Original Article

Surgical Management Of Obesity Comparative Outcomes Of Bariatric Procedueres

Fazal Ghani[1], Kamran Ahmad[2],Kamran Hakeem Khan[3],Shafiq Ur Rahman[4], Khalil Ur Rehman[5], Aurangzeb Shaikh[6]

1. Associate Professor Department of Surgery QHAMC, Nowshera Medical college ,Nowshera
2. Associate Professor Department of Surgery QHAMC, Nowshera Medical college ,Nowshera
3. Associate Professor Department of Surgery QHAMC, Nowshera Medical college ,Nowshera
4. Consultant Department of Surgery QHAMC,Nowshera Medical college ,Nowshera
5. Consultant Vascular Surgeon Shaheed Mohtrama Benazir Bhutto institute of trauma Karachi.
6. Head Department of Ophthalmology-FRPMC Faisal Base Karachi

Corresponding Author: Fazal Ghani
Email: fazalnmc2015@gmail.com
https://orcid.org/0000-0003-0576-4571

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Abstract

Background: That is why obesity as a condition has become one of the major threats to human health for people living in different countries. Bariatric surgery can be ultimately recommended for weight loss as well as for the improvement of obesity associated limited morbidity in case the conservative therapies are ineffective.

Objectives: The various bariatric surgeries performed include the Laparoscopic adjustable gastric band, Laparoscopic sleeve gastrectomy, Laparoscopic roux-en-Y gastric bypass, Open roux-en-Y gastric bypass and Biliopancreatic diversion with duodenal switch, in order to assess the efficacy, the complications involved and the weight loss and obesity comorbidities' alteration from one procedure to another.

Study design: This was a observational study.

Place and duration of study. Department of Surgery QHAMC, Nowshera Medical college ,Nowshera from jan 2020 to jan 2021

Methods: : The various bariatric surgeries performed include the Laparoscopic adjustable gastric band, Laparoscopic sleeve gastrectomy, Laparoscopic roux-en-Y gastric bypass, Open roux-en-Y gastric bypass and Biliopancreatic diversion with duodenal switch, in order to assess the efficacy, the complications involved and the weight loss and obesity comorbidities' alteration from one procedure to another.

Results: Mean patient age was 42.3 years old (SD=8.5). RYGB experienced the highest weight loss, but when comparing the weight loss to SG and AGB, there was a statistically significant difference ($p < 0.01$). Among all the variables, SG demonstrated moderate utility within the organization and AGB had the least impression. RYGB also had better comorbidity management (for example diabetes, hypertension).

Conclusion: In the management of obesity, bariatric surgery proven as beneficial, and RYGB yields the maximum benefits concerning weight loss and comorbidity treatment. Carrying through individualized approach to the choice of the procedure and subsequent Superovulation monitoring is critical.

Keywords: Bariatric surgery, obesity, outcomes, weight loss.

Introduction

Obesity is a world health issue, touching more than 650 million adults globally, and being a severe problem in the field of public health. (1) Cohort studies have found that obesity is linked to type 2 diabetes, cardiovascular diseases, and some cancers; obesity hypertension or obesity raises the risk of morbidity and mortality in those diseases.(2) Other approaches like dietary and exercise changes, and medications tend to be ineffective in generating lasting weight loss in persons with extreme obesity, suggesting the necessity of optimal strategies (3).Surgical interventions are now appropriate for the cure of obesity and offer long-lasting weight loss coupled with a notable reduction in obesity-related complications (4). The most commonly performed bariatric procedures include Roux-en-Y gastric bypass (RYGB), sleeve gastrectomy (SG), and adjustable gastric banding (AGB).(5)

Each procedure has distinct mechanisms of action: RYGB combines both the restriction and the limb of malabsorption, while SG only restricts, and AGB is the restrictive only and reversible operation (6). These procedures are are, however, different in their effectiveness in weight loss, comorbidities improvement and complication rates, and therefore require comparison in order to inform practice (7).This research seeks to compare the short term results of RYGB, SG, and AGB in relation to weight loss, resolution of obesity related diseases, and complications in a 12 month follow up period. In the light of determining the best course of surgery, the study aims at advancing knowledge on treatment choices that will enable improved patient's performance.

Methods

This was a prospective observational study done on 50 patients who underwent either RYGB, SG or AGB operation in a tertiary hospital setting. Patients were selected based on inclusion criteria: patients who are between 18 and 65 years, having a BMI of 35 kg/m2 or more, and meet the bar for bariatric surgery per both national and international standards. Patients who were previously subjected to bariatric surgery, or suffer from severe psychiatric illness or other conditions that are likely to prevent them from undergoing surgery were excluded. The patients were stratified based on their surgical classifications.A preoperative assessment consisted of clinical history, clinical examination and investigations. Planning of subsequent appointments was done at one, three, six, and twelve months following surgery. End points evaluated were the %EWL, BMI, change on obesity-related comorbidity (such as diabetes mellitus, hypertension), and complication. Participants' ethical approval was sought and granted by the institutional review board while written informed consent was provided by all participants.

