

# Prospective Study of Sleeve Gastrectomy in Baghdad Teaching Hospital

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## Summary:

**Background:** obesity is a common disease affecting more than 300 million adults worldwide. Laparoscopic sleeve gastrectomy (LSG) is a relatively new and effective procedure for weight loss, it is gaining acceptance among bariatric surgeons as a viable option for treating morbidly obese patients. We describe results of our experience with LSG in a community practice.

**Objective:** We aimed to evaluate our experience with LSG with regard to its safety and feasibility and early weight loss.

**Methods:** prospective study done in Baghdad Teaching Hospital between February 2011 and November 2013, of 50 consecutive morbidly obese patients and was designed to study the efficacy and safety of the sleeve gastrectomy in this group of patients.

**Results:** The mean preoperative weight of the patients was 113.4 (range 91.0–170.0) kg, while the mean BMI was 42.6 (range 33.0–60.0) kg/m<sup>2</sup>. Hypertension was present in 34%; hyperlipidaemia in 32% and Diabetes mellitus in 8% of the patients. The majority of patients had two or more obesity-related comorbidities (52%). Mean operative time was 142 minutes and duration of postoperative stay was three to nine days. At two weeks, one, three and six months post operation, the mean BMI was 38.6 kg/m<sup>2</sup>, 37.8 kg/m<sup>2</sup>, 34.5 kg/m<sup>2</sup> and 30.8 kg/m<sup>2</sup>, the mean percentage of excess weight loss was 17.7 %, 23.3 %, 40.9 % and 56.7 %, and absolute weight loss was 8.00 kg, 11.52 kg, 18.77 kg and 26.85 kg, respectively.

**Conclusion:** LSG is a promising procedure for surgical treatment of obesity, with good early weight loss and low morbidity.

**Keywords:** sleeve gastrectomy, morbid obesity, body mass index.

*Fac Med Baghdad*  
 2014; Vol.56, No.2  
 Received: April. 2014  
 Accepted May. 2014

## Introduction:

Obesity is the second leading cause of preventable death in the United States, currently outranked only by smoking. Current estimates suggest that the population with severe obesity (BMI >35kg/m<sup>2</sup>) is greater than 15 million in USA, and the prevalence of obesity is dramatically increasing (1). Diabetes, hypertension, dyslipidemia and orthopedic problems as well as mental disorders, with the risk of developing cardiovascular disease are associated with overweight; so treatment to control obesity is essential. Bariatric surgery is the only effective treatment for morbid obesity as it leads to sustained weight loss and improvement of comorbidities. Besides a reduction in excess weight, bariatric surgery also improves metabolic changes, thereby effectively decreasing obesity-related morbidity and mortality (2).

Bariatric surgery can be classified into restrictive techniques like gastric banding and sleeve gastrectomy, Malabsorptive techniques such as jejunoileal bypass and finally combined restrictive and malabsorptive technique, as in Roux-en-Y-gastric bypass (3).

Selection criteria for obesity surgery (based on the International Federation for Surgery of Obesity and the National Institute for Clinical Excellence) include:

1. Body mass index (BMI) >40 kg/m<sup>2</sup> or BMI 35–39 kg/m<sup>2</sup> with serious comorbid disease treatable by weight loss
2. Minimum of 5 years obesity
3. Failure of conservative treatment
4. No alcoholism or major untreated psychiatric illness
5. Avoid if likely to get pregnant within 2 years
6. Age limits 18–55 years (relative)
7. Acceptable operative risk on preoperative assessment (4).

Sleeve gastrectomy was initially added as a modification to the biliopancreatic diversion and then combined with a duodenal switch in 1988. It was first performed laparoscopically in 1999 as part of a duodenal switch and subsequently done alone as a staged procedure in 2000. (5) However, since the beginning of this century the sleeve gastrectomy has started to gain more popularity as a primary bariatric intervention as this technique is technically easier and relatively faster than other bariatric procedures, showing a low complication rate,

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a mean excess weight loss comparable with the other surgical techniques, and significant reduction in comorbidities(6).

