

Effectiveness of Laparoscopic Sleeve Gastrectomy for Weight Loss in Morbid Obese Patients

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^{1,2,6}Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work, Final approval of the version to be published

^{3,4,5}Drafting the work or revising it critically for important intellectual content

Funding Source: None

Conflict of Interest: None

Received: Jan 06, 2022

Accepted: July 19, 2022

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ABSTRACT

Objective: To determine the effectiveness of laparoscopic sleeve gastrectomy for weight loss in morbidly obese patients at Capital Hospital, Islamabad.

Methodology: This descriptive case series study was done at Capital Hospital, CDA, Islamabad during a period of one-year from February 2019 to January 2020. All the patients with a body mass index of 35 or greater, with or without comorbidities, aged 18 to 65 years of either gender were included. All the patients underwent laparoscopic sleeve gastrectomy for weight loss. At the 1st, third, and 6th month's follow-up, postoperative weight loss was noted. Effectiveness was taken in terms of > 10% weight loss maintained at 6 months.

Results: The overall study participants' average age was 57±9.77 years, and females were in the majority (62%). Overall, laparoscopic sleeve gastrectomy was effective in 85% of patients and was not effective in 15% of patients. The average BMI was 37.31 kg/m². Laparoscopic sleeve gastrectomy showed effectiveness in 57 (85%) patients, while 10 (15%) of the patients' weight was not lost. Effectiveness was statistically insignificant according to age, gender, and comorbidities, p-values were quite insignificant (>0.05).

Conclusion: Laparoscopic sleeve gastrectomy was observed to be an effective technique for weight loss in morbid obese patients. It did decrease the morbidities and improve the quality of life.

Key words: effectiveness, laparoscopic sleeve gastrectomy, weight loss, morbid obesity.

Cite this article as: Taj MN, Ahmed R, Iqbal Y, Akbar Z, Saeed MA, Adnan M. Effectiveness of Laparoscopic Sleeve Gastrectomy for Weight Loss in Morbid Obese Patients. *Ann Pak Inst Med Sci.* 2022; 18(3):186-189. doi. 10.48036/apims.v18i3.694

Introduction

Obesity is a medical disorder when extra body fat builds up to the point that it could be harmful to one's health. The Body Mass Index (BMI), which is calculated by dividing a person's weight by their height squared, is used to assess and categories obesity. When a person's BMI exceeds 30 kg/m², they are typically termed obese, with a BMI of 25 to 30 kg/m² being considered overweight. Class I Obesity is defined as a BMI of 30 to 34.9. A Class II obesity BMI ranges from 35.0 to 39.9. BMI 40 is considered Class III Obesity.¹ A combination of excessive food intake, inactivity, and genetic predisposition frequently results in obesity. With rising rates among adults and kids, obesity is the greatest

preventable cause of mortality in the globe. 100 million children and 600 million adults (12%) were obese in 2015.² Women are more likely than men to be obese. The American Medical Association designated obesity as an illness in 2013.³ Diet and exercise are considered the main treatments for obesity. To suppress the appetite or minimize the absorption of fat, medications may also be used in conjunction with a healthy diet. Conservative treatments like diet, exercise, and medications have given disappointing long-term results⁴, surgeons are using minimally invasive techniques for the management of Obesity.⁵⁻⁶

One of them is the laparoscopic sleeve gastrectomy, in which a significant section of the stomach is surgically

removed along the larger curve, reducing the stomach to 25% of its initial size. Today, it is well accepted that bariatric surgery is a reliable and secure procedure for treating severe obesity. It also has advantages in terms of reducing mortality, comorbidities, and health care expenditures. The percentage total weight loss is 43% after 6 months of Laparoscopic Sleeve Gastrectomy respectively.⁷

The purpose of this descriptive study is to ascertain that, Laparoscopic Sleeve Gastrectomy proved to be the safest and most effective approach for achieving lengthy-time period weight loss and correction of metabolic abnormalities in patients tormented by morbid obesity.

Methodology

This descriptive case study was carried out at Capital Hospital, CDA, Islamabad after taking permission from Hospital's ethical committee. The study duration was one year from February 2019 to January 2020. All the patients with body mass index of 35 or greater with or without comorbidities, aged 18 to 65 and both genders were included. Patients were excluded if they were unfit for general anesthesia, had active substance abuse, undiagnosed and untreated mental problems such as psychoses and severe depression, had a significant hiatus hernia or barrette esophagus, or were unwilling to follow dietary advice. A total of 67 individuals selected by sample size was calculated using the WHO sample size calculator, taking confidence level 90%, anticipated population proportion 43%⁷ and confidence interval 10%. After taking informed written consent from the patients, they underwent laparoscopic sleeve gastrectomy for weight loss. The procedures were performed under general anaesthesia by experienced consultant surgeon having a minimum experience of more than 5 years. Post-operative weight loss was noted on 1st, third, and 6th month's follow-up. Effectiveness was taken in terms of > 10% of weight loss maintained at 6 months. All the information was collected by the study proforma and data analysis was carried out using SPSS version 26.

Results

A total of 67 patients were studied; their average age was 57 ± 9.77 years and females were in majority 62%, while males were 38%. The majority of the 58 patients (86%) were married, while 9 (14%) were unmarried. As per comorbidities, 44(65%) patients were diabetic, 46(69%)

patients were hypertension and 41(61%) patients had lipid profile abnormalities. (Table I)

Effectiveness in laparoscopic sleeve gastrectomy was analyzed as weight loss >10% in 57(85%) patients during post operative six months and was not effective in 10(15%) patients. (Table II)

Stratification of effectiveness laparoscopic sleeve gastrectomy with respect to age, gender, marital status, education, hypertension, diabetes, and hyperlipidemia is given in table III.

