One-day surgery laparoscopic sleeve gastrectomy: 96 patients at a Menoufia University Hospital

Asem Fayed, Mahmoud Hagag, Mohammed Elbalshy

Department of General Surgery, Faculty of Medicine, Menoufia University, Menoufia, Egypt

Correspondence to Asem Fayed, MD, Department of General Surgery, Faculty of Medicine, Menoufia University, Shebin Elkom, Menoufia 32511, Egypt. Tel: +20 100 125 9549; fax: +20 482 325 116; e-mail: asemfayed10@yahoo.com

Received 22 January 2018
Accepted 20 February 2018

The Egyptian Journal of Surgery 2018, 37:419–422

Background
Laparoscopic sleeve gastrectomy (LSG) is one of the most performed bariatric surgeries, although its safety as a 1-day surgery is not yet approved.
Patients and methods
An analysis of a prospectively collected bariatric surgery data, in Menoufia University Hospitals was conducted between February 2016 and August 2017. There were120 patients who underwent LSG; 96 (80%) patients were operated as a 1-day surgery (hospital stay<12 h).
Results
All procedures were primary LSG performed on 82 women and 14 men, with a mean age (±SD) of 29.2±13.5 years. Mean±SD preoperative BMI was 45.4±3.8 kg/m^2. Operative time was 49.8±9.6 min (mean±SD). There were no deaths. All patients were discharged home on the same day of the surgery. There were one (1.04%) case of gastric staple line leak, three (3.12%) of intra-abdominal bleeding, and one (1.04%) case of gastric stenosis. All patients went well.
Conclusion
LSG can be performed as a 1-day surgery in selected patients, with no complications.

Keywords:
laparoscopic sleeve gastrectomy, obesity, 1-day surgery

Egyptian J Surgery 37:419–422

1110-1121

Introduction

The current lifestyle and dependence on fast food has increased the prevalence of morbid obesity that represents a serious worldwide health problem [1], with a financial impact on health-care costs that increases with time. Medical literature supports the role of bariatric surgery in decreasing the costs associated with different comorbidities such as hypertension, diabetes mellitus, dyslipidemia, and heart diseases [2].

Laparoscopic sleeve gastrectomy (LSG) is one of the bariatric surgeries that is increasing in popularity due to a short operative time, less comorbidities, and good weight loss results [3,4].

There are several methods to decrease surgery costs; the most important is to lower the hospital stay without decreasing the level of medical care.

The goal of this study is to demonstrate that LSG can be done as a 1-day surgery to decrease costs.

Patients and methods

Between February 2016 and August 2107, 120 patients underwent LSG in a Menoufia University Hospital. In all, 96 patients were included who had 1-day surgery and had the inclusion criteria.

Inclusion criteria

Age less than 55 years old with BMI less than 50 kg/m^2.

Age less than 45 years old with BMI more than or equal to 50 and less than 55 Kg/m^2.

American Society of Anesthesiologists (ASA) score I or II.

Mild obstructive sleep apnea (OSA).

Obesity surgery mortality risk score (OS-MRS) grade A or B.

Exclusion criteria

Age more than or equal to 55 years old.

BMI more than or equal to 55 kg/m^2.

ASA score more than or equal to III or IV.

OS-MRS grade C.

 DOI: 10.4103/ejs.ejs_8_18

Insulin-dependent diabetes.

Poorly controlled hypertension.

The patients were prepared following guidelines in ERAS protocols used in the bariatric procedure [3,4].

A mean age (±SD) was 29.2±13.5 years. Mean±SD preoperative BMI was 45.4±3.8 kg/m^2. This study identified five independent risk factors: BMI more than 50 kg/m^2, age more than 45 years, hypertension, male sex, and pulmonary embolism. The patients were divided into three classes according to the OS-MRS score: class A, low risk with no or only one risk factor; class B, average risk with two or three risk factors; and class C, high risk with four or five risk factors. This classification, used for gastric bypass surgery, can be used for LSG.

