

Re-sleeve Gastrectomy for Failure of Weight Loss After Primary Sleeve Gastrectomy; 3 Cases

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Abstract

Laparoscopic sleeve gastrectomy (LSG) is the leading weight loss procedure for treatment of morbid obesity. However, as with all other bariatric procedures, failure of weight loss was observed. We report here 3 cases of re-sleeve gastrectomy (RSG) for failure of weight loss after primary sleeve gastrectomy (PSG). The first patient, with a body mass index (BMI) of 32.9 kg/m², underwent PSG in August 2003. She showed an initial drop in BMI to 22.4 kg/m² in 2007 and regained weight to BMI of 33.1 kg/m² in 2013, but, after the RSG, her BMI was 21.9 kg/m² at 12 months. The second patient, with a BMI of 32.6 kg/m², underwent PSG in May 2004. She showed a drop in BMI of 27.4 kg/m² in 2005 and regained weight to BMI of 31.4 kg/m² in 2011, but, after the RSG, her BMI was 24.4 kg/m² at 24 months. The third patient, with a BMI of 34.0 kg/m², underwent PSG in July 2013. She had a drop in BMI of 28.0 kg/m² in January 2014, but her weight did not change until July 2014. Her BMI had dropped to 21.2 at 6 month postoperatively after RSG. Therefore, RSG may be considered as a revision surgery for failure of weight loss after PSG.

Keywords: Primary sleeve gastrectomy; Failure of weight loss; Fundus dilatation; Re-sleeve gastrectomy

Introduction

The advantages of laparoscopic sleeve gastrectomy (LSG) include excellent weight loss, resolution of co-morbidities, relatively simple technique, avoidance of foreign body, relatively short operation time, immediate restriction of caloric intake and low incidence of complications [1,2]. Over the years, many bariatric surgeons have regarded it as a standard bariatric operation. Despite many advantages following LSG, as with all other bariatric procedures, failure of weight loss was observed [3-6]. There is no consensus regarding conversion procedures for additional weight loss after primary sleeve gastrectomy (PSG). Therefore, many other procedures were performed worldwide [7]. In this case study, we report on three patients who underwent re-sleeve gastrectomy (RSG) as a revision procedure for failure of weight loss after PSG.

Case Report

Patient 1

A 32-year-old female with a body mass index (BMI) of 32.9 kg/m² underwent PSG in August 2003. Her lowest BMI was 22.4 kg/m² at 42 months post-PSG, and then she regained weight to BMI of 33.1 kg/m² in 2013. Upon review of the upper gastrointestinal series (UGIS), upper pouch and antral dilatation were detected (Figures 1 and 2). She underwent RSG using a 36F bougie in December 2013, with resection of the dilated pouch and antrum. A point on the greater curvature 3cm proximal to the pylorus was identified as the distal extent of the resection. After RSG, her BMI was 21.9 kg/m² at 12 months, with excess BMI loss (%EBL) of 111.1%.

Patient 2

A 51-year-old female with a BMI of 32.6 kg/m² underwent PSG in May 2004. Her lowest BMI was 27.4 kg/m² at 9 months post-PSG, and then she regained weight to BMI of 31.4 kg/m² with hypertension and hyperlipidemia in 2011. Diffuse dilatation of the stomach was detected on UGIS (Figures 3 and 4). RSG was performed in December 2011. After RSG, gastric stricture was observed, but no additional procedure was performed. Her BMI was 24.4 kg/m² at 24 months, with %EBL of 83.3%.

Patient 3

A 33-year-old female with a BMI of 34.0 kg/m² underwent PSG in July 2013. Her lowest BMI was 28.0 kg/m² at 6 months post-PSG with %EBL of 54.4%, and her weight did not change until after 12 months postoperatively. Remnant fundus dilatation of the stomach was detected on UGIS (Figure 5). RSG was performed in July 2014. After RSG, her BMI was 21.2 kg/m² at 6 month, with %EBL of 116.0%.

Discussion

LSG has been most commonly performed in Asia due to minimized



Figure 1: The upper gastrointestinal series showing dilatation of fundus.

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Figure 2: The upper gastrointestinal series showing diffuse antral dilatation.

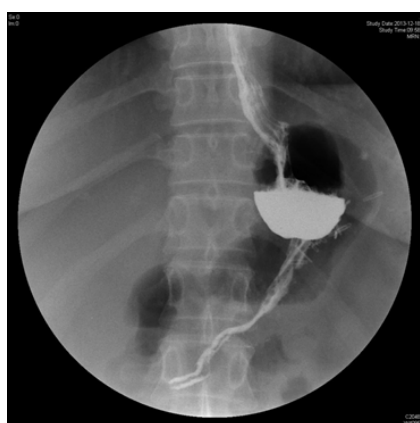


Figure 3: Remnant fundus dilatation.



