When, Why, and How to Revise a Failed Sleeve Gastrectomy

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When and Why
Already Covered

Let’s Talk About How…
Overview

• Revision after SG-related complications

• Revision of SG for insufficient weight loss and/or weight regain
Revision for SG-related Complications
Complications

Strictures

- Dilation / Stenting *(Dr. Portenier’s talk later)*
- Stricturoplasty *(Dr. Sudan’s talk from yesterday)*
- Resect and gastro-gastric anastomosis?
- Conversion to R-Y gastric bypass
Leak after SG

(a)

(b)

Complications

Leaks

• May present later than leaks after gastric bypass.\(^1\)

• Area of leak may suggest the cause of the leak:
  - proximal leak near GE junction (distal stricture?)\(^1\)
  - leak in the body of the sleeve (stapler? Ischemia?)

• Management similar to gastric bypass – takeback for repair and drain, CT-guided perc drains, and/or stent

• More on this during Dr. Portenier’s talk later

Complications

GERD

- GERD is very common *(up to 30-40%)* in morbidly obese patients

- The presence of hiatal hernia is common *(up to 30%, but 5-10% for sizeable ones)* in morbidly obese patients

- There is some (but not perfect) correlation between symptoms of GERD and the presence of hiatal hernia
GERD FACTS

- The hiatus is not routinely interrogated and dissected to see if an occult hernia is present (when it is not clearly visible)

- Hiatal hernias are commonly found after bariatric surgery when the patients are undergoing EGD or UGI series for various indications, including GERD

- Majority of patients who had GERD symptoms pre-op, improve post-op; however, the symptoms may persist or recur
GERD FACTS CONT

• No level 1 data to prove/disprove any algorithm in the management of hiatal hernia and GERD in patients who are undergoing weight loss surgery

• BUT, these facts outlined above need to be reconciled
Complications

**GERD**

- **Possible causes of GERD post-sleeve:**
  - missed hiatal hernia
  - SG lowers LES pressure and shortens intra-abdominal segment of esophagus
  - sleeve dysmotility

- **More on this during Dr. Kim’s talk later**
Revision for
Insufficient Weight Loss / Weight Regain
Insufficient Weight Loss and/or Weight Regain: Re-sleeve

- Perfect candidate:
  1) has a correctable anatomic defect – dilation of sleeve stomach
  2) someone who had good weight loss, but regained some weight despite “perfect” diet.
  3) someone who had insufficient weight loss, despite “perfect” diet

- If the patient does not have a correctable anatomic defect, then not a good option (do something else)
Insufficient Weight Loss and/or Weight Regain

Re-sleeve

- Possible causes of gastric tube dilation
  - last fire of stapler > 1 cm away from GE junction
  - missing hiatal hernias
  - missing posterior gastric fold of the fundus near GE junction
  - creating the gastric tube too large
  - antral dilation
Re-sleeve Gastrectomy for Failed Laparoscopic Sleeve Gastrectomy: A Feasibility Study

Antonio Iannelli · Anne Sophie Schneck · Patrick Noel · Imed Ben Amor · Daniel Krawczykowski · Jean Gugenheim

Abstract
Background Laparoscopic sleeve gastrectomy (LSG) has been rapidly accepted as a valuable bariatric procedure before its effectiveness on weight loss in the long-term is clearly demonstrated. We report a feasibility study including 13 patients undergoing a redo LSG for either progressive weight regain after initial weight loss of insufficient weight loss.
Methods From October 2005 to April 2010, 13 patients underwent a re-sleeve gastrectomy procedure for progressive weight regain or insufficient weight loss (<50% of excess weight (EW)) associated with the persistence of the gastric fundus on upper gastrointestinal series.
Results Mean initial body mass index (BMI) and EW were 44.6 (37–52.9) kg/m² and 61.8 (38.2–93.9) kg, respectively. There were ten comorbid conditions in five out of the 13 patients. The revision resulted in a mean BMI, percent of excess weight loss (%EWL), and percentage of excess BMI loss (%EBL) of 32.3 kg/m², 50.3%, and 57% at 1 month; 32 kg/m², 47.9%, and 54.5 at 6 months; and 27.5 kg/m², 71.4%, and 82.8% at 12 months, respectively. There was no morbidity.
Conclusions Laparoscopic revision of LSG is safe and effective in the short term to obtain substantial loss of weight and improvement in comorbidities.