The mechanisms of action of LSG are via mechanical restriction and hormonal modulation. First, it serves to work as a restrictive operation that reduces the size of the gastric reservoir to 60–100 ml and restricts distension, thus permitting the intake of only small amounts of food, resulting in a feeling of early satiety during a meal. Second, evidence has suggested that attenuation of endogenous ghrelin levels may also

By resecting the fundus in LSG, the majority of ghrelin-producing cells are removed, thus reducing plasma ghrelin levels and subsequently, the sensation of hunger (7). Although the procedure is relatively safe, the complications, when they do occur, can be serious (e.g. bleeding and gastric leak from the staple line) (8).

**Patients and Methods:**

This is a prospective study that included 50 consecutive morbidly obese patients and was designed to study the effectiveness and safety of the sleeve gastrectomy in this group of patients. The patients were operated between February 2011 and November 2013. For the 30 patients, we evaluated: the duration of intervention, the early (less than 30 days) and late postoperative complications, hospital stay, loss of excess weight (% EWL), and the need for a second operation in the case of insufficient weight loss. All patients who underwent LSG for morbid obesity in Baghdad Teaching hospital were reviewed and followed up for their weight loss and resolution of obesity-related comorbidities. The patients' clinical data, including age, gender, initial body mass index (BMI) and comorbidities were obtained.

**Results:**

A total of 50 patients (38 females, 12 males) underwent LSG between February 2011 to November 2013. The mean age of the patients was 38 (range 23–64) years. The mean preoperative weight was 113.4 (range 91–170) kg and the mean BMI was 42.6 (range 33.0–60.0) kg/m<sup>2</sup>.

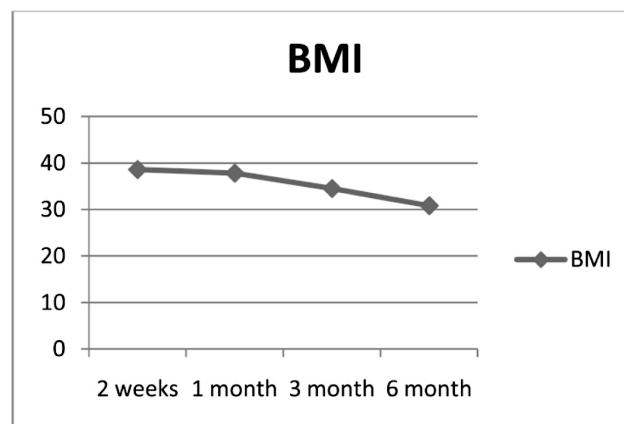
Hypertension was the most common comorbidity, it presents in 34% of the patients, followed by hyperlipidemia in 32%, osteoarthritis in 12%, obstructive sleep apnoea in 10% and the least comorbidity was Diabetes Mellitus which presents in only 8% of patients. However, 52% of patients had two or more obesity-related comorbidities (Table . 1), while the duration of postoperative stay was three to nine days. Two weeks postoperatively the mean BMI was 38.6 kg/m<sup>2</sup>, this reduced to 37.8 kg/m<sup>2</sup> after 1 month, the number further went down to 34.5 kg/m<sup>2</sup> after 3 months and become 30.8 kg/m<sup>2</sup> 6 months later (Fig. 1), when it comes to the mean %EWL we can see that it was 17.7% after 2 weeks from surgery, this figure increased to 23.3% one month following

operation, 3months postoperatively the number went up to 40.9% and finally reached 56.7% after 6 months(Fig. 2), However, absolute weight loss was 8.00 Kg in weeks, 11.52 kg in one month, 18.77 kg in 3 months and 26.85 kg six months postoperatively (Fig.3).

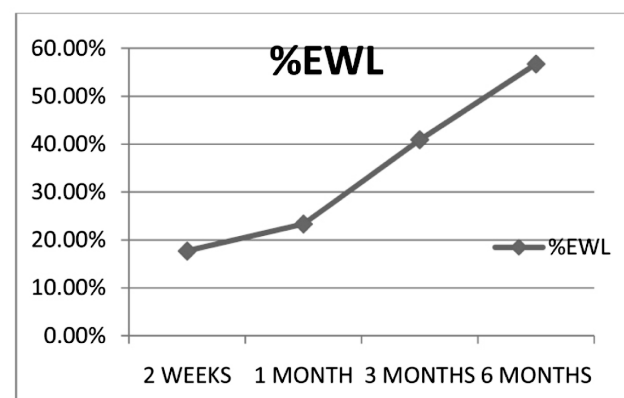
From figure 4 we can see that the most common encountered complication following surgery was vomiting which occurred in 4 patients while the least problem were leak and pulmonary embolism which both occurred in only 2% of patients.

