one stage. Female patient submitted to laparoscopic RYGB 10 years before with nadir of 29,47Kg/m². In the last 4 years, she had regained weight, reaching a body mass index of 46,48Kg/m². Surgical conversion was done laparoscopically, preserving the gastrojejunal anastomosis from the previous RYGB and the proximal 8cm of jejunal alimentary limb, which was transected at this level and used as a bridge between gastric pouch and antrum. Previously, the fundus, gastric body and part of the antrum were removed. The remaining alimentary limb, the gallbladder and the candy cane was removed. This was a single stage procedure, without complications. The interposition of the proximal alimentary limb of gastric bypass, between gastric pouch and antrum, has shown to be safe and feasible in RYGB conversion to SADI-S. The removal of the remnant alimentary limb makes the procedure shorter.***

Keywords: Gastric Bypass, Roux-en-Y Anastomosis, Biliopancreatic Diversion, Obesity, Recurrence.

1. Introduction

The Roux-en-Y gastric bypass (RYGB) is the second most performed bariatric procedure in the world[1]. However, insufficient weight loss or obesity recurrence is observed in 20 to 30% of the patients, in the long-term[2]. Therefore, many of these patients need surgical conversion to a more powerful metabolic surgery. The technical complexity of these conversions, with multiple resections and anastomoses, must be considered[3]. The conversion of RYGB to one anastomosis duodenal switch with sleeve gastrectomy (SADI-S), although simpler than the conversion to traditional duodenal switch (BPD-DS)[4], still represents a laborious and technically difficult procedure.

Aim

The present case report describes a simplification of this technique which can contribute to the treatment of insufficient weight loss and/or obesity recurrence in patients previously submitted to RYGB.

Approach

Female patient, 36 years old, submitted to laparoscopic RYGB 10 years before, with 147Kg, 1.64m and BMI-54.66kg/m². She had hypertension, sleep apnea and moderate hepatic steatosis. In the postoperative period she reached the "nadir" at 18 months (29.47kg/m²) with remission of comorbidities. Over the last 4 years, she started regaining weight, reaching 125kg and a BMI of 46.48kg/m². She had recurrence of comorbidities and developed depression and anxiety, both of which were controlled with medication and psychological therapy. She consulted at Instituto Victor Dib, in Manaus – Amazonas/Brazil, where she underwent full investigation of surgical anatomy, hormonal status and nutritional conditions. Gastrointestinal endoscopy showed a 3cm gastric pouch and a 7cm length candy cane. H. pylori wasn't present. Moderate hepatic steatosis, chronic cholecystitis, iron deficiency and hypovitaminosis D were detected, the last two ones being corrected preoperatively. No other changes were found. After multidisciplinary evaluation and counseling, it was decided to convert the RYGB to SADI-S by videolaparoscopy, associated with cholecystectomy and candy cane resection.

Surgical team, patient, and trocars positions are shown in Figure 1. The surgery steps are described in Table 1.

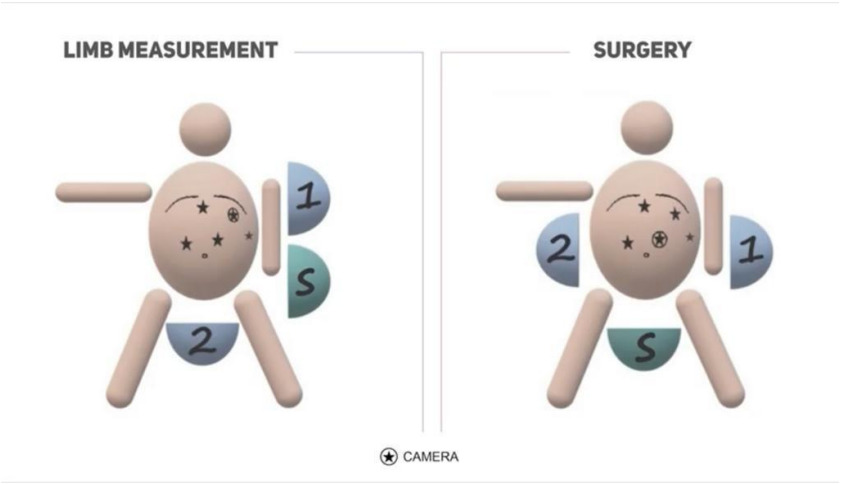

Figure 1: Surgical team, patient, and trocars position.
1– First assistant; 2– Second assistant; S– Surgeon;★Trocar 12mm; ⍟Optical trocar; *Trocar 5mm.