Table I: Descriptive statistics of the demographic variables (n=67)

Variables	Statistics	
Age	57± 9.77 years	
BMI	37± 2.31 Kg/m ²	
Gender	Male	25 38%
	Female	42 62%
Comorbidities	Diabetes	44 65%
	Hypertension	46 69%
Marital status	Hyperlipidemia	41 61%
	Married	58 86%
	Un married	9 14%

Table II: Effectiveness laparoscopic sleeve gastrectomy (n=67)

Variables	Frequency	Percentage
Weight loss >10% at post operative 6 th month	Yes	57 85%
	No	10 15%
	Total	67 100%

Table III: Stratification of effectiveness laparoscopic sleeve gastrectomy with respect to age, gender and comorbidities (n=67)

Variables		Effectiveness		Total	p-value
		Yes	No		
Age groups	18-30 years	04	01	05	0.982
	31-40 years	10	02	12	
	41-50 years	19	03	22	
	51-65 years	24	04	28	
Gender	Males	22	03	25	0.601
	Females	35	07	42	
Diabetes	Yes	37	07	44	0.754
	No	20	03	23	
Hyper tension	Yes	39	07	46	0.920
	No	18	03	21	
Hyperlipid emia	Yes	35	06	41	0.933
	No	22	04	26	

Discussion

A medical disease called obesity occurs when extra body fat builds up to the point where it could be harmful to

one's health. Body Mass Index (BMI), a number calculated by dividing a person's weight by their height, squared, is used to assess and categories obesity. BMIs exceeding 30 kg/m² are typically regarded as obese, with values between 25 and 30 kg/m² being considered overweight. This study shows that the mean age of the study subjects was 57 ± 9.77 years, females were in the majority (62%), and the overall average of BMI was 37±2.31 Kg/m². Similarly, Murshid KR et al⁸ reported that the participant's average age was 47.54 ± 10.791, females were in majority 78.0% and pre-operative average of BMI was 49.29 kg/m². On the other hand, the study reported that the out of all study participants who underwent the surgery, the females were (68%) and males were (32%).⁹ Interestingly in that study stated that another important risk factor for postoperative mortality and morbidity is male gender, along with high BMI, and is linked to technical challenges during surgery. In actuality, men frequently possess a mechanical body habit in which extra body fat is located in the hepatic left lobe and the peritoneal cavity is frequently enlarge,^{9,10} making access to the stomach and hiatal area challenging. As a result, the literature's relatively high proportion of male patients receiving SG indicates the bariatric surgeon's preference for SG that would be less difficult than other operations necessitating more extensive anastomoses of intestine and dissections.⁹

In this study laparoscopic sleeve gastrectomy found effective in 85% of the participants and was not seen effective in 15% patients. Consistently Eid GM et al¹¹ reported that the seventy-four cases underwent LSG, and the mean age was 50 years, the occurrence of the long and the short-term complications was 15% post-operatively and mortality rate was 0. In their study, the overall follow-up duration average was seventy-three months and excess weight loss (EWL) (52%) at till 72 months, 43% till the 84 months, and 46% at 96 months after LSG, having a 48 percent EWL overall, while average BMI reduced from 66 kg/m² with range of 43 to 90 kg/m² to 46 kg/m² with range of 22 to 73 kg/m². Furthermore, they reported that seventy-seven percent of individuals having diabetes, achieved improvements or illness remission.

On other hand Berry MA et al⁷ reported that one of them is the laparoscopic sleeve gastrectomy, wherein a along the broader curvature, a sizeable portion of the stomach is removed surgically, reducing the stomach to 25% of its initial size. Today, it is well accepted that bariatric surgery is a reliable and secure procedure for treating

severe obesity. It also has advantages in terms of reducing mortality, comorbidities, and health care expenditures. The percentage the overall weight loss after six months is 43% of laparoscopic sleeve gastrectomy, respectively. In the line of this study, El Moussaoui I et al¹² and El Sawaf M et al¹³ concluded that the LSG for adolescent obesity was found to be a safe therapy with notable short-term clinical and metabolic results. On the other hand, in the studies of Kumar S et al¹⁴ Sakran N et al¹⁵ reported that, an effective, simple and repeatable surgical procedure to manage morbid obesity is the laparoscopic sleeve gastrectomy, and it is safe to use and has minimal death and morbidity rates. El-Anwar A et al¹⁶ also reported that the excess body weight loss percentage in group 1 was 53.6± 10.96 percent at 6 months and 69.4± 15.6 percent at 1 year postoperatively, while it was 52.7± 11.27 percent at 6 months and 66.4 13.4 percent at 1 year postoperatively without significant difference in both study groups. Neither intraoperative issues nor postoperative fatalities occurred. There were 15 individuals that experienced complications overall, and the two groups did not differ statistically significantly from one another (in group I 14 percent versus in group II 15.4 percent). In comparison to group 2, group 1's postoperative hospital stay was longer, lasting 2.3 days. Six months after sleeve gastrectomy, there was a complete remission of 58.8% of diabetes mellitus, a remission of 60% of hypertension, and an eradication of 87.5 % of sleep apnea, without a difference in statistical significance between the two groups.

Conclusion

Laparoscopic sleeve gastrectomy was observed to be the effective technique for weight loss in morbid obese patients do decrease the morbidities and improve the quality of life. Although further large-scale studies are recommended on such subject.

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