-13 patients
-all had proximal stomach dilation
-Mean BMI 44.6 ➔ 32.3 -> 32 -> 27.5
1m  6m  12m
Considerations when re-sleeving

*Sleeve dilation*

- Use a smaller bougie and/or hug the bougie tighter
- Make sure the new staple line stays INSIDE the old staple line (avoid creating ischemic zone)
- Anticipate thicker tissues
Insufficient Weight Loss and/or Weight Regain
Band over a sleeve

• RATIONALE:

1) To **slow** passage of food bolus across the proximal part of the stomach to achieve satiety while…
2) Maintaining **fast** transit of food bolus into small intestines to trigger the “ileal break” mechanism (and other hormonal changes)

• Another example adding a restrictive procedure to another restrictive procedure.
  - BOB (band over bypass)
Insufficient Weight Loss and/or Weight Regain

Band over a sleeve

• First case report of adjustable gastric banding after “failed” gastrectomy

• 42yo male who failed to lose sufficient weight after SG

• Patient refused adding malabsorptive medication due to dependence on several anti-psychotic medications.

• At 9 months from his second surgery, he has achieved 57% EWL from his original weight of 390 lbs
Insufficient Weight Loss and/or Weight Regain
Band over a sleeve

• First case report of **adjustable gastric banded sleeve gastrectomy** as a primary procedure

• 39yo female, BMI 80

• Band secured 6cm distal to GE junction, secured laterally with sutures to peripancreatic tissue

• Doing well 6 weeks post-op
Banded Sleeve Gastrectomy—Initial Experience

J. Wesley Alexander • Lisa R. Martin Hawver • Hope R. Goodman

Abstract
Background Isolated sleeve gastrectomy is being used with increasing frequency for the treatment of morbid obesity. This study was done to determine the potential benefit of placing a band of processed human dermis around the upper portion of a sleeve gastrectomy to prevent late dilatation and weight gain.
Methods Twenty-seven patients underwent a sleeve gastrectomy followed by placement of a band of biological tissue (AlloDerm®) placed 6 cm from the gastroesophageal junction. The results were compared to 54 patients with a Roux-en-Y gastric bypass (GBP), matched for sex, age, and initial body mass index.
Results All 27 patients had improvement or resolution of their diabetes, hypertension, hyperlipidemia, and sleep apnea after banded sleeve gastrectomy (BSG) similar to the control GBP group. There were no deaths, but one patient had a pulmonary embolus and another had a presumed leak. Symptoms of gastroesophageal reflux disease generally improved. Overall, results were almost identical to patients with GBP.
Conclusions BSG provides results comparable to GBP in the short-term follow-up, but avoids potential long-term complications including internal hernias, postoperative bowel obstructions, anastomotic complications of the jejunoojejunostomy, hypoglycemia, bacterial overgrowth, and a spectrum of malabsorptive problems. While this study documents the feasibility and possible benefits of this modification, prospective controlled studies with long-term follow-up are needed to establish its place in procedures for surgical weight loss.

results were seen in patients with a lower initial body mass index (BMI) [7].

Since none of the intestine is bypassed, the isolated sleeve gastrectomy conserves and expands the benefits of various restrictive procedures at the same time that it avoids a number of potential disadvantages of malabsorptive
Insufficient Weight Loss and/or Weight Regain
Sleeve to Gastric Bypass

• Historically, BPD/DS and RYGB has been the second part of the “staged approach” for high-risk patients

• Sleeve-to-bypass revision are now being performed for other indications – insufficient weight loss, significant weight regain, significant post-op GERD, stricture, and chronic fistula
Conversion from Sleeve Gastrectomy to Roux-en-Y Gastric Bypass—Indications and Outcome

Felix B. Langer • Arthur Bohdjalian • Soheila Shakeri-Leidenmühler • Sebastian F. Schoppmann • Johannes Zacherl • Gerhard Prager

Abstract

Background Due to excellent weight loss success in the short-time follow-up, sleeve gastrectomy (SG) has gained popularity as sole and definitive bariatric procedure. In the long-term follow-up, weight loss failure and intractable severe reflux can necessitate further surgical intervention.

Methods A retrospective analysis of laparoscopic conversions from SG to Roux-en-Y gastric bypass (RYGB) was performed to assess the efficacy for reflux relief and weight loss success.

Results A total of eight out of 73 patients (11%) underwent conversion to RYGB for severe reflux (n=3) or weight regain (n=5) after a median interval of 33 months following laparoscopic sleeve gastrectomy. In one of the patients, a banded gastric bypass was performed. In both groups, conversion to RYGB was successful, as proton pump inhibitor medication could be discontinued in all patients presenting with severe reflux, and a significant weight loss could be achieved in the patients with weight regain within a median follow-up of 33 months. Postoperative complications were observed in only one patient as leakage at the gastrojejunostomy was successfully treated by temporary stent placement.

