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Abstract

Metabolic surgery is considered a valuable tool in treating obesity compared to the non-surgical approach. Its effectiveness is evident in the form of weight loss, eliminating obesity-related comorbidities, and improving quality of life. Hence, the rate of metabolic surgery conducted worldwide has risen dramatically, parallel to the increasing rates of obesity. Unfortunately, there are drawbacks to metabolic surgeries. Weight regain/insufficient weight loss is feared by the patient and bariatric surgeon and can occur with nonadherence to a healthy lifestyle and dietary habits. Long-term complications related to metabolic surgery are possible following any metabolic surgery (e.g., chronic reflux, malnutrition, and fistula). Revisional surgery is the most effective approach to combat these drawbacks, and therefore a bariatric surgeon should be familiar with it. This chapter will discuss the indication of revisional surgery, the preoperative workup, the surgical techniques, and the outcome of revisional surgery. The chapter will focus on the most commonly performed metabolic surgery, that is, laparoscopic adjustable gastric band, laparoscopic sleeve gastrectomy, laparoscopic Roux-en-Y gastric bypass, and laparoscopic one anastomosis gastric bypass. By the end of this chapter, the reader will be able to: (1) Define metabolic surgery failure and indications of the revision. (2) Be able to approach the patient preoperatively and formulate a plan. (3) Be knowledgeable about the main operative steps. (4) Be aware of the predicted outcome of revisional surgery.

Keywords: revisional surgery, adjustable gastric band, sleeve gastrectomy, Roux-en-Y gastrectomy, one anastomosis gastric bypass, laparoscopy

1. Introduction

Obesity is now considered an epidemic worldwide and rising at an alarming rate. Not only does obesity increase the chance of developing debilitating comorbidities and affects the quality of life, but also has a major load on health systems and increases costs [1]. One of the most effective tools to tackle obesity is bariatric surgery. It showed remarkable and durable results compared to other means, such as lifestyle changes and intensive medical management [2]. Despite its effectiveness, due to the sedentary lifestyle and the availability of calorie-dense foods, in addition to other factors, weight regain or failure to lose is becoming more prevalent. Other issues of surgical intervention, in general, are the possible occurrence of surgery-related specific complications. Hence, revisional surgery is becoming more popular recently to address these inconveniences. This chapter will address the most common revisional bariatric surgeries practiced.
2. Revision of laparoscopic adjustable gastric band

The laparoscopic adjustable gastric band (LAGB) was introduced in the 1970s with a simple weight loss mechanism for restricting food intake [3]. Since its implementation in the surgical practice, LAGB has shown promising results and gained popularity [4–6]. One of its attractiveness is its reversibility and less-invasive nature than other metabolic procedures [7]. Despite these remarks, LAGB has fallen behind other metabolic procedures. In the most recent IFSO data, LAGB is the fourth most common procedure behind the laparoscopic sleeve gastrectomy (LSG), laparoscopic Roux-en-Y gastric bypass (RYGB), and the one anastomosis gastric bypass (OAGB).

2.1 Indication for revision

With the development of other types of metabolic surgery, the efficacy and results sustainability of LAGB was questioned [8–10]. Another reason for the LAGB decline is the nature of the procedure of inserting a foreign body. This can lead to various complications like band intolerance (slippage, reflux, and esophageal dilatation), port/tube complications (bowel obstruction and infection), or even band erosion through the stomach wall [11]. Hence, band removal is probably inevitable due to different indications. These indications for revision vary in the literature (Table 1).

2.2 Preoperative workup

Before the operation, interviewing the patient by the managing team is crucial to accomplish the desired goals. Symptoms of band intolerance should be carefully assessed, such as epigastric pain, dysphagia, and regurgitation. Band deflation should be considered preoperatively. All patients should undergo an upper contrast study to evaluate the anatomy, assess for reflux/hiatal hernia, and assess if there is neo-pouch development or any signs of band slippage. Band erosion symptoms can vary significantly from being asymptomatic to port infection. Esophagogastroduodenoscopy (EGD) is a valuable tool that should be used if there is any suspicion of band erosion or significant reflux disease [17]. Figure 1 provides a suggested pathway for AGB management.