**Table 1: Co-morbidities Percentage**

Comorbidities	Percentage
Hypertension	34%
Hyperlipidemia	32%
Osteoarthritis	12%
Obstructive sleep apnoea	10%
Diabetes mellitus	8%
Two or more comorbidities	52%



**Figure – 1 BMI of patients after surgery**



**Figure – 2: Mean percentage of excess weight loss in patients after surgery**



Figure – 3: Absolute weight loss in patients after surgery in Kg

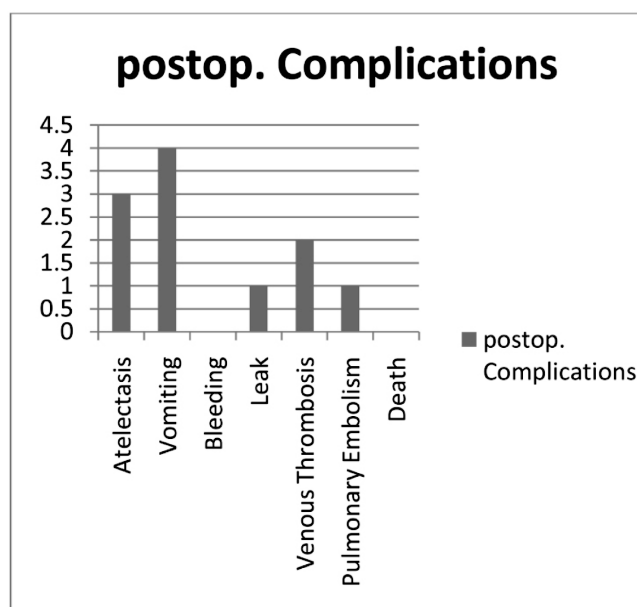


Figure 4: Postoperative complications

#### Discussion:

In 2009, the American Society for Metabolic and Bariatric Surgery issued an updated statement on sleeve gastrectomy, accepting LSG as an approved bariatric surgical procedure primarily due to its potential value as a first-stage operation for high-risk patients, with the full realization that successful long-term weight reduction in an individual patient after LSG would obviate the need for a second-stage procedure (9). The mean preoperative BMI in our study was 42.6 (range 33.0–60.0) kg/m<sup>2</sup> and this results approach that of Roa PE et al. Who found that the mean preoperative BMI was 41.4 (33–59) kg/m<sup>2</sup> (10).

When it comes to the mean operative time, it was 142 minutes (range 80 to 220 min) in our study while Himpens J. et al(11)

found that it was 120 minutes (70 - 143 minutes) which may reflect the high training opportunity and experience in addition to the presence of specialized bariatric centers.

Cottam D. et al found that mean percentage excess weight loss (EWL) at 3 and 6 months following the procedure was 40.7% and 52.8%, respectively (12), we reached nearly similar figures in our study (40.9% and 56.7%, in 3 and 6 months postoperatively).

Regarding Absolute weight loss in patients after surgery, we found that it was 18.77 kg in 3 months and 26.85 kg six months postoperatively. This was nearly similar to the figures that Moon Han S et al (13) found (18Kg & 26.17Kg in 3 & 6 months respectively) The average length of hospital stay in our study was 6 days (3–6 days) that was in contrast to Karmali S. et al who reached a result of 3.8 days in hospital (14) that is due to economic considerations. 22% of patients developed complications, the most common problem following LSG was vomiting (8% of patients) which was short lived and resolved by conservative treatment while the least complications were pulmonary embolism and leak (1%), both required more complicated intervention, whereas Ajay Chopra et al(15) reached different results in his study, he found that 14.05% of his patients developed complications, vomiting occurred in only 2.7% of patients while leak occurred in 2.16% and only 0.54% suffered from pulmonary embolism.

#### Conclusion:

Although our study has its limitations, the small sample size which is due to the fact that bariatric surgery is a relatively new field and procedures, and public knowledge regarding this procedure is sparse; our experience shows that this novel procedure is safe and promising in terms of weight loss and patient acceptance.

#### Author's contributions:

All authors designed the study. Dr. Hamid acquired the data, while Dr. Haider and Dr. Ahmed analyzed them meanwhile Dr. Ahmed and Dr. Hamid wrote the article, all authors reviewed this study.

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