Table 1 – SURGICAL TIMES

- Surgeon positioned on the patient left side, the assistant on the right and the camera assistant between the legs;
- Patient in 30º anti-Trendelenburg position with left lateralization;
- Cholecystectomy is performed using the retrograde technique;
- Cecum is identified and 300cm of ileal limb is measured, proximally from the ileal cecal valve (ICV), being fixed to greater omentum. The remaining limbs are counted;
- Surgeon stands between patient's legs, assistant on the left and camera assistant on the right. Patient in 30º anti-Tendelemburg position, without lateralization;
- •Alimentary limb is identified up to the level of gastro-jejunal anastomosis;
- Candy cane is identified and resected;
- Alimentary limb is transected 8cm distally to the gastro-jejunal anastomosis;
- The remnant stomach is transected horizontally at the level of the antrum, 3cm above the pylorus;
- Mechanical anastomosis is performed between the proximal alimentary limb and the posterior antrum wall;
- The staple hole is closed in a single layer suture with PDS 3-0;
- The antropyloric and proximal duodenum arterial arcade are preserved;
- The duodenum is transected 3cm distally to the pylorus;
- The ileal limb attached to greater omentum is released and a 2cm duodeno-ileal anastomosis is performed, in a continuing two layers 3-0 PDS suture;
- The Petersen space is not closed;
- The remaining alimentary limb from RYGB is resected;
- The anastomoses integrity is tested with methylene blue;
- The specimens (excluded stomach, alimentary limb, candy cane and gallbladder) are removed inside an endobag, after enlargement of left hypochondrium incision;
- The trocars are removed, the aponeurosis is closed (sites of 12mm trocars and the enlarged wound) and the skin is sutured;
- No drains were left;

2. Results

The surgical time was 185 min, without intra or postoperative (PO) complications and hospital stay was 36 hours.
At home, the evolution was uneventful. The total percentage weight loss was 28.8% at 90 days PO; Gastrointestinal endoscopy, at fortieth PO, showed no abnormalities. In the third month follow-up, abdominal CT with 3D reconstruction demonstrated adequate surgical anatomy (Figure 2), and normal progression of contrast to the cecum.

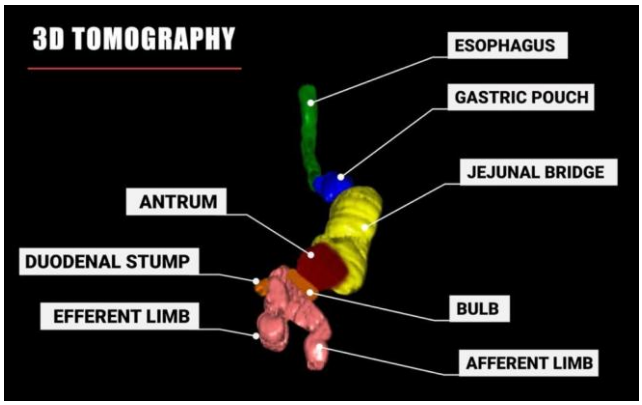

Figure 2: 3D tomography showing the surgery anatomical configuration.

3. Discussion

In the case reported, a decision to convert the RYGB to SADI-S, by videolaparoscopy, was made based in literature data that shows a very close weight loss results, compared to BPD-DS, with fewer nutritional complications and, being technically simpler[5]. The gastrojejunal anastomosis of the RYGB was preserved, avoiding adhesions in this region[6]. The proximal jejunal alimentary limb from RYGB was used as a bridge between the gastric pouch and the antrum, avoiding the gastrogastric anastomosis, which has a significant incidence of fistulas, ulcers and refractory strictures[3,6]. The conversion of RYGB to BPD-DS with a hybrid technique has been described in the literature[7]. The lower tension and better vascularization in the jejuno-antral anastomosis probably reduce the risk of anastomotic complications.

Cholecystectomy was performed due to gallstones presence and the "candy cane" was resected, which could be a cause of epigastric pain[8]. The remnant stomach was resected, keeping the distal antrum and pylorus as part of gastric reservoir[3,7]. After evaluating the adequate intestinal limb extension, the remnant jejunal alimentary limb was resected, preventing the possibility of bacterial overgrowth[9]. The reimplantation of this hypertrophied alimentary jejunal limb in the intestinal transit was avoided, considering it could compromise weight loss[10].

It was decided to preserve the antral and duodenal arterial arcades, minimizing risks of ischemia in the duodenal-ileal anastomosis[11]. This was performed 300cm from ICV, a measurement considered effective for weight loss and nutritionally safe[12]. The Petersen space was not closed, taking into account that internal hernias in SADI-S are rare[12,13].