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of patients</th>
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<th>Reflux</th>
<th>Band failure</th>
<th>Port/tube complications</th>
<th>Erosion</th>
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<td>0.9%</td>
<td>5.4%</td>
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<td>Yeung et al. [13]</td>
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<td>14%</td>
<td>12%</td>
<td>71%</td>
<td>3%</td>
<td>NA</td>
</tr>
<tr>
<td>Falk et al. [14]</td>
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<td>60%</td>
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<td>20.5%</td>
<td>4.9%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Jaber et al. [15]</td>
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<td>9.8%</td>
<td>7%</td>
<td>13.1%</td>
</tr>
</tbody>
</table>

Table 1. Indications of laparoscopic adjustable gastric band revision in selected studies.
2.3 The operation

All patients should receive preoperative antibiotics and prophylaxis for the venous thromboembolic event (VTE). After anesthesia induction, the site of the port should be marked. The abdomen is accessed using a 5 mm visiport at the left upper quadrant 5 cm from the umbilicus. Another 5 mm port in the left upper quadrant is placed at a planned incision site for port removal. A superior epigastric incision is used for Nathanson’s retractor to assist with left hepatic lobe retraction. A 12 mm port is placed 5 cm to the right and superior to the umbilicus. Another 5 mm port is placed in the right upper quadrant. The adhesions of the band should be dissected thoroughly, making sure not to injure the stomach. Complete circumferential dissection is needed to remove the band (Figure 2). Then the tube can be divided near its insertion into the band. It is advisable to separate any fibrous tissue adherent to the stomach wall to
apply the stapler safely (Figures 3 and 4). Then laparoscopic sleeve gastrectomy is done by dividing the greater omentum to the gastroesophageal junction. It is crucial to assess for hiatal hernia. If present, complete mobilization of 2–3 cm intraabdominal esophagus should be accomplished with a posterior and anterior nonabsorbable suture repair (Figures 5 and 6). Creating the sleeve is started by applying staplers along a 36Fr bougie. We prefer to apply clips along the sleeve but not a full deployment to control bleeding. Reinforcement of the staple line with sutures is advisable. The procedure is completed by exteriorizing the band and the resected stomach, removing the port, and closing the skin.

Figure 3.
Resection of fibrous tissue.

Figure 4.
Fine dissection of reactive tissue caused by the band before applying the stapler.
2.4 Postoperative care

Patients are encouraged to ambulate and use incentive spirometry. Intravenous fluid is kept until the next day, and the VTE prophylaxis is started 12 h from surgery. A contrast study is done to assess for any leaks or obstructions. If the contrast study is unremarkable, feeding with clear liquids is resumed. A clear discharge plan summarizing the diet program, medications, and follow-up appointments are described to the patient before leaving the hospital.
2.5 Outcome

As mentioned previously, revision of AGB is inevitable due to different indications. Even if the revision indication was band intolerance or slippage, removing the band only and not conducting another revisional surgery will likely lead to regaining weight. This observation was evident even in patients who follow a healthy diet and perform adequate exercises [16, 18]. Close follow-up for patients who underwent AGB removal and did not have weight regain/insufficient weight loss is crucial to prevent weight regain. There are diverse definitions of bariatric surgery failures from a weight loss perspective that can be used to indicate revision [19]. In the case of weight regain or insufficient weight loss, the type of revisional surgery is debated in the literature, with LSG and RYGB showing comparable results from excessive weight loss and resolution of comorbidities [20, 21]. Various factors can influence the decision on what kind of revision be conducted, including the patient’s preference. Since LSG is undoubtedly less demanding from a technical point of view, we suggest choosing it as the revisional surgery for AGB as long as it is safe to be performed and there are no concerns of postoperative issues (severe reflux or band erosion). If severe reflux is evident by EGD (LA classification grade B/C) or band erosion was discovered preoperatively, the choice of RYGB is more appropriate than LSG. Performing the revision as one-stage versus two-stage is also an area of debate, especially with regards to anastomotic/staple line leak. Thickening of the stomach wall and the adherent capsule associated with the band are possible reasons behind the fear of performing the revision in one-stage. Staple line leak rate in one stage revision to LSG ranged from 0 to 6% in selected reports [22–24]. As for revision to RYGB in one-stage, the anastomotic leak rate was around 1% [25, 26]. The decision of one-stage versus two-stage procedure should be taken carefully. A patient’s medical background is an important determinant factor. The condition and healthiness of the stomach after band removal should be assessed judiciously. In case of the diseased stomach wall or band erosion, a two-stage procedure might be the safer option [27].

