ORIGINAL ARTICLE

Evaluation of Gastric Bypass for Failed Sleeve Gastrectomy in Morbidly Obese patients in Al-Azhar University Hospitals

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Abstract

Background: ***Bariatric surgeries, also known as weight loss surgeries, have been confirmed to be the most effective treatment for achieving substantial weight loss, especially in morbidly obese people. These surgeries are either restrictive, malabsorptive, or both. They alter the size of the stomach to reduce food intake and also minimize the length of the small intestine that is available for absorption of nutrients.***

Aim: ***To evaluate the outcomes of gastric bypass after failed sleeve gastrectomy(LSG) in terms of weight loss, improvement of associated medical problems, nutritional assessment, and occurrence of complications over 1.5 years of follow-up.***

Subjects and methods: ***This prospective randomized controlled single-blinded trial study was carried out on 106 morbidly obese patients after failed laparoscopic sleeve gastrectomy, admitted to the General Surgery department, Al-Azhar University Hospitals, Cairo, Egypt, from February 2023 to February 2025 (Group A = 53 patients with RYGB and Group B = 53 patients with OAGB).***

Results: ***Weight and BMI were significantly lower at 12 months and 18 months in group B than in group A. Total weight loss and body mass loss were significantly higher at 12 months and 18 months in group B than in group A. Early and late complications were insignificantly different between the two groups.***

Conclusion: ***One-anastomosis gastric bypass (OAGB) offers superior long-term weight loss outcomes compared to RYGB following the failed LSG, with similar safety profiles and insignificant difference in comorbidities improvement.***

Keywords: Full Thickness Cartilage Graft; Partial Thickness Cartilage Graft; Type 1 Tympanoplasty

1. Introduction

Bariatric surgery offers the highest level of improvement of comorbid conditions such as diabetes, hypertension, dyslipidemia, sleep apnea, osteoarthritis, etc. It is therefore not surprising that the number of weight loss surgeries performed has increased in the last few years.[1]

Many factors are responsible for the failure of bariatric surgery. These include the type of procedure, the preoperative weight or BMI, the competency of the surgeon, the level of adherence to the post-surgery diet and exercise plan. All these factors work together, making it difficult to correctly pinpoint the cause of failure of weight loss in a particular patient. Emphasis is often placed on the importance of diet and exercise after bariatric surgery. Patients' compliance with dietary and exercise plans often differs. While this may not contribute significantly to failure in class I or II obese patients (BMI: 30-39), it may become a major factor for failure in the morbidly and super obese people.[1]

Gastric sleeve surgery is a restrictive bariatric procedure that was performed as the first step in the duodenal switch before becoming a stand-alone system. Its effectiveness regarding weight loss and improvement of comorbid conditions is very close to that of gastric bypass, and it is also less complicated. The weight loss average is about 59% and a negligible mortality rate. The long-term failure rate, as evidenced by loss of less than 50% of the excess weight, can be as high as 30% but typically less than 15%. Gastric sleeve success rate: 85%. The bariatric surgery failure rate ranges between 5% and more than 50% depending on the procedure. Likewise, the success rates will vary from 95% to 50% depending on the procedure.[2]

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Roux-en-Y gastric bypass (RYGB) is the most commonly performed revision procedure after LSG, followed by re-sleeving [3], while one-anastomosis gastric bypass (OAGB) is a less common approach.[4]

The revision of OAGB after LSG also showed excellent results regarding weight loss and the improvement of associated medical problems.[5]

The aim of this study was to evaluate the outcomes of gastric bypass after failed sleeve gastrectomy (LSG) in terms of weight loss, improvement of associated medical problems, nutritional assessment, and occurrence of complications over 1.5 years of follow-up.

2. Patients and methods

This prospective randomized controlled single-blinded trial study was carried out on 106 morbidly obese patients after failed laparoscopic sleeve gastrectomy, admitted to the General Surgery department, Al-Azhar University Hospitals, Cairo, Egypt, from February 2023 to February 2025. The study was approved by the Ethics Committee of the Faculty of Medicine, Al-Azhar University, Egypt. Informed written consent was obtained from each patient. There are adequate provisions to maintain the privacy of participants and the confidentiality of the data.

