

RETROSPECTIVE MANAGEMENT OF POST OPERATIVE COMPLICATION OF MORBID OBESSE PATIENTS

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ABSTRACT

Background: Surgery often plays an important role in the management of the diseases commonly encountered in the obese, especially cardiovascular diseases. Surgery in current practice is no longer delayed to allow obese patients to lose weight. There are therefore, increasing numbers of obese patients undergoing non-bariatric surgery.

Objective: To highlighting the management of postoperative complications of surgical treatment of morbid obese patients.

Patients and Methods: This study had been conducted on 50 recorded cases of obesity surgical treatment. Focus was on laparoscopic sleeve gastrectomy and laparoscopic greater curvature plication This work was designed to study and record the complications occurred either retrospective or prospective during the period from December 2015 to December 2020 in patient undergoing surgical management for obesity either lap or open at the General Surgery Department, Faculty of Medicine; Al-Azhar University, Egypt.

Results: The most prevalent complication was intraoperative bleeding by 6%, followed by conversion from lap to open (4%), intraoperative injury (2%), The most prevalent complication was nausea (62%), vomiting (54%) and excess weight loss (30%) followed by wound infection (20%). Diabetes mellitus was found to be a significant risk factor for postoperative complications.

Conclusion: Obesity was an independent risk factor for perioperative morbidity, and morbid obesity was a risk factor for mortality. Morbid obesity was a common problem with a lot of comorbidities, now classified as a chronic disease.

Keywords: Obese; Morbidity; Laparoscope.

INTRODUCTION

Obesity is a widespread pathology among the population related to an increase in mortality and morbidity of patients. Bariatric surgery provides several forms of treatment for obese patients (*Giovanni et al., 2021*). The obesity epidemic is still increasing worldwide (*Afshin et al., 2017*).

Morbid obesity, diabetes and hypertension are tangled together as risk factors for cardiovascular disease affecting the long-term survival and quality of life of kidney transplant (KT) patients. National guidelines have only suggested a need for weight loss (*Abramowicz et al., 2015*).

Bariatric surgery is currently the only effective treatment for morbid obesity that

results in substantial and sustainable weight loss, remission of obesity-related comorbidities, and improvement of quality of life (QoL) in the long term (*Ikramuddin et al., 2018*).

The most common bariatric procedures are laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LRYGB). Laparoscopic sleeve gastrectomy has been the most frequently performed bariatric procedure since 2014 and is still showing a steady annual increase both in number and proportion of all bariatric surgical procedures.⁸ This shift in global preference for LSG vs LRYGB happened before adequate long-term data for LSG were available (*Grönroos et al., 2021*).

PATIENTS AND METHODS

This was a retrospective cross-section study carried out at Surgical Unit, Al-Azhar University (Damietta) which conducted on 50 recorded cases of obesity surgical treatment during the period from December 2015 to December 2020.

Focus was on laparoscopic sleeve gastrectomy (LSG) and Laparoscopic Gastric Plication (LGCP).

Patient's information had been collected from the hospital data and connection with them had been through phone calling and hospital follow up every visits. Patients had been subjected to clinical and radiological examination including:

The included patients were subjected to:

Detailed history taking including:

1. Personal data: Name, age, sex, occupation, dietary, address.

2. A designed sheet was fulfilled for every patient to document his data.
3. Past history of previous interventions.
4. Hospital diagnosis.
5. Date of admission in hospital.
6. Medical & Past history.
7. Respiratory profile (RR & SpO₂).
8. Recovery profile (MAS).
9. Satisfaction score of patient and surgeon.

Careful clinical examination:

- **General:** Blood pressure, pulse, cardiovascular, neurological and respiration assessment.
- **Local:** Measuring waist circumference, BMI and obesity grade.

Investigations:

- liver function tests (AST, ALT, ALP, serum bilirubin, serum albumin, Prothrombin time and I.N.R.).
- Serum creatinine.
- Complete blood count (CBC).
- HBA1C. for diabetic patients.
- Thyroid function tests and Lipid profile.
- ECG and Echocardiography if indicated.
- cortisol level.