3. Revision of laparoscopic sleeve gastrectomy

Laparoscopic sleeve gastrectomy (LSG) became one of the most common procedures conducted worldwide to combat obesity. Initially, it was introduced as the first-stage of a management plan for highly morbid patients with obesity, where another bariatric surgery is planned after weight loss [28]. Since it is increasing in popularity, an international expert panel consensus was introduced to clarify the indications and standardize the technique. The efficacy of LSG compared to other procedures was evident in the literature on weight loss and treating obesity-related diseases [29, 30]. Recently, the literature began to evaluate the long-term effectiveness (>10 years) of LSG, and it showed promising results [31]. With its relative ease compared to other bariatric surgery and the excellent outcomes, LSG became the most common bariatric procedure conducted worldwide. The exploding number of LSGs conducted will undoubtedly lead to an increased revision rate due to complications or weight loss issues, which are becoming more prevalent in the surgical practice.

3.1 Indication of revision

The failure of LSG from a weight-loss standpoint is multifactorial, including the technique implemented, lifestyle behaviors, and possible sleeve dilatation. The rate
of weight regain ranges from 530% [32]. Those who gained weight after an effective restrictive procedure will benefit from the addition of a malabsorptive feature. Reflux disease is a theoretical consequence of LSG. Since the stomach’s lumen decreases in size following the procedure, intraluminal pressure increases, leading to a higher chance of gastric secretions backflow to the esophagus [33]. This phenomenon translates to what is known as de novo reflux disease, and it can be significant to the extent of intolerability affecting a patient’s quality of life. Following LSG, the chance of hiatal hernia development is noteworthy and can potentiate reflux, which needs to be ruled out by EGD [34]. If the fundus is not resected while conducting LSG, it can also be a culprit in post LSG reflux disease, which an upper contrast study or EGD can discover ([Table 2]) [40]. In case of a twist or a stricture of the sleeve that is not amenable to stent or dilation, conversion to bypass is the best option ([Figure 7]).

3.2 Preoperative workup

It is essential to evaluate the pre-LSG weight and how much weight was lost during the patient’s interview. Evaluating a patient’s perspective about the reasons for bariatric surgery failure is crucial. If bad dietary habits were the main reason, consulting a dietitian for education will help lose weight and maintain the loss after revisional surgery.

![Table 2](image)

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of patients</th>
<th>Weight regain/insufficient weight loss</th>
<th>Reflux</th>
<th>Weight regain/insufficient weight loss + reflux</th>
<th>others</th>
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<td>Gadiot et al. [38]</td>
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<td>86.3%</td>
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<td>Felsenreich et al. [39]</td>
<td>33</td>
<td>65.6%</td>
<td>34.3%</td>
<td>0</td>
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</tr>
</tbody>
</table>

Table 2. Indication of laparoscopic sleeve gastrectomy revision in selected studies.