Sample size:

It was calculated according to the following prerequisite:

Proportion of suspected efficacy of RYGB in terms of weight loss, improvement of associated medical problems, nutritional assessment, and occurrence of complications=0.5, Confidence level=0.95, Zα two-sided = 1.96, Marginal error (ME)=0.1. Sample size (n)=p (1-p)x(Z α)2/(ME)2=0.5(l-0.5)x(1.96)2÷(0.1)2=96.04 nearly~96, Expected dropout rate (f)=10%, q=1÷(1-f), q=1÷ 0.9=1.1, and n=96x 1.1=105,6~106. A minimum sample size of 106 patients was selected to be included at the start of the study (Group A = 53 patients with RYGB and Group B = 53 patients with OAGB).

Inclusion criteria:

Age 18-60 years old, weight regain was the main inclusion criterion, defined as any increase in weight above the nadir as reported by the patient, and the mean BMI at the time of revisional surgery is around 40kg/m2.

Exclusion criteria:

Patient refusal, psychiatric disorder, patients with grade-B or higher GERD according to the Los Angeles (LA) classification, patients who are unfit for general anesthesia, and patients with any contraindications for laparoscopic surgery.

Randomization and blindness:

An online randomization program (http://www.randomizer.org) was used to generate a random list, and each patient's code was kept in an opaque sealed envelope. Patients were randomly allocated with a 1:1 allocation ratio into two groups in a parallel manner: Group A (n=53): patients underwent RYGB; Group B (n=53): patients underwent OAGB.

Preoperative work-up:

Every patient was subjected to: full history taking, laboratory investigations, clinical examination,

medical disorders such as: hypertension, heart bum, reflux esophagitis (GERD), chest pain, weight regain and complication after previous surgery, respiratory complaint as OSA (assessed by using STOP-BANG questionnaire), musculoskeletal diseases, and Type 2 diabetes recording fasting, 2hours postprandial glucose level and HBA1C. Anthropometric measurements such as: weight, height, and calculation of BMI=weight in Kg/(height in m)2, WC, HC, and WHR.

Imaging:

Pelvi-abdominal ultrasound to assess liver status and gallbladder stones or other intra-abdominal pathology, 3D CT gastric volumetric study to assess volume and shape of sleeved stomach, detection of any kink or twist or dilatation and detection of preserved fundus of sleeved stomach, barium meal to assess shape of stomach, upper GIT Endoscopy: to ensure healthy stomach (patients suffering from gastritis, duodenitis and Helicobacter pylori infection were managed medically before being enrolled in the study and submitted to surgery), chest x-ray and pulmonary function tests to assess respiratory status, echocardiogram and ECG for cardiac assessment, finally, Duplex US on venous system of both lower limbs to excluded DVT.

Preoperative diet:

All patients have been advised to be on a low-calorie, high-protein diet at least 2weeks before surgery. Clear fluids were allowed the day before the operation, and nil by mouth from midnight.

Preoperative management of the general condition:

Control of concomitant illness (if present), e.g., hypertension, diabetes, anemia, electrolyte imbalance, and cessation of smoking. All patients received preoperative broad-spectrum antibiotics. Thrombo-embolic prophylaxis with low molecular weight heparin (enoxaparin 40mg/0.4ml) has been given subcutaneously once every 12hours before the operation.

Operative work-up of RYGB:

An initial diagnostic laparoscopy was performed with the objective of ensuring that no abdominal adhesions are present and to check for any hiatus hernia or other unrelated abdominal pathology.

Creation of the gastric pouch:

Adhesolysis was done first (Figure 1). The liver retractor is placed. A lesser curve-based gastric pouch was performed by creating a window at the lesser curvature between the second and third gastric branches of the left gastric vessels. The first fire was applied using Stapler Articulating Linear Cutter perpendicular to the lesser curve by passing through the created window and was fired, forming the base of the pouch (about 4cm in length) (figure 2).

Then the 36-French bougie was inserted. Dissection of the posterior wall of the gastric pouch till the angle of His was done, then serial staplers were fired in a cephalic direction parallel to the lesser curvature alongside a 36-French bougie towards the angle of His till complete division of the gastric pouch. Resizing of the pouch and removal of the dilated fundus (Figure 3). A gastrostomy was done on the posterior wall of the gastric pouch about 1-2cm from the staple line.

