Obesity Surgery
https://doi.org/10.1007/s11695-020-05218-4

MULTIMEDIA ARTICLE

Sometimes the Best Solution Is Transit Bipartition: Video Case Report

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Received: 27 November 2020 / Revised: 30 December 2020 / Accepted: 30 December 2020
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Abstract

The simplest definition of Santoro's operation is a sleeve gastrectomy with transit bipartition. Santoro et al. reported long-term data regarding sleeve gastrectomy with transit bipartition, which is a similar operation to duodenal switch but without complete exclusion of the duodenum to minimize nutritional complications and to allow endoscopic management of obstructive jaundice. Afterward, several studies proved the efficacy and safety of transit bipartition; the real benefit of this operation is the reduction of side effects and protein malnutrition compared with the bilio-pancreatic diversion with duodenal switch or Roux-en-Y gastric bypass. One of the well-known complications of sleeve gastrectomy is reflux which usually responds well to medical treatment, but in few cases, the reflux is refractory to conservative management and warrants surgical intervention as a conversion of the sleeve gastrectomy to other bariatric procedures. There are many theories concerning the increased incidence of gastro-esophageal reflux disease after sleeve gastrectomy which included reduction of lower esophageal sphincter pressure due to the division of ligaments and blunting of the angle of His, reduction in gastric compliance, increased sleeve pressure with an intact pylorus due to the use of Bougie < 40 Fr, decreased sleeve volume and distensibility, and dilated upper part of the final shape with a relative narrowing of the mid-stomach without complete obstruction. Our video report aims to present a unique surgical case and to show the surgical technique in this patient despite the complex surgical history.

Keywords Bariatric surgery · Sleeve gastrectomy · Gastric bypass · Redo bariatric surgery · Transit bipartition · Santoro operation

Introduction

The simplest definition of Santoro's operation is a sleeve gastrectomy with transit bipartition. Santoro et al. reported long-term data regarding sleeve gastrectomy with transit bipartition, which is a similar operation to duodenal switch but without complete exclusion of the duodenum to minimize nutritional complications and to allow endoscopic management of obstructive jaundice [1].

Afterward, several studies proved the efficacy and safety of transit bipartition; the real benefit of this operation is the reduction of side effects and protein malnutrition compared with the bilio-pancreatic diversion with duodenal switch or Roux-en-Y gastric bypass [2, 3].

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There are many theories concerning the increased incidence of gastro-esophageal reflux disease after sleeve gastrectomy which included reduction of lower esophageal sphincter pressure due to the division of ligaments and blunting of the angle of His, reduction in gastric compliance, increased sleeve pressure with an intact pylorus due to the use of Bougie < 40 Fr, decreased sleeve volume and distensibility, and dilated upper part of the final shape with a relative narrowing of the mid-stomach without complete obstruction [5].

Our video report aims to present a unique surgical case and to show the surgical technique in this patient despite the complex surgical history.

Methods

We present a case of a 47-years-old female with a current BMI of 29 kg/m^2. The patient underwent laparoscopic adjustable gastric banding 17 years ago because of morbid obesity

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Published online: 20 January 2021