![Figure 7](image)

Figure 7. Suggested pathway decision for sleeve gastrectomy revision.
All patients should undergo an upper GI contrast study to evaluate the status of the sleeve, if dilatation is present, remnant fundus or if there is a twist. Reflux symptoms (heartburn, frequent cough/choking, and using proton pump inhibitors) will require EGD. If there is a consequence of the reflux in the form of esophagitis, then offering RYGB is a safe option. In case of hiatal hernia discovery that can explain the reflux, OAGB can be offered but with a risk of reflux up to 30% in the postoperative period. If the patient is eligible for OAGB, it is essential to mention that reflux can occur after OAGB that can be controlled by avoiding reflux aggravators (large meals, spicy foods, and lying down after meals) and healthy eating habits. In case of biliary reflux, the safest option is RYGB. Figure 5 provides a suggested management plan for the revision of LSG.

3.3 The operation

Preoperative preparations are followed similar to the previous section. After safe entry to the abdomen, we start counting the bowel, first starting from the duodenojejunal junction. If the patient’s BMI is less than 40 kg/m$^2$, 150 cm of the bowel is bypassed. If the BMI is more than 40 kg/m$^2$, 180 cm of the bowel is bypassed. That point is labeled with clips. Adhesions are released from the area of previous stapling till the GEJ. The assessment for any hiatal hernia is critical. Repair of hiatal hernia is accomplished by anterior and posterior nonabsorbable monofilament sutures. At the incisura and below the crow’s feet, we recommend the horizontal transection of the stomach with the highest stapling available (i.e., black reload) (Figure 8). A 36F bougie is introduced, and the pouch should be resized when applicable, avoiding narrowing the lumen (Figure 9). In preparation for the anastomosis, an enterotomy and gastrotomy are made. The gastrotomy should be made at the posterior aspect of the stomach to prevent bile reflux (Figure 10). An ante-colic gastrojejunostomy is constructed by a stapler fired at the 3 cm point joining the two lumens, then closing the defect with a 3-0 continuous absorbable suture in a double layer fashion (Figure 11). We highly recommend fixing the gastric pouch by omentopexy. Alignment stitches should be utilized to align and fix the anastomosis to prevent any kink or twist.
If the decision is to convert to RYGB, we highly recommend counting the whole bowel first. After forming the gastric pouch, a 120 cm alimentary limb is anastomosed to the pouch with a gastrojejunostomy technique similar to what was mentioned previously. A side-to-side jejunoojejunostomy is made with 80–100 cm biliopancreatic limb. It is vital to allow an adequate common channel length to lower the risk of malabsorption. All mesenteric defects must be closed to prevent internal hernias. In case of a twist or stricture, and the decision to go for a bypass, it is important to make the GJ anastomosis above the stricture because the blood supply to that segment might be insufficient, which might threaten the anastomosis viability (Figures 12 and 13).
3.4 Postoperative care

Intravenous fluid should be kept on the first day until the upper GI study confirms free-flowing contrast through the anastomosis, with no interruption or delay of the flow. This is critical, especially after concomitant hiatal hernia repair. Ambulation and incentive spirometry use are necessary to be reminded by the managing team. Anticoagulant medications should be resumed based on the guidelines followed. Before discharge, instructions about diet progression, activity, and specific ominous symptoms requiring attention are explained to the patient.
3.5 Outcome

The success of LSG in weight loss depends on several factors. Some are related to the technique conducted, like the size of the bougie used and the distance from the pylorus where the first stapler is applied [41]. Restricting oral intake is not only the reason for weight loss, but also LSG affects the hormones of interest involved in weight and hunger. The ghrelin level drops significantly postoperatively by removing the fundus, and the peptide YY (PYY) gets considerable elevation after the surgery. This observation probably explains the rapid satiety and hunger reduction during the early years after LSG [42]. Following dietary instructions and avoiding a sedentary lifestyle are key components of success [43]. As long as the procedure is done properly, predictors of weight regain/insufficient weight loss following LSG can be related mainly to dietary misbehavior and nonadherence to instructions [44]. Since restriction has failed in patients with WR/IWL following LSG, a rational strategy is adding a malabsorptive element in the surgical management. The classic revision of LSG is to convert to RYGB, but the OAGB seems to be a strong contender for two main reasons (Table 3). First, OAGB showed a comparative efficacy to RYGB as a rescue procedure, with less operative time and fewer complications [49]. Second, more options for managing weight recidivism can be achieved by adding a procedure before RYGB, which is the OAGB. In case OAGB fails, it can be converted smoothly to RYGB.