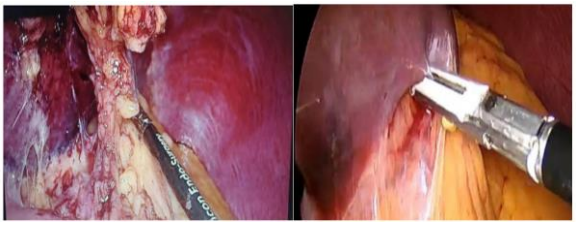

Figure 1. Adhesolysis.

Figure 2. Creation of gastric pouch.

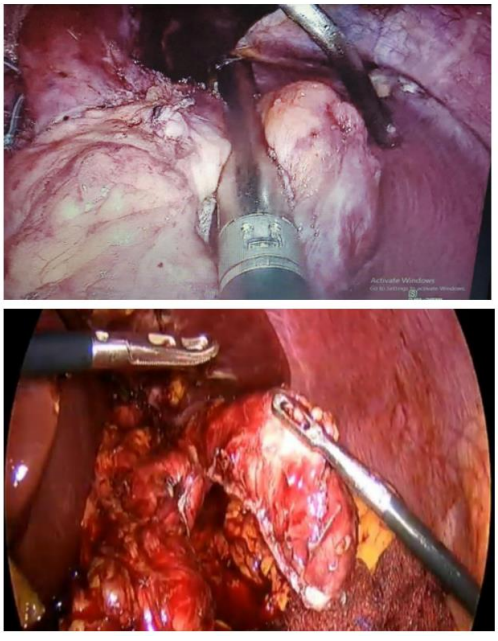

Figure 3. Resizing of the pouch and removal of the dilated fundus.

Construction of gastro-jejunal anastomosis with antecolic omega loop:

The transverse colon and omentum are reflected superiorly to the upper abdomen, and the ligament of Treitz and duodenojejunal flexure were identified. The whole length of the small bowel was routinely measured. Then a loop 150cm of jejunum from DJ was measured and taken up to the level of the gastric pouch in an antecolic retro-gastric position with its proximal limb to the left side and its distal limb to the right side of the patient. A jejunotomy was performed on the antimesenteric border, and the linear stapler was partially inserted, forming a 3cm gastro-jejunal anastomosis (GJA) (Figure 4). The gastro-enterotomy was then closed. The leak test was routinely done.

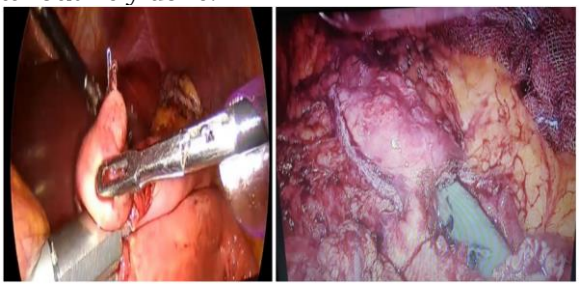

Figure 4. Gastro-jejunal anastomosis (GJA).

Jejuno-Jejunostomy and closure of the mesenteric defect:

The afferent limb was then divided just proximal to the GJA, creating the biliopancreatic limb (BPL). The Roux limb (alimentary limb) is measured distally from the gastro-jejunostomy for a distance of 100cm. Two enterotomies were performed at the antimesenteric borders of both BPL and alimentary limbs. Jejuno-Jejunostomy was established with an Articulating Linear stapler (Figure 5).

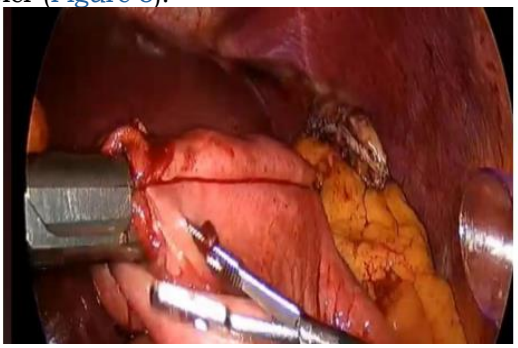

Figure 5. Jejuno-jejunostomy.

The enterotomy was closed. The mesenteric defect and Petersen's space were then closed using a purse-string non-absorbable suture (Figure 6). Checking hemostasis, drain insertion, removal of ports under vision, and skin closure.