Figure 4: Diffuse antral dilatation on upper gastrointestinal series.

risk of undetected gastric cancer, incredible short and mid-term weight loss, and low post-operative complications [8]. Despite many advantages following LSG, failure of weight loss was observed, and a revision procedure had to be considered for achievement of additional weight loss.

Two patients started to regain weight after 3 to 5 years post-PSG. One patient did not experience weight loss after 6 months. The

UGIS showed dilated antrum and/or gastric fundus in all 3 patients. Although the causes of remnant gastric dilatation are unclear, it might be related to a technical problem or to a natural process of stomach tissue dilatation. The main technical cause for dilated antrum might be a dissection that started farther than 6cm from the pylorus. In 2003 and 2004, at the time of its introduction, PSG was performed far from 6cm pylorus. Therefore, this is one cause of weight regain after a few years. The 4th International Consensus Summit on Sleeve Gastrectomy (ICSSG) recently reported [7] that the resection distance from the pylorus was not above 4 cm. In addition, in prospective randomized study, Abdallah et al. [9] reported that 2 cm resection distance from the pylorus is associated with better weight loss without increasing the rate of complications. In particular, the lower weight regain rate (1.9%) at 2 cm compared with 6 cm (9.4%) distance from the pylorus was reported after 2 years. For this reason, the stomach should be resected less than 4 cm distance from the pylorus during PSG.

Another cause of weight regain after PSG might be a dilatation of the remnant stomach. Many efforts and standardization of PSG to reduce weight loss failure were reported. The 4th ICSSG [7] reported that of the 130 surgeons, 40 (32%) use a 36F bougie, which was the most common size selected within a wide range of 32-50F. In addition, the International Sleeve Gastrectomy Expert Panel Consensus Statement for best practice guidelines [2] concluded that a bougie not wider than 32-36F should be used in the LSG procedure. Other causes of stomach tissue dilatation after PSG, besides technical problems, could be related to psychological problems of the patient or negligence in following the post-surgical dietary recommendations. We believe that these factors, technical and not, are often both involved in the process of weight regain after PSG.

There is no consensus regarding conversion procedures for additional weight loss after PSG, and there are few surgical options. LSG can be converted to gastric bypass or duodenal switch [10-12], or a RSG can be performed [13,14]. In our study, we wanted to maintain the advantages of LSG in terms of avoiding malabsorption or gastro-intestinal anastomosis in order to easily explore the gastro-intestinal tract in the necessity of diagnostic endoscopy; therefore no patients underwent gastric bypass or duodenal switch. In particular, 3 patients had lower BMI (< 35 kg/m²) at the previous PSG and at the time of RSG. Three patients underwent RSG using a 36F bougie and an over sewing suture of the stapled line was performed. In our previous study [15] in patients with lower BMI, PSG was a very effective and safe procedure in the long-term period. In particular, patients using a 36F bougie had higher % EBL (110%) than patients using a 48F bougie

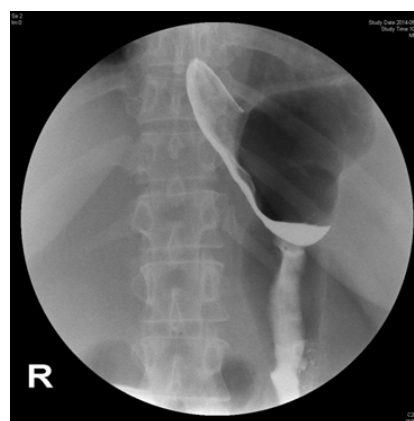


Figure 5: Persistence of the gastric fundus on upper gastrointestinal series.

(81%) at 1 year postoperatively. For this reason, we do not recommend gastric bypass or duodenal switch in these patients. However, in case of BMI more than 40 kg/m², no resolution of diabetes, or severe GERD, we could recommend another procedure including gastric bypass or duodenal switch.

RSG was feasible in our series. However, we experienced one stricture of the remnant stomach. The further procedure was not required for the treatment of this complication. However, this patient had recurrent epigastric discomfort and vomiting when eating food for 1 month after RSG.

Although the % EBL of 3 patients after RSG was excellent, a longer follow-up period is needed in order to determine whether RSG is really effective. These data are encouraging in not substituting LSG with a malabsorptive intervention. If weight regain occurs after a longer follow-up post-RSG, we will check UGIS. If UGIS shows a dilatation of the stomach, another RSG will be performed. If patients regain weight without dilatation of the remnant stomach, malabsorptive intervention will be recommended.

In conclusion, PSG can result in weight regain. In pouch dilatation of patients who regained weight after PSG, RSG was performed and was effective in the short-term period. RSG appears to be a valid correction for weight regain after PSG. However, we believe that these data could be a promising start for further studies, which are needed to confirm the initial results.

Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

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