Patient's ASA score (ASA Classification of Physical Status) must be I or II.

Preoperative assessment included complete blood count, renal function, thyroid function, hepatic function, plasma lipids, and random blood sugar. All patients included for the day surgery had normal investigations.

A 5-trocar technique was used. Gastric transection began 4 cm from the pylorus, using a gastric calibration bougie size 36 Fr. Patients went home according to the modified postanesthesia care units discharge protocol [5].

This included eupneic, mobile, and well-oriented patients, with normal blood pressure and oxygen saturation, clear urine, and clean bandage, with pain and nausea controlled through medication. Postoperative imaging was done.

Thromboprophylaxis was achieved with low molecular weight heparin for 14 days, analgesics, antiemetics, and proton pump inhibitor for 6 weeks. Liquid intake for the first 2 weeks after surgery was prescribed and all patients were given a bariatric surgery food regimen. A follow-up visit was scheduled 1 week postoperatively. Patients' demographic characteristics, intra/postoperative complications, hospitalization, readmission, and operations duration were analyzed.

Ethics statement

Before the inclusion of the patients in the study, ethical clearance was sought from the competent authority of Menoufia University Hospitals. Written informed consent was obtained from the patients' relatives for publication of this research.

Statistical analysis

The data obtained were analyzed using the statistical package for the social analysis (version 15.0; SPSS Inc., Chicago, Illinois, USA). The results were presented with mean and SD or number (%) as appropriate.

Results

One-day LSG was performed on a total of 96 patients out of 120 LSGs, with 82 women and 14 men, with a mean age (±SD) of 29.2±13.5 years. Mean±SD preoperative BMI was 45.4±3.8 kg/m^2; all patients went home on the day of the surgery.

All were primary LSGs. There were one leak, one stenosis, and three perioperative bleeding. The patient who developed postoperative gastric leak was treated by endoscopic stenting for 5 weeks and he went home after 14 days of hospitalization. The patient who developed gastric stenosis was treated by gastrogastrostomy. When we compared comorbidities and readmission (Tables 1–6).

Discussion

One-day surgery is not exceptional anymore and many researches have shown no significantly increased rate of

Table 1 Demographic criteria

Items	Frequency	%
Sex		
Males	14	14.6
Females	82	85.6
Age		
Mean±SD	29.2±13.5	
Minimum–maximum	14–54	

Table 2 Preoperative data

Items	Frequency
Preoperative BMI	
Mean±SD	45.4±3.8
Minimum–maximum	40–54.9
Preoperative weight	
Mean±SD	120.8±12.9
Minimum–maximum	98–160
Weight loss per year	
Mean±SD	34.2±6.6
Minimum–maximum	22–50
EWL %	
Mean±SD	63.2±3.8
Minimum–maximum	52.9–71.1

EWL, excess weight loss

Table 3 Operative time and length of hospital stay

Items	Frequency
Operative time (min)	
Mean±SD	49.8±9.6
Minimum–maximum	23–69
Hospitalization (h)	
Mean±SD	8.2±1.2
Minimum–maximum	6–10

Table 4 Comorbidities

Comorbidities	Frequency	Percentage
Hypertension		
Yes	22	22.9
No	74	77.1
Diabetes mellitus type II		
Yes	12	12.5
No	84	87.5
OSA		
Yes	10	10.4
No	86	89.6
Hyperlipidemia		
Yes	6	6.3
No	90	93.8

OSA, obstructive sleep apnea.

Table 5 Perioperative complications

Preoperative complications	Frequency	Percentage
Preoperative bleeding		
Yes	3	3.12
No	93	96.9
Preoperative leak		
Yes	1	1.04
No	95	98.95
Preoperative stenosis		
Yes	1	1.04
No	95	98.95

Table 6 Causes of readmission

Readmission	Frequency	Percentage
Nausea		
Yes	13	13.5
No	83	86.5
Pneumonia		
Yes	2	2.1
No	94	97.9
Bleeding		
Yes	3	3.12
No	94	96.9
Leak		
Yes	1	1.04
No	95	98.95
Stenosis		
Yes	1	1.04
No	95	98.95

complications when comparing length of stay less than 24 with length of stay more than 24 h [6]. But, published data are not encouraging about laparoscopic Roux-en-Y gastric bypass and 24-h hospitalization. Morton *et al.* [7] in a population-based study of 54 908 patients showed a significantly increased risk of 30-day mortality and morbidity for laparoscopic Roux-en-Y gastric bypass patients discharged at 1 day or less.