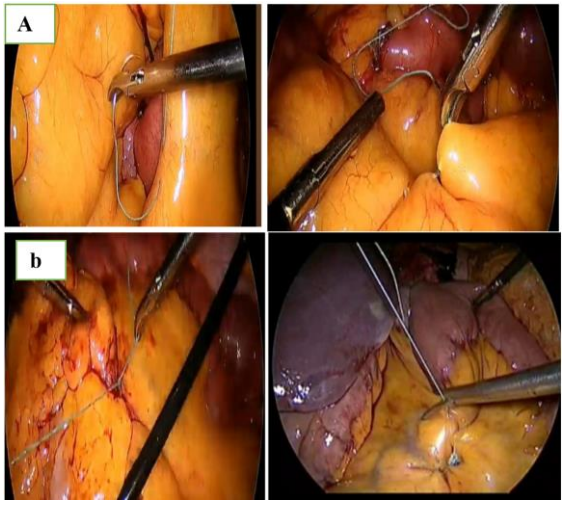

Figure 6. a) Closure of the mesenteric defect, b) Closure of the Petersen's space

Surgical technique of one anastomosis (Mini) Gastric Bypass:

An initial diagnostic laparoscopy was performed. The applied technique in our study was: Gastro-jejunostomy anastomosis: antecolic, length of biliopancreatic limb (BPL) 200cm. Start with the creation of the gastric pouch and the gastro-jejunal anastomosis (GJA). Anastomotic technique was performed using a linear stapler.

Creation of the gastric pouch:

The liver retractor is placed. A lesser curve-based gastric pouch was performed by creating a window at a point at the "crow's foot" level. The first fire was applied perpendicular to the lesser curve by passing through the created window and was fired, forming the base of the pouch (about 4cm in length). Then the 36-French bougie was inserted. Dissection of the posterior wall of the gastric pouch till the angle of His was done, then serial staplers were fired in a cephalic direction parallel to the lesser curvature alongside a 36-Fr bougie towards the angle of His till complete division of the gastric pouch. A gastrostomy was done on the posterior wall of the gastric pouch about 1-2cm from the staple line.

Construction of gastro-jejunal anastomosis with antecolic omega loop:

The whole length of the small bowel was routinely measured. Then a loop of 200cm of jejunum from DJ was measured and taken up to the level of the gastric pouch in an antecolic retro-gastric position with its proximal limb to the left side and its distal limb to the right side of the patient. A jejunotomy was performed on the anti-mesenteric border, and the linear stapler was partially inserted, forming a 3cm gastro-jejunal anastomosis (GJA). The gastro-enterotomy was then closed. The leak test was routinely done.

Post-operative care:

Patients were admitted to the PACU, placed in the Fowler position, oxygen was administered by nasal cannula, and weaned thereafter. Then, patients were transferred to the ward after complete recovery (unless ICU admission was indicated). Care was directed to: respiration, pain control, thrombo-embolic prophylaxis, close observation of the intra-abdominal drain, and the patient's oral intake.

Complications management:

Leakage from an anastomosis site made urgent intervention (drainage, antibiotics, possible surgery). Bleeding, whether internal or external, necessitates blood transfusions and sometimes a return to the operating room. Wound infections were managed with antibiotics and local wound care. Pneumonia needed early mobilization, respiratory physiotherapy, and antibiotic treatment. Deep vein thrombosis (DVT) is a serious concern due to the risk of progression to pulmonary embolism (PE), which was managed by anticoagulation therapy and prophylactic measures like compression socks.

Biliary reflux led to gastritis and esophagitis, often requiring medical therapy with proton pump inhibitors or, in persistent cases, surgical correction. Internal herniation is a serious complication that can cause bowel obstruction or ischemia; it requires urgent imaging and surgical intervention. Malnutrition is another critical issue, particularly after malabsorptive procedures, and necessitates nutritional counseling, supplementation, or, in severe cases, parenteral nutrition. Gallstone formation is common due to rapid weight loss post-surgery and may require cholecystectomy if symptomatic.

