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POST OPERATIVE EARLY COMPLICATIONS OF LAPAROSCOPIC SLEEVE GASTRECTOMY WITH FOUR PORTS

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ABSTRACT:
Objective: To assess the postop complications in patients undergoing laparoscopic sleeve gastrectomy with four ports.
Methods: Thirty patients were selected for this case series undergoing laparoscopic sleeve gastrectomy with four ports having age 35 to 55 years of either gender with BMI ≥ 40 kg/m^2. Postop complications were assessed.
Results: Mean age was 46.13±5.64 years. Postop complications were GERD 4 (13.3%), three (10%) patients had pulmonary problems, gastric stenosis was 2 (6.7%) and bleeding was observed in 2 (6.7%) patients.
Conclusion: Laparoscopic sleeve gastrectomy with four ports is a safe and effective procedure with lower rates of postop complications such as GERD, pulmonary problems, bleeding and gastric stenosis.

Keywords: Laparoscopic sleeve gastrectomy, BMI, Complications

INTRODUCTION:

The incidence of obesity in the USA has been growing steadily over the past fifty years, with an estimated current number of over 98.7 million US residents being affected. Obesity and its related co-morbidities accounted for 14.3% of healthcare spending in the United States in 2014[1]. Bariatric surgery is considered a safe and durable therapeutic option for obesity. The relevant processes have continually evolved and yielded greater outcomes [2, 3]. Sleeve gastrectomy, a popular bariatric surgery nowadays, was first performed in 1990 as the first part of a two-stage treatment for biliopancreatic diversion and duodenal switch [4, 5]. The primary justification for performing a sleeve gastrectomy was to facilitate weight reduction and provide a safer subsequent phase biliopancreatic diversion with duodenal switch operation specifically for those with super obesity (BMI>60) [6].

While observing these patients, it was noticed that they observed substantial reductions in their excess body weight. In 2008, the recommendations for laparoscopic sleeve gastrectomy were released [7]. Sleeve gastrectomy is regarded as a less intricate treatment with fewer rates of complications in

comparison to other weight-reduction surgeries. Consequently, it has emerged as the most often performed surgical procedure for weight loss in the United States. Sleeve gastrectomy has shown the ability to reduce approximately fifty percent of excess body weight during 6-12 months after the surgery [8].

This tendency is originally observed to a significant amount in the first year, but afterwards, the degree of weight reduction becomes highly unpredictable. In a study, it was discovered that approximately 44% of the surplus weight was eradicated [9]. While some patients may see this as suboptimal, a higher proportion of patients observe enhancements in their mobility, reduced blood glucose levels, alleviation of obstructive sleep apnea, and benefits in cardiovascular well-being [10]. In addition to the anesthetic risk as well as increased likelihood of acquiring deep venous thrombosis, surgeons must also monitor a range of complications in obese patients. These complications persist despite technological advancements and the success of weight loss procedures [10].

Obesity has emerged as a widespread and serious problem, making a considerable contribution to illness and death rates on a global scale. Laparoscopic Sleeve Gastrectomy has become well-known as an independent weight loss operation or as a component of a step-by-step approach for bariatric surgery. It provides several benefits, such as lower morbidity in comparison to more intricate treatments including gastric bypass, a comparatively simple approach, and substantial weight loss results. The aim of the study is to post-operative early complications of laparoscopic sleeve gastrectomy with four ports.

MATERIAL AND METHODS:

A descriptive case series was initiated at Shah Bhittai Hospital Hyderabad, Pakistan from July, 2023 to December, 2023 after taking ethical approval from the hospital. We selected thirty patients undergoing laparoscopic sleeve gastrectomy having age 35 to 55 years of either gender having BMI ≥ 40 kg/m^2 who were willing to partake in the study. Patients who did give in the consent and those who were having BMI higher than 55 kg/m^2 were dropped from the study. All the surgeries were performed by an experience surgeon having experience of more than 5 years.

The surgical operations were performed with the patients lying on their backs, using a four-port approach. This required the retraction of the liver as needed. The harmonic vessel-sealing system enabled the gradual exposure of the greater curve until the left crus became evident. A precise location, 7 cm away from the pylorus on the antral side, was identified as the starting site for the surgery. Endoscopic stapling devices, ranging in thickness from 4.1 mm to 3.5 mm, were used from the lower part of the stomach to the area where the esophagus meets the stomach. A 36Fr bougie was utilized to facilitate the positioning of staple points. After the stapling procedure, a submersion or dye test was performed, and then an overrunning suture was applied. The excised portion of the stomach was removed via the 15 mm umbilical opening, which was then fixed prior to the recuperation period. Postoperative issues such as bleeding, gastric stenosis, GERD and pulmonary problems were noted. We also compared pre and postop BMI of the patients to further assess the efficacy of the operations performed.

Data analysis was done using SPSS 23. We deployed Paired T-test to assess the pre and postop BMI of the patients, the value of P was kept significant at 0.05.

RESULTS:

Thirty patients were recruited for this study. Mean age was 46.13±5.64 years. Frequency of male patients recorded was 17 (56.7%) while frequency of female patients was 13 (43.3%). Regarding the comorbid conditions of the patients, nine (30%) patients presented were diabetic while hypertensive patients were 12 (40%). Regarding the smoking status 13 (43.3%) patients were smokers. The BMI at presentation recorded was 47.44±3.95 kg/m^2 while notably reduced to 40.48±4.11 kg/m^2 (P =

0.0001). Assessing the postop complications it was found that 4 (13.3%) patients had developed GERD, three (10%) patients had developed pulmonary problems, gastric stenosis was observed in 2 (6.7%) patients while bleeding was observed in 2 (6.7%) patients.