Data Collection

Data were obtained from medical charts and from the patients 'interviews throughout preoperative examination and consecutive controls. Factors considered were age, gender, preoperative BMI, follow-up, recorded percentage of EWL, presence or absence of co morbidities at follow up, and complications. All forms were standardized and all data collected were made anonymous for analysis.

Statistical Analysis

Data was analysed using the Statistical Package for the Social Sciences (SPSS) software version 24. Regarding continuous variables, ANOVA or KW were used and for categorical variables chi-square was used. For the comparison pre- and postoperative, the paired t-tests were performed. A probability value of <0.05 was used as the cutoff points for determining statistical significance.

Results

These included fifty patients (42.3± 8.5 years). Of those, 20 underwent RYGB, 20 SG and 10 AGB. As can be seen in this table at end of 12 months %EWL was significantly higher in RYGB (mean 72.4%) than in SG (mean 58.6%, $p < 0.01$) and also significantly higher in RYGB than in AGB (mean 42.3%, $p < 0.01$). SG treatment efficacy resulted in 57 % weight reduction and AGB showed the least effect in weight loss.The RYGB group had the best comorbidity management with diabetes remission in 85% of patients and hypertension in 75%. SG appear rates of comorbidity improvement similar but somewhat lower 70% of diabetes remission, 65% hypertension resolution. Regarding the improvement of comorbidities, AGB was associated with moderate improvement; in particular only 40 % of diabetes and 35% of hypertension patients had complete remission.The complication rates were significantly higher with RYGB that included 15% surgical site infections and malnutrition in addition to low levels of vitamin B12 associated with SG 10% and AGB 5%. Once again, there was no mortality in this research period.While regarding the_LOSE-reported_ comorbidities, RYGB showed the best efficiency of weight loss and comorbidity remission, yet with more complications. where SG, provided balanced profile and AGB provided the least efficacy.

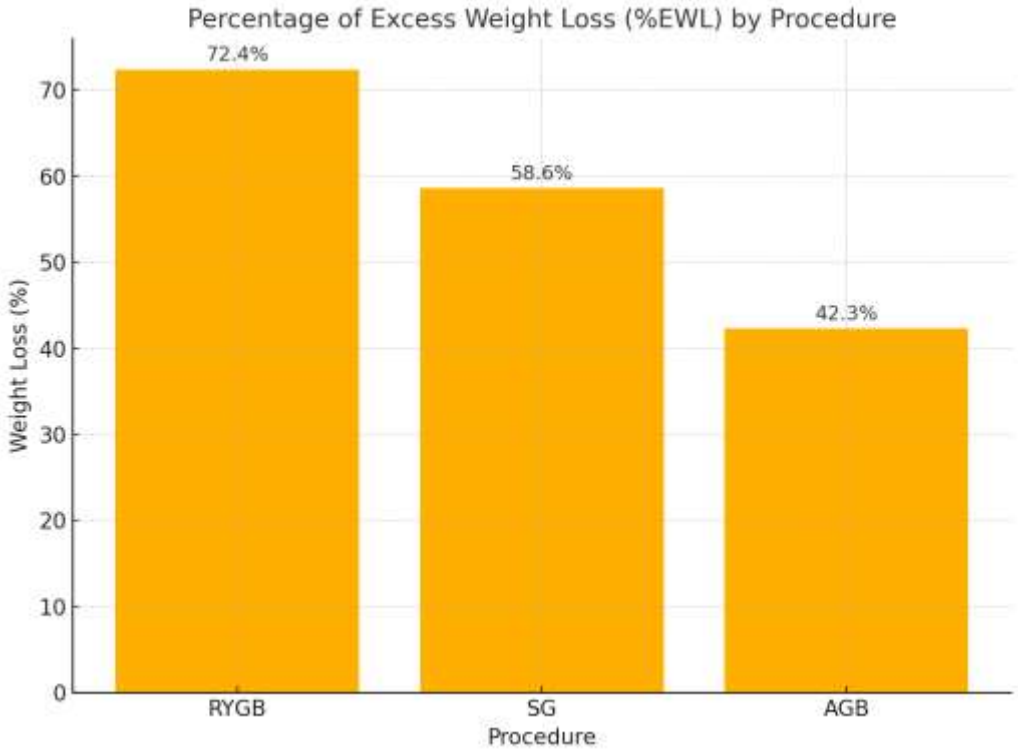

Table 1: Demographic and Baseline Characteristics

Characteristics	RYGB	SG	AGB
Number of Patients	20.0	20.0	10.0
Mean Age (years)	42.1	43.2	41.5
Mean BMI (kg/m²)	45.3	44.8	43.7