4. Conclusion

Laparoscopic conversion from RYGB to SADI-S in a single step, using the jejunal bridge between gastric pouch and antrum, avoiding gastrogastro anastomosis, together with the resection of remnant jejunal alimentary limb, showed to be safe, fast and make this procedure more reproducible.

References

[1] Ozsoy Z, Demir E. Which Bariatric Procedure Is the Most Popular in the World? A Bibliometric Comparison. *Obes Surg*. 2018;28(8):2339-2352. doi:10.1007/s11695-018-3163-6
[2] Obeid NR, Malick W, Concors SJ, Fielding GA, Kurian MS, Ren-Fielding CJ. Long-term outcomes after Roux-en-Y gastric bypass: 10- to 13-year data. *Surg Obes Relat Dis*. 2016;12(1):11-20. doi:10.1016/j.soard.2015.04.011
[3] Keshishian A, Zahriya K, Hartoonian T, Ayagian C. Duodenal switch is a safe operation for patients who have failed other bariatric operations. *Obes Surg*. 2004;14(9):1187-1192. doi:10.1381/0960892042387066
[4] Moon RC, Alkhairi L, Wier AJ, Teixeira AF, Jawad MA. Conversions of Roux-en-Y gastric bypass to duodenal switch (SADI-S and BPD-DS) for weight regain. *Surg Endosc*. 2020;34(10):4422-4428. doi:10.1007/s00464-019-07219-6
[5] Surve A, Zaveri H, Cottam D, Belnap L, Medlin W, Cottam A. Mid-term outcomes of gastric bypass weight loss failure to duodenal switch. *Surg Obes Relat Dis Off J Am Soc Bariatr Surg*. 2016;12(9):1663-1670. doi:10.1016/j.soard.2016.03.021
[6] Parikh M, Pomp A, Gagner M. Laparoscopic conversion of failed gastric bypass to duodenal switch: technical considerations and preliminary outcomes. *Surg Obes Relat Dis Off J Am Soc Bariatr Surg*. 2007;3(6):611-618. doi:10.1016/j.soard.2007.07.010
[7] Topart P, Becouarn G. One-stage conversion of Roux-en-Y gastric bypass to a modified biliopancreatic diversion with duodenal switch using a hybrid sleeve concept. *Surg Obes Relat Dis*. 2016;12(9):1671-1678. doi:10.1016/j.soard.2016.02.015
[8] Khan K, Rodriguez R, Saeed S, Persaud A, Ahmed L. A Case series of candy cane limb syndrome after laparoscopic Roux-en-Y gastric bypass. *J Surg Case Reports*. 2018;2018(10):rjy244. doi:10.1093/jscr/rjy244
[9] Miao D. Small Intestinal Bacterial Overgrowth in Modern Bariatric Surgery. *Bariatr Times*. 2017;14(11):16-19.
[10] le Roux CW, Borg C, Wallis K, et al. Gut hypertrophy after gastric bypass is associated with increased glucagon-like peptide 2 and intestinal crypt cell proliferation. *Ann Surg*. 2010;252(1):50-56. doi:10.1097/SLA.0b013e3181d3d21f
[11] Mercado M, Cheng Q, Liu D, Loi K. Gastric Ischaemia After SADI with Right Gastric Artery Ligation. *Obes Surg*. 2022;32(4):1366-1369. doi:10.1007/s11695-021-05863-3
[12] Admella V, Osorio J, Sorribas M, Sobrino L, Casajoana A, Pujol-Gebellí J. Direct and two-step single anastomosis duodenal switch (SADI-S): Unicentric comparative analysis of 232 cases. *Cir Esp*. 2021;99(7):514-520. doi:10.1016/j.cireng.2021.06.017
[13] Surve A, Cottam D, Horsley B. Internal Hernia Following Primary Laparoscopic SADI-S: the First Reported Case. *Obes Surg*. 2020;30(5):2066-2068. doi:10.1007/s11695-020-04444-0

Author Profile

Victor Ramos Mussa Dib, M.D., PhD in Digestive System Surgery, Chief of Surgical Team at Victor Dib Institute, responsible for the internship in Bariatric and Metabolic Surgery at Medical Residency Service at Hospital SAMEL and founder of the Bariatric Channel.

Carlos Augusto Scussel Madalosso, M.D., PhD in Medicine (concentration in Surgery), Bariatric and Digestive Surgeon at Gastrobese Clinic, member of clinical staff at Hospital São Vicente de Paulo and founder of the Bariatric Channel.

Gabriela Trentin Scortegagna, Biologist, PhD in Science (concentration in Immunology) and Researcher at Gastrobese Clinic.

Rui Ribeiro, M.D, Specialist and Consultant in General Surgery and Coordinator of General Surgery Unit at Hospital Lusíadas Amadora.