Figure 1 Gender distribution of the patients

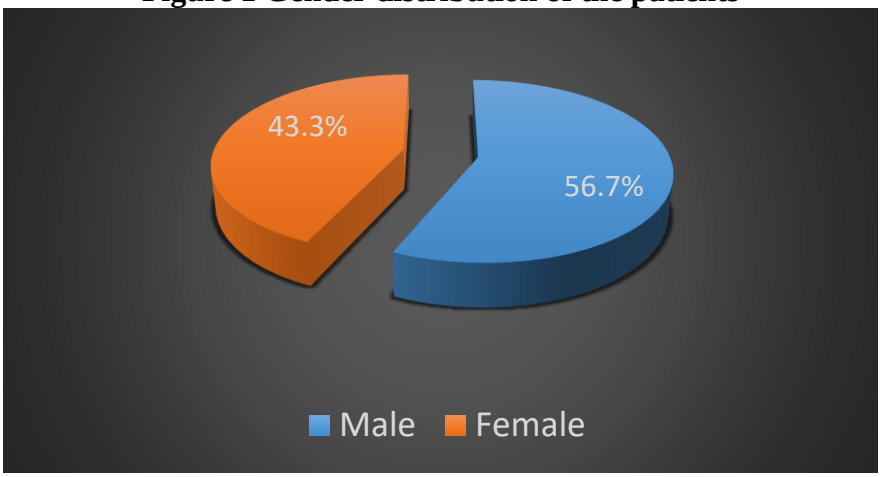

Table 1 Comparison of preoperative and postop BMI

Parameters	Mean	N	Std. Deviation	P value
Preoperative BMI (Kg/m^2)	47.44	30	3.95	0.0001
Postoperative BMI (Kg/m^2)	40.48	30	4.11	

Table 2 Postop complications

Postop complications	Frequency	Percent
GERD	4	13.3
Pulmonary complications	3	10.0
Bleeding	2	6.7
Gastric stenosis	2	6.7
No complication	19	63.3
Total	30	100.0

DISCUSSION:

Globally, obesity affects around 300 million adults as a common disease. It is described as having a BMI higher than thirty. Over the previous 20 years, the prevalence of obesity in Canada has nearly tripled. It is currently estimated that 25% of Canadians are fat.[11]

Several principles are used to categorize the bariatric surgery alternatives available today. Sleeve gastrectomy and laparoscopic adjustable gastric banding are examples of purely restrictive surgeries. A slight malabsorption method is used in the restrictive Roux-en-Y gastric bypass operation. Procedures like duodenal switch and biliopancreatic diversion are mostly malabsorptive and have a restrictive component. The jejuno-ileal bypass is one treatment that is almost exclusively malabsorptive.[12]

For the treatment of morbid obesity, laparoscopic sleeve gastrectomy (LSG), sometimes referred to as longitudinal or vertical gastrectomy, is a relatively recent and successful surgical approach. It was first made available in 1990 as a less risky option to distal gastrectomy when combined with the duodenal switch surgery. The first laparoscopic sleeve gastrectomy was carried out in 1999.[13] LSG was formerly thought to be the initial procedure performed on high-risk patients before Roux-en-Y gastric bypass or biliopancreatic diversion. Later, it was discovered that laparoscopic sleeve gastrectomy worked well as a stand-alone technique to treat morbid obesity. While LSG is a restricting treatment, by eliminating the part of the stomach that produces ghrelin, it may also lead to early satiety.[14]

Around the globe there is an increasing number of individuals getting bariatric surgery operations due to the rising incidence of obesity. This will unavoidably result in a higher frequency of problems related to these operations. Therefore, it is imperative that all general surgeons, including those working in smaller towns, be aware of these possible side effects, have a rudimentary grasp of how to handle them, and know when to seek advice from a bariatric surgeon.[15]

We conducted our series on 30 patients aged 35 to 55 years, frequency of male patients was higher than female patients. Mean BMI noted at presentation in our study was 47.44±3.95 kg/m^2. Patients were presented with comorbid conditions such as diabetes, hypertension and smoking habits. Similar observations were recorded in a study which reported that frequency of male patients was higher than female patients, while diabetes and hypertension were common comorbid conditions.[16]

Our findings revealed that postoperative BMI was substantially reduced from the baseline BMI (P = 0.0001), which exhibits that sleeve gastrectomy with four ports was a successful procedure. Postoperative complications were GERD 4 (13.3%), pulmonary problems 3 (10%), bleeding was seen in 2 (6.7%) patients while gastric stenosis was observed in 2 (6.7%) patients. The aforementioned study reported similar pattern of postop complications, they reported GERD in 16.7% patients, pulmonary problems in 6.7% patients, bleeding in 10% patients while gastric stenosis in 3.3% patients.[16] Another study conducted in Pakistan also reported bleeding and pulmonary problems as postop complications.[17]

CONCLUSION:

We conclude that laparoscopic sleeve gastrectomy with four ports is a safe and effective procedure with lower rates of postop complications such as GERD, pulmonary problems, bleeding and gastric stenosis. We recommend further trials to be conducted on larger sample size to further explore the postop complications occurring in this procedure.

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