Informed consent was obtained from every participant after being informed about the aims and process of the study as well as applicable objectives.

Statistical Analysis:

Data entry, processing and statistical analysis was carried out using Statistical Package for the Social Sciences (SPSS) version 20. Data were presented as:

- Mean standard deviation (\pm SD) for numerical data, and as regression analysis was used to determine risk factors.

- Frequency and percentage of non-numerical data.
- P value less than 0.05 was considered significant.

RESULTS

In the present study, mean patients age was 37.15 years with mean BMI of 36.05 \pm 8.77 kg/m², 70% of the patients were females (**Table 1**).

Table (1): Demographic data of the studied cases

Parameters		Mean \pm SD
Age (years)		37.15 \pm 4.29
Weight (kg)		120.84 \pm 17.06
Height (Cm)		167.56 \pm 6.89
BMI (kg/m ²)		36.05 \pm 5.78
Sex (numbers)	Males	15 (30%)
	Females	35 (70%)

There was no significant difference between the two studied groups regarding hypertension, diabetes, smoking and hypercholesterolemia (**Table 2**).

Table (2): Comorbidities distribution between the two studied groups

Parameters	Patients (n=50)
Hypertension	12 (24%)
DM	8 (16%)
Hypercholesterolemia	32 (64%)
Smoking	18 (36%)

Most of the patients were AS I-II (92%). Also, the mean time of Hospital stay (days) was $(9.72 \pm 3.48 \text{ SD})$ (Table 3). In our study, most of the operations were done laparoscopically

Table (3): Comparison between the two studied groups regarding comorbidities, management technique and postoperative hospital stay

Parameters		Number	Percentage
Comorbidities	ASA I-II	39	78
	ASA III-IV	11	22
Management technique	Open	1	2.0
	Laparoscopic	49	98.0
Hospital stay (days) (Mean \pm SD)		9.72 \pm 3.48	

The most prevalent complications were intraoperative bleeding by 6% followed by intraoperative injury (2%) and conversion from lap to open (2%). The most prevalent complications followed by nausea (30%), vomiting (24%) Excess weight loss (20%) (Table 4).

Table (4): Postoperative complications in patients with morbid obesity

Complications		Patients (n=50)	N	%
Intraoperative	Intraoperative bleeding	3	3	6%
	Intraoperative injury	1	1	2%
	Conversion from lap to open	1	1	2%
Postoperative	No complication	15	15	30%
	Excess weight loss	12	12	24%
	Nausea	8	8	16%
	Vomiting	1	1	2%
	Atelectasis	15	15	30%
	Pulmonary embolism	12	12	24%

Our study showed that DM was found to be significant risk factor for postoperative complications (Table 5).

Table (5): Regression analysis to determine the possible risk factors of postoperative complications

Parameters	Analysis	OR	Wald	Sig.	95% CI
Age		1.215	1.199	.273	.139 - 2.679
DM		1.465	.3630	.0070	.439 - 2.592
ASA score III-IV		.5730	.1870	.6660	.046 - 7.167
Higher BMI		3.725	.5550	.4560	.117 - 8.321

DISCUSSION

Bariatric surgery is one of the fastest growing operative procedures performed worldwide, with an estimated > 340000 operations performed in 2011. (*Gulliford et al., 2016*).

There are several well-established health hazards associated with obesity, e.g., nonalcoholic steatohepatitis (NASH), type 2 diabetes, heart disease, chronic kidney disease, gastroesophageal reflux disease, gastrointestinal motility disorders, sexual disorders, cerebrovascular stroke, certain cancers, osteoarthritis, depression and others. The risk of development of such complications rises with the increase of adiposity, while weight loss can reduce the risk. Bariatric surgery could be the definitive clue in many situations (*Swinburn et al., 2013*).

Medical management and follow up of patients who have undergone bariatric surgery is a challenge due to post operative complications, early major complications mainly include anastomotic leak (Leak), myocardial infarction (MI) and pulmonary embolism (PE), which could lead to death (*Nabil et al., 2017*).