There are critiques mentioned in the literature expressing the disapproval of OAGB in some aspects. One of these remarks is the fear of bile reflux and the subsequent continuous esophageal irritation, which is worrisome. This is possible if the gastric pouch is short, increasing the chance of bile backflow to the stomach and ultimately in the esophagus. Keeping the gastric pouch long is critical to prevent the feared bile reflux, and being liberal in using “alignment stitches” or the so called “anti-reflux stitches” to prevent kinks or twists are critical elements in the procedure (Figure 10) [50, 51]. After improving the technique of the OAGB procedure, the rate of bile reflux following OAGB is reported to be around 0.7–2% [52, 53].
A large portion of the bariatric community classifies OAGB as a malabsorptive procedure. Malnutrition became an issue because the bypassed BPL can be as long as 300 cm in some practices. Reports showed severe nutritional deficiencies, hypoalbuminemia, and liver failure [54, 55]. In a survey conducted targeting IFSO members, all revisions due to malnutrition occurred when the BPL was 200 cm or more [56]. Because of OAGB’s simplicity, the length of BPL is the only possible reason for this outcome. It seems that elongating the BPL is not beneficial from a weight-loss standpoint and endangers the patient with malnutrition and its dreadful consequences. Recently, it has been highly recommended not to exceed 180 cm of BPL length in order to prevent malnutrition, and at the same time, this limit will not compromise weight loss [55, 57].

The rate of reported GERD development after LSG ranged from 7.8 to 20%. It could be the consequence of fibers/ligaments division near the gastroesophageal junction, which alters and nullifies the angle of his features in protecting from reflux. Other factors include increased pressure because of the lumen narrowing or missing a hiatal hernia [58]. Unfortunately, when reflux develops after LSG due to a hiatal hernia, simply repairing the hiatal hernia showed disappointing results [59]. The applicability of OAGB in the treatment of reflux is a valid option in certain situations. If there is no severe reflux or Barret’s esophagus on endoscopy, OAGB is a suitable option [60]. Clear communication with the patient about the possible recurrence of manageable reflux postoperatively is necessary.

### 4. Revision of Roux-en-Y gastric bypass

Since several decades ago, laparoscopic Roux-en-Y gastric bypass (RYGB) is still a valuable tool in the bariatric surgeon’s arsenal. It has a unique configuration where it implements a restrictive mechanism by dividing the stomach and forming a small gastric pouch. Secondly, RYGB involves bypassing some of the small bowels by constructing the Roux limb/ alimentary limb delivering the food and a biliopancreatic limb delivering the pancreaticobiliary juices and meeting at the start of the common channel where most of the absorption takes place. (Wolfe) The length of each limb is variable, and there is no clear consensus about the perfect measurements. However, what is agreed on is the efficacy of RYGB in weight reduction by several other

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of patients</th>
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<th>Time until revision (years)</th>
<th>Follow-up rate</th>
<th>Excessive weight loss</th>
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<td>200 cm</td>
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<tr>
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<td>59</td>
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<td>2 years</td>
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<td>69%</td>
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<td>5 years</td>
<td>NA</td>
<td>58%</td>
<td>NA</td>
</tr>
</tbody>
</table>

Table 3. Outcome following revision of sleeve gastrectomy to one anastomosis gastric bypass.
mechanisms, including changes in eating behavior, the favorable elevation of gut hormones (GLP1 and PPY), and likely beneficial changes in energy expenditure [61]. The efficacy of RYGB was pronounced in the literature. With effective and sustainable weight loss and resolution of comorbidities, it is regarded as one of the most effective procedures to combat obesity and obesity-related diseases [2, 62].