LSG can be performed as a 1-day surgery. However, well-defined recommendations are lacking [8,9], as was confirmed in a recent systematic review by Joshi *et al.* [10].

In the series by DeMaria, the mortality rate went from 0.31% for class A patients to 7.56% for class C patients. In our series, only 15 out of 96 (15.62%) patients were of class B, the rest were of class A (n=81, 84.37%). None of the class B patients were hospitalized overnight, and only five patients were readmitted. All patients recovered well.

OSA screening was also included in our 1-day surgery. OSA is no longer a contraindication to 1-day surgery [11,12].

A 36 Fr bougie was used for the patient with gastric leak, concurring with a recent meta-analysis by Parikh *et al.* [13], which showed that a more than or equal to 40 Fr bougie seems to decrease leaks without significantly impacting weight loss up to 3 years. However, even if a smaller bougie (<40 Fr) can increase the risk of leak, in our series, the patient with staple line leaks was virus c positive and was already potentially at higher risk [14,15].

Gnecchi *et al.* [16], in a retrospective study of 101 consecutive LSGs showed no increased benifit to early radiography examination in detecting surgical gastric leak. They confirmed the importance of upper gastrointestinal imaging (UGI) study in symptomatic or high-risk patients. Indeed, the role of UGI study in the early postoperative period remains unclear and is accompanied by a risk of being false negative [17].The overall complications occurred in five patients. Complications were defined as any deviation from the normal postoperative course, using the Dindo-Clavien classification [18]. We included the patient with gastric staple line leak who presented a leak at the level of the gastroesophageal junction. Treatment included endoscopic stenting and drainage. Incidence of gastric leak can increase from 2.2% for a primary LSG to 5.7% for a revisional LSG [13–15].

In this study, we had a rate of 1.04% of gastric leak, which could be attributed to several factors including the well and fine selection criteria for 1-day surgery which stratify low-risk patients, reducing the rate of perioperative and postoperative complications [19].

Billing *et al.* [20] described a retrospective study that included 250 patients who had LSG as a 1-day surgery. Only nine (3.6%) patients were rehospitalized within 30 days, two (0.8%) patients were readmitted after the procedure, and there was one (0.4%) staple line leak. When compared with our study, these results were better regarding the readmission rate of 8.5% and overnight hospitalization rate of 1.8%. Interestingly, two patients in Billing's study were hospitalized overnight because of OSA discovered at the day of surgery, reinforcing the importance of strict preoperative selection criteria.

In this study, one patient needed surgical exploration for intra-abdominal bleeding (grade IIIb Dindo-Clavien). After an unsuccessful 24 h of conservative treatment, we performed exploratory laparotomy and found the source of bleeding in the gastrosplenic ligament. Hemostasis was done and the patient went well.

Conclusion

This study shows that LSG can be done as 1-day surgery with no complications.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1 Finucane MM, Stevens GA, Cowan MJ, Danaei G, Lin JK, Paciorek CJ, *et al.* National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants. Lancet 2011; 377:557–567.

2 Rosenthal RJ, Diaz AA, Arvidsson D, Baker RS, Basso N, Bellanger D, *et al.* International sleeve gastrectomy expert panel consensus statement: best practice guidelines based on experience of >12,000 cases. Surg Obes Relat Dis 2012; 8:8–19.

3 Awad S, Carter S, Purkayastha S, Hakky S, Moorthy K, Cousins J, Ahmed AR. Enhanced recovery after bariatric surgery (ERABS): clinical outcomes from a tertiary referral bariatric centre. Obes Surg 2014; 24: 753–758.