Laparoscopic sleeve gastrectomy (LSG), a restrictive form of bariatric surgery, is one of the most popular and effective bariatric operations worldwide. Its complications include hemorrhage, staple-line leak, stricture, obstruction, nutritional deficiencies, gastroesophageal reflux disease (GERD), cholelithiasis, deep venous thrombosis (DVT), and failure of weight loss (*Stoner and Cornwall, 2014*).

Similar to laparoscopic sleeve gastrectomy, the Laparoscopic Greater Curvature Plication (LGCP) is a restrictive procedure limiting the volume of food your stomach can hold. Unlike the sleeve however, your stomach will not be cut, it will be sewn into a small tube shape (*Li et al., 2019*).

However, the resection of normal tissue and irreversibility of gastric volume reduction remained major concerns of the patient. In contrast, laparoscopic greater curvature plication (LGCP) has emerged as a new procedure that involves multiple rows of sutures but does not partially resect the stomach (*Alexandrou et al., 2015*).

The two procedures are similar in that they use restrictive mechanisms of weight loss. Several studies have been proposed for the comparison of the long-term outcomes and perioperative complications of the two procedures. However, LGCP was thought to be less invasive and was recommended to patients with lower body mass indexes and fewer comorbidities. (*Golomb et al., 2015*).

As regarding, Mean patients age was 37.15 years with mean BMI of 36.05 \pm 8.77 kg/m², 70% of the patients were females. the prevalence of obesity in adults is very high in Egypt, particularly among women, and that the prevalence of diabetes and hypertension parallels that of obesity. In the present study, the overall prevalence of central obesity among Egyptian adults, according to the 2 indicators—WC and WHR ratio—was 24.1% and 28.7% respectively (*Sulaiman et al., 2017*).

Also, Egyptian studies reported female predominance among morbidly obese

patients. In the study of 75% of the studied sample were females. Also 66.8% of the studied sample were females in the study of (*Nabil et al., 2017*).

As regarding comorbidities distribution between the two studied groups, hypercholesterolemia (64%), Hypertension (24%), DM (16%), and Smoking (36%). Obese patients are at an increased risk for developing many medical problems, including insulin resistance, hypertension, dyslipidemia, cardiovascular disease, stroke, sleep apnea, gallbladder disease, hyperuricemia and gout, and osteoarthritis (*Sweed et al., 2019*).

In addition to reduced scarring, laparoscopic procedures also have the following benefits: Reduced hospital stay following surgery, quicker recovery time, less post-operative pain, reduce risk of hernias. Larger incisions increase the change of developing an incisional hernia, and reduced risk of infections (*Antoniou et al., 2015*).

As regarding intraoperative complications, the most prevalent complication was intraoperative bleeding by (6%) followed by conversion from lap to open (2%), and intraoperative injury (2%). Also, regarding postoperative complications, 90% of the patients included in the study reported no complications, the most prevalent complication was nausea (30%), vomiting (24%), excess weight loss (20%) followed by atelectasis (16%) and pulmonary embolism (2%) (*Salminen et al., 2018*).

Two large randomized control trails (RCT) assessed the long-term outcomes of LSG and Roux en Y gastric bypass (RYGB), the Swiss Multicenter Bypass or

Sleeve Study (SM-BOSS) and the SLEEVPASS (*Peterli et al., 2018*).

Both studies reported similar EWL% at 5 years in LSG and RYGB (61.1% vs 68.3%) and (49% and 57%) respectively. LGCP was first introduced by Talebpour in 2007 (*Talebpour and amoli, 2017*).

This procedure reduces gastric volume by multiple rows of sutures instead of partial gastric resection. Thus, the risk of bleeding or leakage might be reduced. As for weight reduction in LGCP, previous studies showed that a 42.1–58.8% excess weight loss was obtained at 12 months after surgery (*Tang et al., 2015*).

We owe that excess weight loss (68%) because the most of the patients didn't undergo regular nutritional follow up with dietitian after the operation. And this is a common mistake a lot of patients fall through. In an Egyptian study done by little bleeding was reported (3%), and no reported injury or conversion from lap to open (*Bassiony et al., 2019*).