4.1 Indication of revision

Despite the effectiveness of RYGB, sadly, it is not immune to the possibility of revisions. The most typical indication of revision after RYGB is the weight regain. We cannot stress enough the importance of interviewing the patient and evaluating one of the most critical factors contributing to weight-regain: dietary habits and lifestyle. Other possible anatomical causes of weight regain need further evaluation. Additional indications for revisions are bile reflux, which can happen in the case of a short alimentary limb [63]. Patients can complain of GERD symptoms post-RYGB, and the presence of a hiatal hernia; a large gastric pouch producing acid can explain this presentation.

4.2 Preoperative workup

Binge eating and loss of self-control can be significant contributing factors to weight regain following bariatric surgery. This issue can be ameliorated with a behavioral therapist and a qualified dietician [64]. Other aspects contributing to weight regain that are related to surgical factors include the diameter of GJ anastomosis, a gastro-gastric (GG) fistula, or a dilated gastric pouch [65–67]. It is an excellent practice to start with an upper contrast study to evaluate the aforementioned anatomical features. If a suspicion of wide GJ anastomosis or a GG fistula is present, an EGD is recommended [68]. Preoperative nutritional assessment and vitamin level could be valuable (Figure 14).

4.3 The operation

The procedure starts with proper and secure patient positioning. Access to the abdomen is achieved using a visiport at 5 cm above and to the left of the umbilicus. Other ports and liver retractors are inserted in a controlled manner. Counting the

![Figure 14](Suggested pathway decision for revision of Roux-en-Y gastric bypass.)
whole bowel at the beginning of the procedure and writing down the measurements is very helpful in formulating a plan. In case of weight regain, our practice dictates shortening the common channel to not less than five meters. The biliary limb is the one getting elongated. The jejunojejunostomy (JJ) will be divided at the distal end of the alimentary limb and brought down to the marked point of the new anastomosis. Enterotomies are made on the antimesenteric side, and a side-to-side anastomosis is made (Figure 15). Closure of the enterotomies is achieved using a double monofilament layer. The mesenteric defects need to be sought out and closed.

Resizing the gastric pouch when applicable is advantageous. In case of extensive adhesions near the gastrojejunostomy, we tend to avoid resizing the pouch if dissection is needed, which might jeopardize blood supply to the GJ anastomosis. It

Figure 15. Constructing a side-to-side jejunojejunostomy.

Figure 16. A nonadjustable gastric band application around the gastric pouch above the gastrojejunostomy.
is essential to investigate the presence of hiatal hernia intra-operatively even if the preoperative scope did not show any signs of hiatal hernia. If present, the release of adhesions and mobilization of a 2–3 cm intrabdominal esophagus is needed. The hernia is closed using an anterior and posterior monofilament sutures. If the common channel is short and does not allow for JJ distalization, applying a nonadjustable restrictive ring might be applicable. Careful dissection proximal to the GJ anastomosis is needed, and it should be snugly applied with no constriction (Figures 16 and 17).

4.4 Postoperative care

According to the protocol, we tend to delay oral intake until oral contrast assures normal flowing contrast with no delays or leakage. After that, clear liquids can be started. Ambulation and respiratory exercise are crucial. Resumption of anticoagulants is started around 12 h after surgery and continued for 2–3 weeks after surgery. Instructions and education before discharge are given, with follow-up appointments and contact numbers in case of emergency.

4.5 Outcome

Since its introduction, RYGB has helped patients with obesity to lose weight and control their comorbidities. Changes in eating habits, food preferences, and hormonal changes are some of the mechanisms explaining the procedure’s efficacy [69]. Although less technically demanding procedures are available, RYGB is still considered the preferable procedure in some areas worldwide. Several reports demonstrated the efficacy of RYGB and its durability from a weight-loss standpoint over 10 years, with a total weight reduction of >25% in 61–71% of patients [70–72]. Despite that, weight regain can happen regardless of the type of weight-reducing surgery. Around 30% of patients with obesity subjected to LRYGB had weight regain, and the cause seems multifactorial, including patient-related causes (binge eating and sedentary lifestyle) and elapsed time since surgery [73, 74].