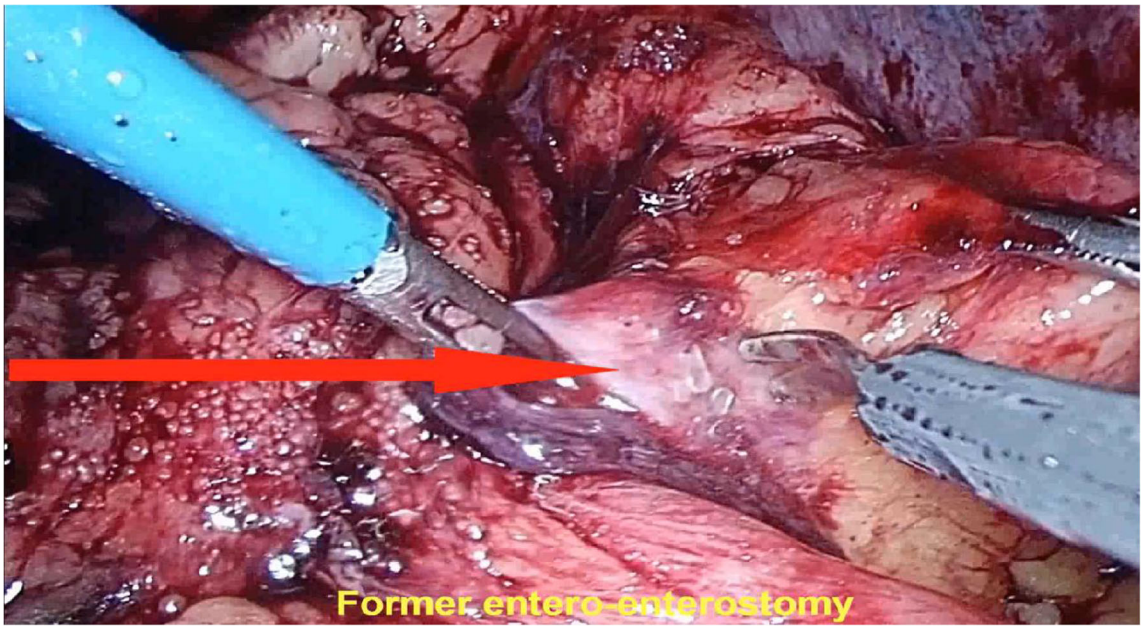

Fig. 1 former entero-enterostomy

without any comorbidities (BMI 38.7 kg/m^2). Because of severe reflux, she was converted to laparoscopic Roux-en-Y gastric bypass (LRYGB) with the removal of the band 14 years ago. Her BMI at this stage was 29 kg/m^2. After that, she passed 4 explorative laparotomies because of internal hernia and small bowel obstruction with the closure of mesenteric defects every time. Seven years ago, she had weight regain (BMI 35 kg/m^2), and a contrast swallow test showed a gastro-gastric fistula, so the decision was made to convert her from Roux-en-Y gastric bypass to sleeve gastrectomy in an open technique. One year ago, she was referred to our center complaining of severe gastro-esophageal reflux with teeth erosion, pyrosis, daily