Conclusion Conversion to RYGB is an effective treatment for weight regain or intractable reflux symptoms following SG. Thus, SG can be performed, intended as sole and definitive bariatric intervention, with conversion from SG to RYGB as an exit strategy for these complications.
Indications and Mid-Term Results of Conversion from Sleeve Gastrectomy to Roux-en-Y Gastric Bypass

Thomas Gautier · Thomas Sarcher · Nicolas Contival · Yannick Le Roux · Arnaud Alves

Table 1 Demographic data

<table>
<thead>
<tr>
<th></th>
<th>Total, mean (range)</th>
<th>IWL (mean)</th>
<th>Reflux (mean)</th>
<th>Diabetes (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (%)</td>
<td>18</td>
<td>9 (50)</td>
<td>6 (33.3)</td>
<td>3 (16.7)</td>
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<tr>
<td>Age (years)</td>
<td>40.9 (24–55)</td>
<td>36.8</td>
<td>44</td>
<td>47.3</td>
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<td>BMI initial (kg/m(^2))</td>
<td>55 (38–72)</td>
<td>58.2</td>
<td>50.9</td>
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<td>Interval (months)</td>
<td>23.8 (4.3–51)</td>
<td>24.3</td>
<td>28.1</td>
<td>13.8</td>
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<tr>
<td>%EBMILbc</td>
<td>47.1 (19–77)</td>
<td>42.2</td>
<td>55.4</td>
<td>44.9</td>
</tr>
<tr>
<td>%EWLbc</td>
<td>44.2 (23–73)</td>
<td>41</td>
<td>49.4</td>
<td>43.6</td>
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<tr>
<td>BMILbc (kg/m(^2))</td>
<td>40.9 (28–48)</td>
<td>43.7</td>
<td>36.7</td>
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</table>

Table 2 Results after conversion

<table>
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<tr>
<th></th>
<th>Total, mean (range)</th>
<th>IWL (mean)</th>
<th>Reflux (mean)</th>
<th>Diabetes (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI ac (kg/m(^2))</td>
<td>35.8 (24–42.6)</td>
<td>38.1</td>
<td>32.7</td>
<td>34.9</td>
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<tr>
<td>%EBMILac</td>
<td>64.6 (36.9–104.6)</td>
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<tr>
<td>%EWLac</td>
<td>61.7 (34.2–103.2)</td>
<td>59</td>
<td>65.9</td>
<td>61.6</td>
</tr>
</tbody>
</table>

BMI initial BMI before SG, %EBMILbc percentage of excess BMI loss before conversion, %EWLbc percentage of excess weight loss before conversion, BMILbc BMI before conversion

BMI ac BMI after conversion, %EBMILac percentage of excess BMI loss after conversion, %EWLac percentage of excess weight loss after conversion

Abstract Sleeve gastrectomy (SG) is currently considered as a primary bariatric surgery. This is because of its relative simplicity and satisfactory results. As observed with other bariatric procedures, surgeons are confronted with insufficient weight loss or weight regain, insufficient resolution of metabolic disorders, and intractable severe reflux. A retrospective analysis of conversion from SG to Roux-en-Y gastric bypass (RYGBP) was performed to assess weight loss, diabetes resolution, and relief of reflux symptoms. The mean interval between the two procedures was almost 24 months. Eighteen patients underwent conversion from SG to RYGBP for insufficient weight loss (n=9), severe reflux (n=6), and persistence of type 2 diabetes mellitus (T2DM) (n=3). The median follow-up was 15.5 months. Weight loss was significantly improved with a mean percentage of excess of body mass index loss at 64.6 % after conversion versus 47.1 % before conversion. All reflux symptoms were immediately relieved without any medication at the end of the follow-up. The three patients who had an operation for persistence of T2DM are now free of medication. Only one postoperative complication was observed as a small bowel injury, which was treated surgically. Conversion from SG to RYGBP is safe. Severe reflux is definitely treated and is an incontestable indication with this procedure. Additionally, weight loss and diabetes are clinically improved. Our results appear to be similar to those with a primary RYGBP.
Technical Considerations

Sleeve to Gastric Bypass

• Straightforward… transect the gastric tube, 5-6 cm distal to the GE junction to create gastric pouch

• Things to keep in mind…
  - managing small-caliber gastric pouch
  - in cases with lot of adhesions, limit dissection on the lesser curvature of the proximal gastric tube
Insufficient Weight Loss and/or Weight Regain
Sleeve to BPD / DS

• SG is part of the BPD / DS

• Historically, conversion of SG to BPD/DS (or RYGB) is the expected 2\textsuperscript{nd} procedure of a staged approach for high risk patients

• Now, also being performed for insufficient weight loss / significant weight regain
Technical Considerations

Sleeve to BPD / DS

• Straightforward… continue on with BPD/DS procedure

• Things to keep in mind…
  - consider re-sleeving the gastric tube (if dilation found)