Figure 17.
A nonadjustable band is applied and sutured to the gastric pouch.
Different approaches can be employed when revising the RYGB after weight-regain or insufficient weight loss. These include modification of bowel length, resizing the gastric pouch, applying a restrictive band, or a combination of these interventions.

4.5.1 Bowel length adjustments

Shortening the common channel to augment the malabsorptive component of RYGB is an intuitive option. Since the configuration of RYGB results in a different type of bowel based on what they deliver, two options arise that leads to shortening the common channel. Firstly, is elongating the Roux limb that ends with shortening of the common channel, and the biliary limb is not affected [75]. Although excess weight loss was excellent with this technique, the risk of nutritional deficiency and protein malabsorption was frequent [76]. The second option is elongating the biliary limb by shortening the common channel [77, 78]. This results in less but effective weight loss, with less risk of malnutrition. There is no consensus on which procedure is optimal, and both procedures are adequate. However, what is essential is to avoid detrimental nutritional deficiency and malnutrition. This can be achieved by measuring the bowel length and ensuring adequate bowel length for nutrient absorption. A total alimentary limb (the sum of Roux limb and common channel) of more than four to five meters is adequate to avoid malnutrition [79].

4.5.2 Resizing the gastric pouch only

Focusing on enhancing the restrictive part of RYGB seems a safe and valid decision for the management of weight regain. The option includes either stapling the gastric pouch, the GJ anastomosis or both, to reduce the volume [80]. The other method is the plication of the gastric pouch under the guidance of a bougie [81]. It is crucial to evaluate the effect of remnant candy cane that might increase the volume of the oral intake. Resizing the gastric pouch not only augments the restrictive nature of RYGB but also reduces GERD by eliminating more of the acid-producing cells [82].

4.5.3 Application of restrictive band

Bad eating habits can ensue after RYGB, probably due to the direct flow of food to the bowel. The size of the GJ anastomosis could be implicated in this phenomenon. Applying a band around the gastric pouch can prevent this hyperphagia through a simple restriction. Both types of band, that is, adjustable and nonadjustable, were examined and showed varying degrees of weight loss. In our opinion, band application seems less attractive compared to the remaining options because of the possible band complications (erosion and slippage) [83, 84].

Other available options include endoluminal revision, which has the lowest weight reduction compared to the other means [85, 86]. A combination of the options mentioned above is potentially valuable to maximize the chance of weight reduction. Careful patient selection and patient commitment are crucial to success.

5. Patient’s compliance

Resolving obesity can be achieved by constructing a management plan between the surgeon and the patient. This plan includes several elements: the surgery,
the follow-up appointments, and compliance with the instructions. These elements collectively contribute to weight loss and sustain the loss most of the time. Unfortunately, some patients fail to follow the plan recommended and end up with weight regain. Patients compliant with the follow-up appointment have better outcomes and more sustainability of weight loss. This is true because the surgeon can keep up with the patient’s progress, catch any details from the management plan, and correct any mistakes that might hinder achieving the goals [87].

The managing team should seek the possibility of the patient’s noncompliance during the preoperative interview. Any indication of an eating disorder (binge eating and anorexia nervosa) should trigger a referral to a behavioral therapist before surgery. Patients with eating disorders have a high chance of failure if not addressed and managed preoperatively [88]. It is crucial to clarify to the patient that bariatric surgeries are a tool to help in weight loss with excellent efficacy. However, keeping a healthy lifestyle and good dietary habits is vital and should not be undermined.

6. Conclusion

Bariatric surgery is an effective tool to manage obesity, reverse obesity-related comorbidities, and improve quality of life. Weight regain or surgical complication following bariatric surgery is not uncommon. The appropriate approach for those patients who were unfortunate with their results should be thorough and systematic. A multidisciplinary team comprising the surgeon, an internist, a behavioral therapist, and a qualified dietician is highly recommended. These patients need complete investigation to assess their suitability for any potential surgical intervention. Patient participation in the management plan by following the instruction and changing lifestyle habits is crucial.
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