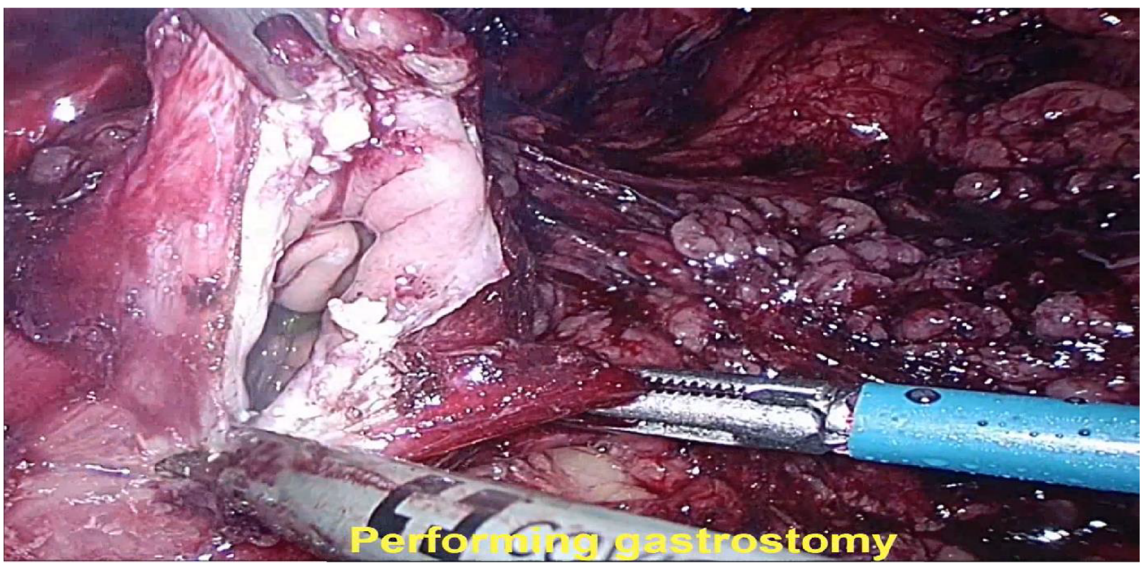

Fig. 2 performing gastrostomy

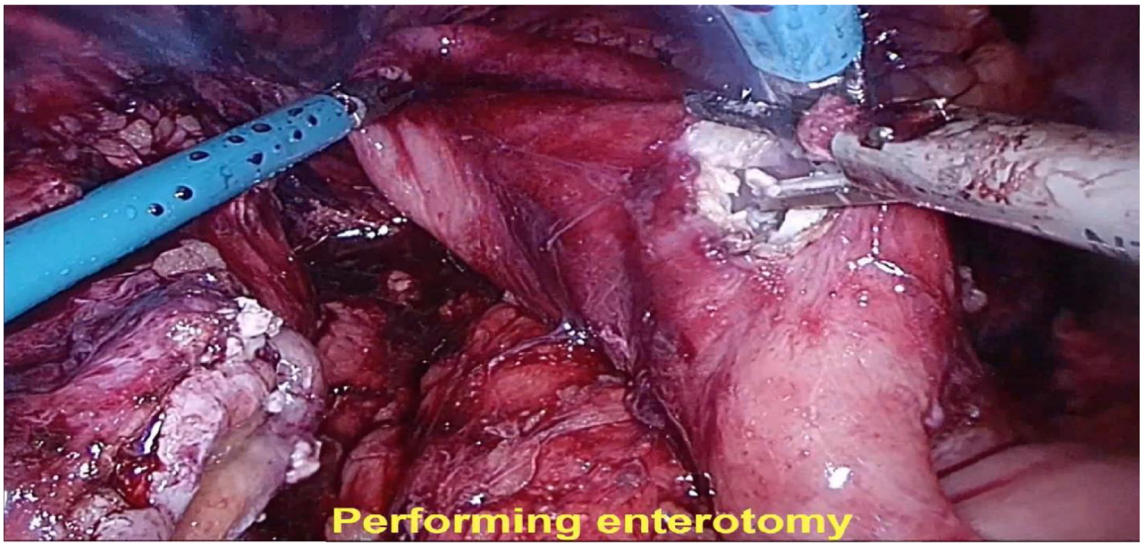

Fig. 3 performing enterotomy

vomiting, and weight regain (BMI 29 kg/m^2). She was treated with a full daily dose of proton pump inhibitor (120 mg). Because of her operative history and the high BMI, we decided after considering all the possible options and discussing them with the patient that the best solution for her complaints will be a conversion to a laparoscopic transit bipartition (Santoro's procedure).

Preoperatively gastric emptying scintigraphy (slightly delayed gastric emptying), PH-metry (increased acid exposure at the distal esophagus, impedance measurement, and several high-rise acid regurgitate), gastroscopy (no esophagitis, wide-open cardia), contrast swallow test (see video), and CT scan of the abdomen were performed (see video).

Results

At the operation, there were a lot of adhesions and adhesiolysis was done. A manual anastomosis was performed between the stomach and the former alimentary limb 75 cm from the former entero-enterostomy (Drawing 1, 2), because

Fig. 4 hand- sewn wide anastomosis between sleeved stomach and ileum

our main purpose was treating reflux not weight regain; we did not do a distal bypass (Figs. 1, 2, 3, and 4) (see video).

Postoperatively, the patient was discharged on day 2 with proper food advice from our specialized bariatric dietician.

One month later, she came for a follow-up visit to our outpatient clinic with a complete resolution of her complaints (BMI 28.1 kg/m^2).

Twelve months postoperatively, she is still in a good condition with an improvement of her quality of life (BMI 24.5 kg/m^2).

Conclusion

Transit bipartition is a feasible and safe alternative for patients with severe reflux and weight regain after a sleeve gastrectomy.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11695-020-05218-4.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were 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 from all individual participants included in the study.

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