With the improvement of surgical techniques and endostapling devices, LSG had become a popular procedure for morbid obesity. According to previous studies, 53.8–80% of excess weight loss was obtained at 12 months postoperatively, and a similar result of 66.08% was noted in our study. However, the resection of the stomach with a long staple line was also accompanied by the innate risk of postoperative bleeding and leakage. A review of the literature showed that the percentage of leakages and hemorrhages in LSG is about 1.2 and 3.6%, respectively (*Shi et al., 2013*).

As regarding regression analysis to determine the possible risk factors of

postoperative complications, DM was found to be significant risk factor for postoperative complications. In a study done by, they concluded that independent predictors of severe complication after these procedures included male gender, open and revisional surgery, D.M, hypertension, and hypoalbuminemia. Hypoalbuminemia had significant associations with occurrence of deep surgical site infection and leak (*Husain et al., 2018*).

CONCLUSION

Obesity is an independent risk factor for perioperative morbidity, and morbid obesity is a risk factor for mortality. Morbid obesity is a common problem with a lot of comorbidities, now classified as a chronic disease. LGS and LGSP are effective ways for treating morbid obesity. Patients should be advised to undergo regular nutritional follow up and consultation after the operation.

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مناجزة المضاعفات الناتجة عن العمليات الجراحية لمرضى السمنة المفرطة

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خلفية البحث: تلعب الجراحة دورًا مهمًا في إدارة الأمراض الشائعة عند المصابين بالسمنة المفرطة، وخاصة أمراض القلب والأوعية الدموية. غالبًا ما يكون هذا أمرًا صعبًا، وكذلك الرعاية المحيطة بالجراحة للبدناء. على الرغم من أن فقدان الوزن أمر مرغوب فيه قبل الجراحة وفي الماضي كان مقبولًا بشكل تقليدي تقريبًا كشرط أساسي للجراحة، في الممارسة الحالية، لم تعد الجراحة تتأخر للسماح لمرضى السمنة بفقدان الوزن.

الهدف من البحث: مناجزة المضاعفات الناتجة عن العمليات الجراحية لمرضى السمنة المفرطة.

المرضى وطرق البحث: كانت هذه دراسة بأثر رجعي. أجريت هذه الدراسة على 50 حالة مسجلة من العلاج الجراحي للسمنة والذين خضعوا لعمليات السمنة المفرطة سواء بالمنظار الجراحي أو الجراحه في الفترة من ديسمبر 2015 الي ديسمبر 2020 وذلك في جامعة الازهر، كلية طب، قسم الجراحه.

نتائج البحث:

- كان متوسط عمر المرضى من 15 إلى 37 سنة بمتوسط مؤشر كتلة الجسم 36.05 ± 5.78 كجم / م²، 70% من المرضى كانوا من الإناث.
- لا توجد فروق ذات دلالة إحصائية فيما يتعلق بارتفاع ضغط الدم والسكري والتدخين وارتفاع كوليسترول الدم.

- كان معظم المرضى 78% طبيعيين او لديهم امراض مزمنه فقط 22% لديهم امراض جهازيه شديده او تهدد الحياه علي حسب تصنيف الجمعية الامريكية لاطباء التخدير
 - 98% من المرضى خضعوا للتنظير البطني وكان متوسط الاقامه في المستشفى 9.72 ± 3.48 .
 - كانت المضاعفات الأكثر انتشارًا هي النزيف أثناء العملية بنسبة 6% تليها التحويل من المنظار إلى الفتحة الجراحي (2%) و الإصابة أثناء العملية (2%).
 - كانت المضاعفات الأكثر انتشارًا هي الغثيان (62%) والقيء (24%) فقدان الوزن الزائد (20%).
 - تم العثور على الداء السكري ليكون عامل خطر كبير لمضاعفات ما بعد الجراحة.
- الاستنتاج:** نوصي بإجراء مزيد من الدراسات حول حجم العينة الأكبر وعلي نطاق جغرافي كبير للتأكد علي استنتاجنا.
- الكلمات الدالة:** السمنة المرضيه، منظار جراحي.