GERD developed or worsened after surgery, requiring lifestyle modifications, medications, or revisional surgery. Dumping syndrome affects quality of life, leading to symptoms such as nausea, diarrhea, and hypoglycemia after meals; management involves dietary adjustments like smaller, low-sugar meals and adequate hydration.

Statistical analysis:

Statistical analysis was done by SPSS v27(IBM©, Armonk, NY, USA). The Shapiro-Wilks test and histograms were used to evaluate the normality of the distribution of data. Quantitative parametric data were presented as mean and standard deviation (SD) and were analyzed by an unpaired Student's t-test. Quantitative non-parametric data were presented as the median and interquartile range (IQR) and were analyzed by the Mann-Whitney test. Qualitative variables were presented as frequency and percentage (%) and analyzed using the Chi-square test or Fisher's exact test when appropriate. A two-tailed P-value<0.05 was considered statistically significant.

Results

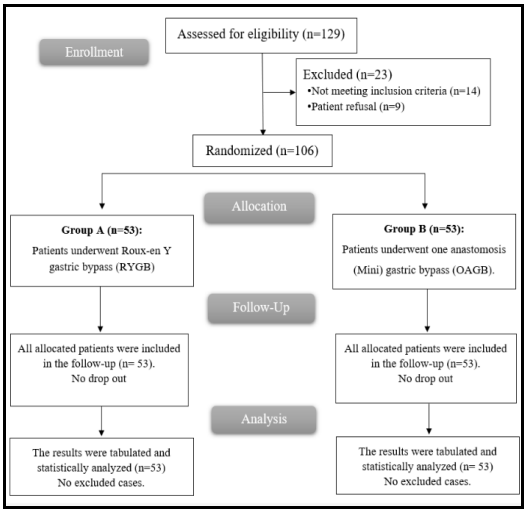

Figure 7. CONSORT flowchart of the enrolled patients.

Table 1. Demographic data of the studied groups.

		GROUP-A (N=53)	GROUP-B (N=53)	P-VALUE
AGE (YEARS)	Mean±SD	38.15±9.52	39.13±10.75	0.620
	Range	20-56	24-57	
SEX	Male	24(45.28%)	21(39.62%)	0.556
	Female	29(54.72%)	32(60.38%)	
HEIGHT(CM)	Mean±SD	169.51±5.55	171.15±5.44	0.127
	Range	159-180	161-179	
OBESITY ONSET	Childhood	25(47.17%)	29(54.72%)	0.437
	Adulthood	28(52.83%)	24(45.28%)	

Age, sex, height and obesity onset were insignificantly different between the two groups,(table 1).

Table 2. Hospital stay, post-operative ICU admission and operation time of the studied groups.

		GROUP-A (N=53)	GROUP-B (N=53)	P-VALUE
HOSPITAL STAYS (DAYS)	Median	4	3	0.101
	IQR	3-4	2-4	
POSTOPERATIVE ICU ADMISSION		4(7.55%)	3(5.66%)	1
OPERATION TIME(MIN)	Mean±SD	140.75±27	127.64±20.86	0.006*
	Range	95-180	90-160	

Hospital stay, and postoperative ICU admission were insignificantly different between the two groups. Operation time was significantly lower in group-B than group-A(P-value=0.006),(table 2).

Table 3. Weight of the studied groups.

	GROUP-A (N=53)	GROUP-B (N=53)	P-VALUE
PREOPERATIVE	132.87±8.46	131.04±8.62	0.273
1-MONTH	116.51±10.44	113.64±11.36	0.179
3-MONTHS	103.81±10.65	101.38±11.2	0.254
6-MONTHS	91.77±10.94	88.96±11.55	0.201
12-MONTHS	87.21±10.66	81.62±11.84	0.012*
18-MONTHS	90.89±12.7	83.7±13.72	0.006*

*:Significantly different as P-value≤0.05

Weight was insignificantly different at 1-month, 3-months, and 6-months between the two groups and was significantly lower at 12-months and 18-months in group-B than group-A (P-value<0.05),(table 3).

Table 4. Body mass loss of the studied groups.

	GROUP-A (N=53)	GROUP-B (N=53)	P-VALUE
1-MONTH	5.68±1.09	5.91±1.88	0.457
3-MONTHS	10.11±1.6	10.11±2.28	0.996
6-MONTHS	14.31±1.82	14.38±2.82	0.877
12-MONTHS	15.92±1.89	16.89±2.96	0.045*
18-MONTHS	14.59±2.94	16.16±3.49	0.014*

*:Significantly different as P-value≤0.05.