4 Mannaerts GH, vanMil SR, Stepaniak PS, Dunkelgrün M, de Quelerij M, Verbrugge SJ, *et al.* Results of implementing an enhanced recovery after bariatric surgery (ERABS) protocol. Obes Surg 2016; 26:302–312.

5 Aldrete JA. The post-anesthesia recovery score revisited. J Clin Anesth 1995; 7:89–91.

6 Elnahas A, Urbach D, Okrainec A, Quereshy F, Jackson TD. Is next-day discharge following laparoscopic Roux-en-Y gastric bypass safe in select patients? Analysis of short-term outcomes. Surg Endosc 2014; 28:2789–2794.

7 Morton JM, Winegar D, Blackstone R, Wolfe B. Is ambulatory laparoscopic Roux-en-Y gastric bypass associated with higher adverse events? Ann Surg 2014; 259:286–292.

8 Billing PS, Crouthamel MR, Oling S, Landerholm RW. Outupatient laparoscopic sleeve gastrectomy in a free-standing ambulatory surgery center: first 250 cases. Surg Obes Relat Dis 2014; 10: 101–105.

9 Singh R, Musielak M, Shahid H, Curry T. Same-day discharge after laparoscopic sleeve gastrectomy: our initial experience. Am Surg 2014; 80:1274–1276.

10 Joshi GP, Ahmad S, Riad W, Eckert S, Chung F. Selection of obese patients undergoing ambulatory surgery: a systematic review of the literature. Anesth Analg 2013; 117:1082–1091.

11 Hawasli A, Jacquish B, Almahmeed T, Vavra J, Roberts N, Meguid A, Szpunar S. Early effects of bougie size on sleeve gastrectomy outcome. Am J Surg 2015; 209:473–477.

12 Weingarten TN, Flores AS, McKenzie JA, Nguyen LT, Robinson WB, Kinney TM, *et al.* Obstructive sleep apnoea and perioperative complications in bariatric patients. Br J Anaesth 2011; 106:131–139.

13 Parikh M, Issa R, McCrillis A, Saunders JK, Ude-Welcome A, Gagner M. Surgical strategies that may decrease leak after laparoscopic sleeve gastrectomy: a systematic review and meta-analysis of 9991 cases. Ann Surg 2013; 257:231–237.

14 Foletto M, Prevedello L, Bernante P, Luca B, Vettor R, Francini-Pesenti F, *et al.* Sleeve gastrectomy as revisional procedure for failed gastric banding or gastroplasty. Surg Obes Relat Dis 2010; 6:146–151.

15 Yazbek T, Safa N, Denis R, Atlas H, Garneau P. Laparoscopic sleeve gastrectomy (LSG)-a good bariatric option for failed laparoscopic adjustable gastric banding (LAGB): a review of 90 patients. Obes Surg 2013; 23:300–305.

16 Gnecchi M, Bella G, Pino AR, Staltari I, Di Leo N, Polli NA, Drudi FM. Usefulness of x-ray in the detection of complications and side effects after laparoscopic sleeve gastrectomy. Obes Surg 2013; 23:456–459.

17 Chivot C, Robert B, Lafaye N, Fuks D, Dhahri A, Verhaeghe P, *et al.* Laparoscopic sleeve gastrectomy: imaging of normal anatomic features and postoperative gastrointestinal complications. Diagn Interv Imaging 2013; 94:823–834.

18 Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. Ann Surg 2004; 240:205–213.

19 Brolin RE, Cody RP, Marcella SW. Differences in open versus laparoscopic gastric bypass mortality risk using the Obesity Surgery Mortality Risk Score (OS-MRS). Surg Obes Relat. 2015; 11:1201–1206.

20 Billing PS, Crouthamel MR, Oling S, Landerholm RW. Outpatient laparoscopic sleeve gastrectomy in a free-standing ambulatory surgery center: first 250 cases. Surg Obes Relat Dis 2014; 10:101–105.