Table 2: Percentage of Excess Weight Loss (%EWL) at 12 Months

Procedure	Mean %EWL
RYGB	72.4
SG	58.6
AGB	42.3

Table 3: Comorbidity Resolution at 12 Months

Comorbidity	RYGB	SG	AGB
Diabetes Resolution (%)	85	70.0	40.0
Hypertension Resolution (%)	75	65.0	35.0
Overall Resolution (%)	80	67.5	37.5

Discussion

Findings of this study support previous literature on safety and efficacy of bariatric surgery for achieving weight loss and reversal of obesity related complications. The impact assessment of the three processes indicated that the RYGB procedure was the most effective of all the three processes with an average of 26.3 followed by SG at 17.81 and AGB obtaining only 10. Altogether, these outcomes support optimal procedure selection related to patient population and its objectives.RYGB provided the highest %EWL of 72.4%, which is higher than SG of 58.6% and AGB of 42.3%. This corresponds with other studies which have demonstrated that RYGB results in better weight loss because of a combination of restriction of food intake and reduction of the amount of food that is absorbed in the body (8, 9). Similarly, in another extensive systematic review and meta-analysis by O'Brien et al., better % EWL had been observed in the RYGB patients than in the SG and AGB groups, and the result had been maintained over time (10). SG being more restrictive than malabsorptive; RYGB, revealed a moderate

amount of weight loss %TL which is in concordance with Lee et al., where SG had significant though slightly lower %EWL than RYGB (11). AGB was linked to the lowest weight reduction in this study since it is durable and requires patients' cooperation (12).RYGB had the best postoperative outcomes for diabetes and hypertension remission rates (85% and 75%, respectively) rates in this study, which is consistent with prior RYGB studies on metabolism (13). Mingrone and other authors emphasised that early diabetes remission after RYGB surgery could be ascribed to shifts in gut hormones such as GLP-1 (14). Similar but slightly lower rates of resolution were achieved with SG (70% diabetes remission, 65% hypertension resolution), which are results aligned with Schauer et al wherein SG had shown its metabolic advantage, language though clarified that it was not as dramatic as RYGB (15). AGB showed non-significant improvement in comorbidities 40% diabetes remission, 35% hypertension resolution due to its mechanical rather than metabolic impact on the GI tract and its complications, which occurs in 15% of the RYGB group, which includes surgical site infections and nutritional deficiencies due to the maladaptive mechanism involved (16,17). There was an indication of lesser complications in the SG group at 10 % and this was in agreement with earlier research whose outcomes show lesser perioperative risks involving the SG than RYGB (18). AGB featured the lowest level of complications at 5%, however, its modest results in weight loss and comorbidity amelioration are questionable (19).The implications underscore the effectiveness of RYGB for patients requiring significant weight loss and comorbidity alleviation, although at a greater risk (p|. SG is in the middle as opposed to LAP-BAND and GA, which makes it ideal for people who do not want major alterations and therefore complications whilst undergoing the surgery. AGB, being safer, is less efficient and can be recommended for patients eligible for reversible procedures.The present investigation has several drawbacks, including a small number of participants and a short follow-up period.(20) The results of appropriate dieting over the long term, successful weight reduction, and late complications are not sufficient. The current studies should expand on the scope and follow-up to confirm these results and evaluate more recent techniques, such as endoscopic sleeve gastroplasty.

Conclusion

Bariatric surgery being performed is highly effective in managing severe obesity with RYGB providing the highest percentage of excess weight loss and proportion of comorbidities' resolution than SG and AGB. Between patient population, what surgical approaches should be utilized and postoperative care should be individualized to match them well to pave way for improved outcomes and fewer complications.

Limitations

The drawbacks of this study include, but are not limited to small sample size, and single center trial, and short follow up of 12 months. These limitations may reduce the external validity and the ability to detect late results and morbidities linked to bariatric operations.

Future Directions

Studies should extend further as concerns several years' follow-up outcome; durability of weight loss, late complications, and quality of life. Endoscopic and robotic surgeries for bariatric patients are relatively new approaches which should be tested to broaden the range of available therapies and enhance the operative treatment of obesity.

Abbreviations

1. **RYGB**: Roux-en-Y Gastric Bypass
2. **SG**: Sleeve Gastrectomy
3. **AGB**: Adjustable Gastric Banding
4. **BMI**: Body Mass Index
5. **%EWL**: Percentage of Excess Weight Loss
6. **GLP-1**: Glucagon-Like Peptide-1
7. **SPSS**: Statistical Package for the Social Sciences

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Authors Contribution

Concept & Design of Study: Khalil Ur Rehman5 , Aurangzeb Shaikh6

Drafting: Fazal Ghani1, Kamran Hakeem Khan2,

Data Analysis: Kamran Khattak3, Muddasir Shahzad4, Shafiq Ur Rahman5

Critical Review: Kamran Khattak3, Muddasir Shahzad4,

Final Approval of version:All Mantion Above.

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