The body mass loss was insignificantly different at 1-month, 3-months, and 6-months between the two groups and was significantly higher at 12-months and 18-months in group-B than group-A(P-value<0.05),(table 4).

Table1. Complications of the studied groups.

		GROUP-A (N=53)	GROUP-B (N=53)	P-VALUE
EARLY	Leakage	1(1.89%)	1(1.89%)	---
	Bleeding	2(3.77%)	2(3.77%)	---
	Wound infection	2(3.77%)	4(7.55%)	0.678
	Pneumonia	2(3.77%)	1(1.89%)	1
	Deep vein thrombosis	1(1.89%)	1(1.89%)	---
	Pulmonary embolism	1(1.89%)	0(0%)	1
LATE	Biliary reflux	0(0%)	2(3.77%)	0.495
	Internal herniation	3(5.66%)	1(1.89%)	0.617
	Malnutrition	4(7.55%)	1(1.89%)	0.362
	Development of gall stone	4(7.55%)	3(5.66%)	1
	GERD	0(0%)	2(3.77%)	0.495
	Dumping syndrome	4(7.55%)	4(7.55%)	---
	Increase weight	1(1.89%)	0(0%)	1

Early and late complications were insignificantly different between the two groups, (table 5).

3. Discussion

Obesity is a complex and multifaceted condition that has experienced a substantial increase worldwide over recent decades, with approximately one-third of the world's population now classified as overweight or obese.[6]

LSG is the most performed bariatric procedure due to its proven effectiveness in weight reduction, improvement of comorbid conditions, and overall enhancement of quality of life. The procedure's popularity can be attributed to its favorable safety profile, technical feasibility, and consistently positive outcomes.[7]

RYGB is a frequently used revisional procedure, particularly for GERD patients who have undergone LSG. RYGB is considered an efficient treatment for GERD post-SG due to its ability to address the reflux.[8]

In the current study, age, sex, height, and obesity onset were insignificantly different between the two groups. Operation time was significantly lower in group B than in group A.

In the same line, Santoro et al.,[9] carried out a meta-analysis to compare RYGB and OAGB following SG. They found that operative time was significantly lower in the OAGB group than in the RYGB group.

Similarly, Ataya et al.,[10] conducted a meta-analysis that included 817 patients (404 in the OAGB group, 413 in the RYGB group) following

unsuccessful LSG. They reported that the mean operative time was significantly lower for OAGB than for RYGB.

In the current study, weight and BMI were significantly lower at 12 months and 18 months in group B than in group A. Weight loss and body mass loss were significantly higher in the 12-month and 18-month groups in group B than in group A.

Along with the findings of this study, Santoro et al.,[9] found that total weight loss was significantly greater in the OAGB group than in the RYGB group. In a consistent Chiappetta et al.,[11] found in their retrospective study that weight loss was significantly greater in the OAGB group than in the RYGB group at 1-year follow-up.

In the present study, early and late complications were insignificantly different between the two groups. Similarly, Vitiello et al.,[12] stated that there were no statistically significant differences regarding complications in both OAGB and RYGB.

In line with the findings of the current study, Ataya et al.,10 reported that complications were insignificantly different between OAGB and RYGB.

Supporting the findings of the present study, Rheinwalt et al.,[13] reported that perioperative complication rates were insignificantly different between RYGB and OAGB.

Also, Hany et al.,[14] showed that both OAGB and RYGB were safe, with insignificant differences in the occurrence of complications.

In accordance with the findings of the present study, Abo Naga et al.,[15] conducted a study to assess the effectiveness of OAGB as a revisional surgery after failed LSG regarding weight loss, EWL, TBWL, complication rate, and remission of obesity related morbidities. They concluded that OAGB is an effective revisional bariatric surgery for patients who didn't reach sufficient weight loss or maintain their weight after failed LSG, with higher rates of weight loss and lower rates of early complications.

Besides, Al Sabah et al.,[16] carried out a retrospective study to assess the long-term outcomes of revisional OAGB post LSG. They stated that OAGB, as a revisional procedure, has proven to be safe and effective in the long-term outcomes of revisional OAGB patients post-LSG.

