ELSEVIER

Surgery for Obesity and Related Diseases ▮ (2016) 00–00

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Laparoscopic sleeve gastrectomy in patients with abdominoplasty: a case-control study

Alan A. Saber, M.D.[a,*], Saeed Shoar, M.D.[a], Moamena El-Matbouly, M.D.[b], Mohsen Karem, M.D.[b], Moataz M. Bashah, M.D.[b], Ahmad Al Najjar, M.D.[b], Mohammad J. Alkuwari, M.D.[b], Hooman Soltanian, M.D.[c]

[a]*Bariatric and Metabolic Institute, Department of Surgery, The Brooklyn Hospital Center, Icahn School of Medicine at Mount Sinai, Brooklyn, New York*
[b]*Department of Surgery, Hamad Medical Corporation, Weill Cornell Medical College, Doha, Qatar*
[c]*Department of Plastic Surgery, University Hospitals, Case Medical Center, Cleveland, Ohio*

Received May 3, 2016; accepted August 19, 2016

Abstract

Background: Abdominoplasty is increasingly performed after weight loss surgery. However, performing a laparoscopic sleeve gastrectomy (LSG) after abdominoplasty poses technical challenges.

Objective: The present study aimed to compare operative events and postoperative outcomes between LSG patients with and without a history of prior abdominoplasty.

Setting: University hospital, Qatar.

Methods: A case-control study was conducted on 2 groups of patients with (n = 33) and without (n = 69) prior abdominoplasty who were undergoing LSG. Patient demographic characteristics, baseline characteristics, as well as operative and postoperative events were compared between the 2 groups.

Results: A total of 102 patients with an average age of 39.6 ± 7.7 years and body mass index (BMI) of 42.8 ± 5.9 kg/m^2 were included. There were no significant differences between the 2 groups in terms of demographic characteristics, preoperative BMI, and co-morbidities. The number of ports required was significantly higher in the LSG patients with a history of prior abdominoplasty than in the nonabdominoplasty patients. The operation time was also significantly longer in the abdominoplasty patients than in the nonabdominoplasty patients (90.3 ± 36.7 minutes versus 57.1 ± 17.7 minutes; $P < .0001$). However, no significant differences were observed in terms of postoperative complications, length of hospital stay, and weight loss results.

Conclusion: LSG after abdominoplasty is associated with longer operative times and the need for additional port placement to overcome the decreased working space. However, operative strategies should be considered to overcome the technical challenges during LSG in patients who underwent a prior abdominoplasty. (Surg Obes Relat Dis 2016;▮:00–00.) © 2016 Published by Elsevier Inc. on behalf of American Society for Metabolic and Bariatric Surgery.

Keywords: Laparoscopy sleeve gastrectomy; Abdominoplasty; Technical considerations; Weight loss

Bariatric surgery plays an important role in the treatment of morbid obesity [1,2]. The number of bariatric procedures performed in the United States has increased from 158,000 in 2011 to 193,000 in 2014 [3]. Meanwhile, the number of abdominoplasty procedures has increased by 79% over the last decade [4]. With the increasing number of weight loss

*Correspondence: Alan A Saber M.D., MS, FACS, FASMBS, Weight Loss Center, The Brooklyn Hospital, 121 DeKalb Ave, Brooklyn, NY 11201.
E-mail: saber6231@gmail.com

http://dx.doi.org/10.1016/j.soard.2016.08.489
1550-7289/

surgeries and increasing number of abdominoplasties, more morbidly obese patients with a history of prior abdominal wall body contouring are undergoing bariatric surgery.

A history of a prior abdominoplasty poses technical challenges during laparoscopic procedure. The challenges are attributed to decreased abdominal wall compliance and the resultant narrower working space available during laparoscopy. Morbid obesity can worsen the situation by increasing the abdominal wall thickness.

A few reports address laparoscopic techniques in patients with prior abdominal wall reconstruction [5–9]. However, there is no published study comparing the laparoscopic outcomes of these patients with the outcomes of patients with no prior abdominoplasty. The present study aimed to evaluate the operative and clinical outcomes in patients with prior abdominoplasty undergoing laparoscopic sleeve gastrectomy (LSG) and compare them with the results in patients undergoing weight loss surgery with intact abdomens.

