

Outcomes of Laparoscopic Sleeve Gastrectomy in Patients with Morbid Obesity: A Single Institution Study

SAJID MALIK¹, AHSAN NASIM², IFTIKHAR AHMAD HOTIANA³, FATIMA-TU-ZAHARA⁴, RANA MUHAMMAD UMAR RIZWAN⁵

¹Assistant Professor, ²Associate Professor, ⁵Postgraduate Resident, Department of Surgery, AIMC/Jinnah Hospital Lahore

³Assistant Professor of Surgery, Al-Aleem Medical College/Gulab Devi Hospital Lahore

⁴Senior Registrar, Department of Surgery, Mayo Hospital, Lahore

Correspondence to: Dr. Sajid Malik E-mail: drsajidmalik@yahoo.com

ABSTRACT

Objective: To determine the outcomes of laparoscopic sleeve gastrectomy in patients with morbid obesity.

Study Design: Retrospective study.

Place and Duration of Study: Department of Surgery, Jinnah Hospital Lahore from 1st January 2017 to 31st December 2018.

Materials and Methods: Twenty patients of both genders with ages 30 to 60 years were included in this analysis. Informed written consent was taken from all the patients. All the patients had undergone laparoscopic sleeve gastrectomy. Preoperative and postoperative data such as body mass index, weight loss and also of comorbidities were analyzed. Bariatric Analysis and Reporting Outcome System (BAROS) scoring system was used to analyze the outcomes. Follow-up was taken at 1 year post-operatively.

Results: There were 14 (70%) female patients and 6 (30%) males with mean age of 42.35±10.57 years. Comorbidities such as depression, hypertension, diabetes mellitus, hyperlipidemia and obstructive sleep apnea were recorded as 20%, 15%, 25%, 5% and 10% patients respectively. Mean difference of excess body weight loss was 29.35±13.75 kg at 1 year follow-up and mean body mass index was 12.25±4.58 kg/m². Postoperative systolic blood pressure improvement was observed in 11 (55%) patients. A significant improvement was observed regarding diabetes mellitus (preoperatively mean HbA1C 8.2±2.4 vs postoperatively mean HbA1C 5.24±1.3) p-value <0.001. According to the BAROS score, 2 (10%) showed excellent, 8 (40%) showed very good, 9 (45%) showed good, 1 (5%) showed fair and no patient showed poor outcomes.

Conclusion: Laparoscopic sleeve gastrectomy in patients with morbid obesity was safe and effective treatment modality with very low rate of complications.

Key words: Laparoscopic sleeve gastrectomy, Morbid obesity, Excess body weight loss.

INTRODUCTION

Obesity is a known medical problem with an incidence of more than 33%.¹ In the previous 30 years, the age-normalized pervasiveness of heftiness has nearly multiplied worldwide.² World Health Organization (WHO) classifies the obesity and overweight on the basis of body mass index (BMI) except for Asians who have a much lower cut-off due to their higher risk of morbidities secondary to obesity. Obesity is classified as BMI ≥30 kg/m², and is additionally partitioned into three classes by the BMI values.³

Various intercessions are accessible for heftiness including way of life changes, dietary adjustments, clinical treatment and careful mediation.⁴ Bariatric surgery (BS) has proven an effective and long term solution to the problem of obesity, than non operative approaches; with laparoscopic sleeve gastrectomy (LSG) being more popular.⁴ Sleeve gastrectomy is an incomplete gastrectomy where most of the more noteworthy ebb and flow of the stomach is expelled. The antrum is partitioned roughly 4cm from the pylorus and a cylindrical stomach (sleeve) is designed around a Bougie (32–40 French in size).⁵ It was at first acted in patients described by high careful hazard and spoke to the primary phase of an increasingly intricate system, in particular duodenal switch or gastric bypass.⁶ In ensuing years, sleeve gastrectomy has picked up prevalence as an independent procedure.⁷ Standalone sleeve gastrectomy was first pushed by Regan et al in 2005, and was promoted by Michel Gagner.⁸ In 2014,

sleeve gastrectomy was the most quickly developing bariatric strategy as far as the quantity of BS procedures performed.⁹ LSG is simpler to perform than Roux-en-Y gastric detour (RYGB) and doesn't require any anastomosis. Further, there is a decreased danger of inner herniation and follow component or mineral inadequacies.¹⁰ Compared to its counterparts, LSG has shown an additional benefit of an easier and short learning curve, slight alteration of natural anatomy. However, the efficacy of this procedure in inducing weight loss has not been investigated much in the Pakistani population. The current study was conducted aimed to examine the outcomes of LSG in patients presented with morbid obesity in terms of weight loss as well as obesity related co morbidities.

MATERIALS AND METHODS

This retrospective study was conducted at Department of Surgery, Jinnah Hospital Lahore from 1st January 2017 to 31st December 2018. A total of 20 patients with morbid obesity of both genders were included. Patient's ages were ranging from 30 to 60 years. Demographic details like age and sex, and medical history was examined after taking informed written consent from all the patients. Patients with severe gastric disorders, patients with previous history of bariatric surgery and those who were not interested to participate were excluded. All the patients had undergone laparoscopic sleeve gastrectomy. Preoperative and postoperative data such as body mass index, weight loss, comorbidities were analyzed. BAROS scoring system was

used to analyze the outcomes. Follow-up was taken at 1 year post-operatively. All the data was analyzed using SPSS 22. P-value <0.05 was set as significant.

RESULTS

There were 14 (70%) female patients while 6 (30%) males with mean age of 42.35±10.57 years. Co-morbidities such as depression, hypertension, diabetes mellitus, hyperlipidemia and obstructive sleep apnea were recorded as 20%, 15%, 25%, 5% and 10% patients respectively (Table 1).