4. Conclusion

OAGB offers superior long-term weight loss outcomes compared to RYGB following the failed LSG, with similar safety profiles and insignificant difference in comorbidities improvement.

Disclosure

The authors have no financial interest to declare in relation to the content of this article.

Authorship

All authors have a substantial contribution to the article

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Conflicts of interest

There are no conflicts of interest.

References

1. Bennett JM, Mehta S, Rhodes M. Surgery for morbid obesity. Postgrad Med J.2007;83(975):8-15.
2. Madura JA. 2nd and Dibaise JK. Quick fix or long-term cure? Pros and cons of bariatric surgery. F1000 Med Rep.2012;4(1):19-26.
3. Lazzati A, Bechet S, Jouma S, et al. Revision surgery after sleeve gastrectomy:a nationwide study with 10-years of follow-up. Surg Obes Relat Dis.2020;16(10):1497-504.
4. Guan B, Chong TH, Peng J, et al. Mid-long-term revisional surgery after sleeve gastrectomy: A systematic review and meta-analysis.Obes Surg.2019;29(6):1965-75.
5. Parmar CD, Gan J, Stier C, et al. One anastomosis/mini gastric bypass (OAGB-MGB) as revisional bariatric surgery after failed primary adjustable gastric band(LAGB) and sleeve gastrectomy (SG):A systematic review of 1075-patients. Int J Surg.2020;81(1):32-8.
6. Shah A, Davarci O, Chaftari P et al. Obesity as a disease:A primer on clinical and physiological insights. Methodist Debakey Cardiovasc J.2025;21(2):4-10.
7. Mocian F, Coroş M. Laparoscopic sleeve gastrectomy as a primary bariatric procedure:Postoperative outcomes. Med Pharm Rep.2021;94(2):208-15.
8. Strauss AL, Triggs JR, Tewksbury CM, et al. Conversion to Roux-en-Y gastric bypass:A successful means of mitigating reflux after laparoscopic sleeve gastrectomy. Surg Endosc.2023;37(7):5374-9.
9. Santoro G, Alfred J, Rehman A, et al. Revisional bariatric surgery following sleeve gastrectomy: A meta-analysis comparing Roux-en-Y gastric bypass and one anastomosis gastric bypass. Ann R Coll Surg Engl.2025;107(3):180-7.
10. Ataya K, El Bourji H, Bsat A, et al. Roux-en-Y gastric bypass versus one anastomosis gastric bypass as revisional surgery after failed sleeve gastrectomy: A systematic review and meta-analysis.J Metab Bariatr Surg.2023;12(2):57-63.
11. Chiappetta S, Stier C, Scheffel O, et al. Mini/one anastomosis gastric bypass versus roux-en-Y gastric bypass as a second step procedure after sleeve gastrectomy-a retrospective cohort study. Obes Surg.2019;29(3):819-27.
12. Vitiello A, Berardi G, Peltrini R, et al. One-anastomosis gastric bypass(OAGB) versus Roux-en-Y gastric bypass(RYGB) as revisional procedures after failed laparoscopic sleeve gastrectomy(LSG):Systematic review and meta-analysis of comparative studies. Langenbeck's Arch Surg.2023;408(1):440.
13. Rheinwalt KP, Schipper S, Plamper A, et al. Roux-en-Y versus one anastomosis gastric bypass as redo-operations following sleeve gastrectomy: A retrospective study. World J Surg.2022;46(4):1.
14. Hany M, Zidan A, Elmongui E et al. Revisional Roux-en-Y gastric bypass versus revisional one-anastomosis gastric bypass after failed sleeve gastrectomy: A randomized controlled trial. Obes Surg.2022;32(11):3491-503.
15. Abo Naga M, Nagy M, Afifi AH. One-anastomosis gastric bypass(OAGB) after failed laparoscopic sleeve gastrectomy: A single centre prospective study of 3-years of follow up.Ain-Shams J Surg.2024;17(1):98-103.
16. AlSabah S, Al Haddad E, Al-Subaie S, et al. Long-term outcomes of revisional one anastomosis gastric bypass post laparoscopic sleeve gastrectomy. Langenbeck's Arch Surg.2023;408(1):43-50.