Methods and materials

Study design

In this case control study, our hospital database was retrospectively reviewed to retrieve data on patients who underwent LSG between July 2014 and April 2015 in the metabolic and bariatric department of Hamad Medical Corporation in Doha, Qatar. The institutional review board of our hospital approved the study protocol. All the surgeries were performed by fellowship-trained surgeons, who were well beyond their learning curve, using a standardized technique.

Patients

The inclusion criteria were morbidly obese women aged between 18 and 65 years old who underwent LSG. Consecutive patients with prior abdominoplasty who underwent LSG (study group) and patients with no prior abdominal wall reconstruction who underwent the same weight loss procedure (control group) were recruited. Revisions or conversions to another procedure were excluded from analysis.

Surgical technique of abdominoplasty

All of the patients underwent surgery using the same abdominoplasty technique. After marking the anatomic features in an upright position, the patient assumed a supine position. General anesthesia was administered. A Pfannenstiel incision was made and the superior skin flap and subcutaneous tissue were undermined all the way up to the costal margin laterally and the xiphoid process medially. The umbilicus was circumscribed and exteriorized. A vertical rectus fascial plication was achieved to correct the diastasis of the rectus abdominis muscles using permanent monofilament sutures. In a semiflexed position, the excess skin and adipose tissue were excised, and the flap was then sutured to the inferior skin incision in 2 layers. Two closed drains were placed.

Laparoscopic sleeve gastrectomy in patients without prior abdominoplasty. A 1.5-cm skin incision was made in the umbilicus for the initial 15-mm port using an open technique. Pneumoperitoneum was achieved to a pressure of 15 mm Hg. A 12-mm trocar was inserted in the left upper quadrant and a 5-mm trocar in the right upper quadrant. A Nathanson liver retractor was inserted through a 5-mm subxiphoid skin puncture without port placement. When necessary, an additional 5-mm port was employed in the left upper quadrant.

The technique of the sleeve gastrectomy was similar as previously described [10,11]. Using a 5-mm LigaSure (Medtronic, Minneapolis, MN), the greater curvature of the stomach was mobilized, beginning from a point 6 cm proximal to the pylorus, staying close to the wall of the stomach, going all the way up the greater curvature to the angle of His, and dividing both the gastrocolic and gastrosplenic ligaments. Retrogastric adhesions were taken down to allow complete mobilization of the stomach, eliminate any redundant posterior wall of the sleeve, and exclude the fundus from the gastric sleeve.

Once the stomach was completely mobilized, a 34 F orogastric tube was inserted orally into the pylorus and placed against the lesser curvature. This calibrated the size of the gastric sleeve, prevented constriction at the gastroesophageal junction and incisura angularis, and provided a uniform shape for the entire stomach. The gastric transection was initiated at a point 6 cm proximal to the pylorus, leaving the antrum, and preserving gastric emptying. A long laparoscopic reticulating 60-mm XL endo-GIA stapler with green cartridge 4.8-mm staples and a synthetic absorbable buttressing material was inserted through the 15-mm trocar in a cephalad direction. The stapler was fired consecutively along the length of the orogastric tube until the angle of His was reached. Care was taken not to narrow the stomach at the incisura angularis and to inspect the stomach anteriorly and posteriorly to ensure there was no redundant posterior stomach. Approximately 80% of the stomach was separated. The entire staple line was inspected for bleeding and tested for leakage. The integrity of the staple line was tested by insufflating air under saline and infusing methylene blue into the remaining stomach. The resected stomach was extracted through the 15-mm umbilical port incision without the need for an Endobag. The fascial defect of the umbilical port site was closed with a figure-of-eight 2-0 nonabsorbable suture to prevent port site hernia formation. Deep vein thrombosis prophylaxis was achieved using anticoagulation, compression stockings, and an intermittent venous compression device. Once the patient was hemodynamically stable, afebrile, ambulating, able to maintain