Preoperative mean value of weight was recorded as 125.4±29.55 kg and post operative findings of weight at 1 year was 96.05±15.80 kg with mean difference of 29.35±13.75 kg at 1 year. Pre and postoperative findings regarding Body mass index were noted as 48.45±7.25 kg/m² and 36.20±2.67 kg/m² with mean difference of 12.25±4.58 kg/m² at 1 year. Preoperative Excess weight was mean 68.62±22.90 kg and post-operative after 1 year the mean value was 39.27±9.15 kg. Post-operative percent EWL at 1 year was mean 45.15±13.62 (Table 2).

Postoperative systolic blood pressure improvement from 140± 20.35 to 128± 22.45 (p< 0.005) was observed in

11 (55%) patients. A significant improvement was observed regarding diabetes mellitus (preoperatively mean HbA1C 8.2±2.4 vs postoperatively mean HbA1C 5.24±1.3) p-value <0.001 (Table 3).

According to the BAROS score, 2 (10%) showed excellent, 8 (40%) showed very good, 9 (45%) showed good, 1 (5%) showed fair and no patient showed poor outcomes (Table 4).

Table 1: Demographical information of the patients

Variable	No.	%
Age (years)	42.35±10.57	
Gender		
Male	6	30.0
Female	14	70.0
Co-morbidities		
Depression	4	20.0
Hypertension	3	15.0
Diabetes mellitus	5	25.0
Hyperlipidemia	1	5.0
Obstructive sleep apnea	2	10.0

Table 2: Pre and postoperative at 1 year findings regarding weight, BMI and excess weight loss

Variable	Pre-operative	Postoperative 1 year	Difference	P-value
Weight (Kg)	125.4±29.55	96.05±15.80	29.35±13.75	0.0001
BMI Kg/m	48.45±7.25	36.20±2.67	12.25±4.58	0.0001
Excess weight loss	68.62±22.90	39.27±9.15	29.35±13.75	0.0001
% Excess weight loss	-	45.15±13.62	-	-

Table 3: Preoperative and postoperative outcomes of Comorbidities

Variable	Pre-operative	Postoperative 1 year	Difference	P-value
Systolic BP	140±20.35	128±22.45	12.10±9.15	0.003
Diastolic BP	80±10.15	77±11.20	4.0±10.35	0.523
HbA1c	8.2±2.4	5.24±1.3	3.0±1.1	0.001

Table 4: BAROS findings at 1 year Follow-up

BAROS	No.	%
Excellent	2	10
Very Good	8	40
Good	9	45
Fair	1	5
Poor	-	-

DISCUSSION

LSG as a stand-alone surgical procedure for obesity has been described since 2005¹¹, and represents a rapidly emerging technique in the armamentarium of bariatric surgery. It is technically easier to perform than other types of bariatric surgery but has comparable outcomes.¹² The present study was conducted aimed to examine the outcomes of laparoscopic sleeve gastrectomy in patients presented with morbid obesity. In our study majority of patients were females 70% as compared to males 30%. A study conducted by Chrysis et al¹³ reported female patients population was high 85.4% as compared to males. In their study no patient was below 18 years. The mean age of the patients in our study was 42.35±10.57 years with age ranges 30 to 60 years. Many of studies reported that patient’s ages were ranging 25 to 65 years.^{14,15}

In our study, we found diabetes mellitus was the most frequent co-morbidity 25% followed by depression,

hypertension and obstructive sleep apnea. A study conducted by Jamal et al¹⁶ reported diabetes mellitus was most frequent co-morbidity found in 37.5% patients. In present study we found Preoperative mean value of weight was recorded as 125.4±29.55 kg and post operative findings of weight at 1 year was 96.05±15.80 kg with mean difference of 29.35±13.75 kg at 1 year p-value 0.0001. These results showed similarity to many other studies in which the authors reported the significant difference regarding Weight was observed in patients treated with laparoscopic sleeve gastrectomy for morbid obesity.^{17,18} We found pre and postoperative findings regarding body mass index were noted as 48.45±7.25 kg/m² and 36.20±2.67 kg/m² with mean difference of 12.25±4.58 kg/m² at 1 year. Preoperative Excess weight was mean 68.62±22.90 kg and post-operative after 1 year the mean value was 39.27±9.15 kg. Post-operative percent excess weight loss at 1 year was mean 45.15±13.62. These results showed similarity to several studies in which the statistical significant difference was observed regarding excess body weight loss and BMI p-value < 0.05.^{19,20}

In present study, we found postoperative systolic blood pressure improvement from 140±20.35 to 128±22.45 (p< 0.005) was observed in 11 (55%) patients. A significant improvement was observed regarding diabetes mellitus (preoperatively mean HbA1C 8.2±2.4 vs postoperatively

mean HbA1C 5.24 ± 1.3) p-value < 0.001 (Table 3). According to the BAROS score, 2 (10%) showed excellent, 8 (40%) showed very good, 9 (45%) showed good, 1 (5%) showed fair and no patient showed poor outcomes. Jamal et al¹⁶ reported a significant improvement regarding HbA1C pre and postoperatively with p-value < 0.05 . Many of previous study demonstrated the significant improvement regarding systolic blood pressure and the better outcomes regarding procedure at final follow-up.^{21,22}

CONCLUSION

Laparoscopic sleeve gastrectomy is very useful and leading procedure for patients with morbid obesity and is gaining popularity in Pakistan as well. With significant average excess weight loss of 45.15 ± 13.62 with zero mortality, LSG is safe and an effective modality to treat obesity and its comorbidities. Our data is small but is unique in its nature in being initial few studies done in any tertiary care government hospital in Pakistan. Larger studies with comparisons to its counterpart are suggested to make recommendations for local ethnic population.

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