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Original article

Outpatient laparoscopic sleeve gastrectomy in a free-standing ambulatory surgery center: First 250 cases

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Abstract

Background: A growing body of evidence supports the laparoscopic sleeve gastrectomy (LSG) as a safe and effective procedure for sustained weight loss and amelioration of weight-related comorbidities. Procedures performed in ambulatory surgery centers (ASC) can provide several advantages over hospital-based surgery. We present our results of 250 consecutive patients undergoing LSG in an ASC. The objective of this study was to assess the safety and efficacy of outpatient LSG in a freestanding ASC.

Methods: Data was collected prospectively from 250 consecutive patients who underwent LSG at a freestanding ASC. Patients were excluded from the ASC if they weighed >450 pounds, if anticipated operative time was >2 hours, if the patient had impaired mobility limiting early ambulation, or if there were medical problems requiring postoperative monitoring beyond 23 hours. Revisions were not included in this study.

Results: Mean age was 47 years (range, 23–74 yr). Mean preoperative body mass index (BMI) was 43 kg/m² (29–71 kg/m²). Mean operative time was 60 minutes (31–161 min). Mean recovery room time was 131 minutes (30–385 min). Mean percent excess weight loss (%EWL) was 60% at 1 year and 63% at 2 years. Nine patients (3.6%) were readmitted within 30 days. Two patients (.8%) were transferred from the ASC to a hospital. There was 1 staple line leak (.4%). There were no open conversions and no deaths.

Conclusions: LSG can be performed safely in a freestanding ASC in select patients with outcomes comparable to the inpatient standard. Additional studies are needed to formulate selection criteria and guidelines to maximize patient safety and outcomes. (Surg Obes Relat Dis 2014;10:101–105.)

Keywords: Obesity; Bariatric surgery; Sleeve gastrectomy; Outpatient surgery; Ambulatory surgery

Laparoscopic sleeve gastrectomy (LSG) is rapidly gaining interest as a procedure that bridges the gap between safety and efficacy in bariatric surgery [1]. With efficacy close to Roux-en-Y gastric bypass with regard to percent excess weight loss (%EWL) and resolution of comorbidities (particularly diabetes), the LSG offers several advantages over gastric bypass, including shorter operative time, shorter hospital stay, faster recovery, lower cost, and fewer complications [2–5]. Ambulatory surgery has several advantages over hospital-based procedures, including convenience and lower cost. There is evidence to support the safety and feasibility of laparoscopic adjustable gastric banding (LAGB) in an ambulatory setting [6,7]. There is also a growing interest in ambulatory laparoscopic Roux-en-Y gastric bypass (LRYGB) in low-risk patients [8,9]. The LSG can generally be completed in less than an hour and has a very low complication rate in experienced centers [3]. This makes it an ideal procedure to share the advantages traditionally seen in the ambulatory setting. We report our experience with outpatient LSG in select patients in a freestanding ambulatory surgical center (ASC).

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Materials and methods

We reviewed prospective data on 250 consecutive patients who underwent outpatient LSG at our center between Jan 2008 and May 2011. This study had institutional review board (IRB) approval through Copernicus Group PSB1-11-273.

Patient selection

Patients were considered for outpatient bariatric surgery if they were at least 18 years old, had a body mass index (BMI) ≥ 30 kg/m^2, and had demonstrated multiple attempts at nonoperative weight loss. Patients were excluded from outpatient surgery if their weight was >450 pounds (because of equipment limitations), had impaired mobility impeding early postoperative ambulation, or if the anticipated operative time was more than 2 hours (i.e., large paraesophageal hernia or adhesions). Patients with significant cardiac, pulmonary, renal, endocrine, or metabolic concerns requiring postoperative care beyond 23 hours or immediate availability of specialists were also excluded. This decision often was made collaboratively with the anesthesiologist, primary care provider, or subspecialists. Revisions (i.e., previous adjustable gastric band) or prior surgeries at or near the hiatus (i.e., fundoplication, splenectomy) were excluded from this study. All patients completed nutritional and psychological assessments, had a bariatric lab panel, had an electrocardiogram, and had at least 2 visits with their surgeon. The Bariatric Lab Panel includes a complete blood count, electrolytes, liver function tests, ferritin, HbA_{1c}, iron, lipid panel, thyroid-stimulating hormone, vitamin A, vitamin B1, vitamin B9, vitamin B12, vitamin D, and zinc. They were all placed on a 2-week preoperative low-carbohydrate diet (<40 gm/d). Any patient with dysphagia or severe or long-standing heartburn had a preoperative esophagogastroduodenoscopy. Patients were screened for sleep apnea using the Snoring, Tired, Observed, Blood Pressure, BMI, Age, Neck Circumference, and Gender (STOP-BANG) questionnaire [10]. Those with STOP-BANG scores >2 were referred for a sleep study. Those meeting the American Heart Association and the American College of Cardiology guidelines for preoperative cardiac evaluation were referred for additional cardiac workup. Any patient found to have preoperative hypoxia (room air saturation of peripheral oxygen [SpO_2] $<97\%$) or chronic metabolic alkalosis were screened for pulmonary hypertension.

Technique

All LSG cases were performed in a freestanding ASC. We had a written transfer agreement with the nearest hospital located less than a quarter mile from the ASC. Every procedure was done with 2 bariatric surgeons. The patients were administered preoperative antibiotics, subcutaneous heparin, famotidine, ondansetron, aprepitant, scopolamine, and dexamethasone. Ketorolac was used routinely intraoperatively, and narcotics were used sparingly. Anesthesia was conducted by experienced anesthesiologists who routinely perform bariatric anesthesia care. The anesthesiologists have at their disposal a variety of tools to mitigate the difficult airway including fiber-optics, GlideScope (Verithon Inc., Bothell, WA), and awake-intubations. The surgical team conducts a modified World Health Organization Checklist surgical pause before incision and after the surgery [11].

Six ports were used: a right subcostal 5 mm, a right periumbilical 12 mm, a left periumbilical 12 mm (camera: 10 mm/30 degree), 2 5-mm left subcostal, and a 5-mm epigastric (liver retractor). The patient was in the supine position with a wedge placed behind the patient's back to increase upper abdominal exposure. Foley catheters were not used. Oral-gastric tubes were placed only if needed. The surgeon was positioned on the right side of the patient. Pneumoperitoneum was established with a 5 mm optically dilating trocar. If there was evidence of a hiatal hernia on preoperative tests or intraoperative evaluation, the hiatus was repaired with a posterior cruroplasty. The omentum was dissected off the greater curve beginning 6 cm from the pylorus using a Harmonic scalpel (Ethicon Endo-Surgery, Cincinnati, OH). The mobilization continued up to the angle of His and medially to the base of the left crus. A 38-Fr bougie was used in all cases. The first firing was 6 cm from the pylorus with a 4.1 mm (green load) Echelon 60 Endopath Flex Stapler (Ethicon Endo-Surgery, Cincinnati, OH) with careful attention to be at least 3 cm from the incisura. Subsequent firings along the bougie were made with either 3.5 mm (blue) or 4.1 mm (green) loads, depending on the surgeon's impression of tissue thickness. Staple line reinforcement was not used. The staple line was not oversewn unless there were areas of suspected weakness (i.e., stapler misfire, serosal injury, poor staple formation). A drain was not routinely placed unless there were concerns at the time of the procedure (i.e., poor tissue integrity). A leak test was not routinely performed.

Patients were discharged from the ASC the same day, when they were ambulatory with normal room-air saturation, their pain and nausea were well controlled, and they were tolerating liquids. All patients received 2–3 liters crystalloid fluid in the recovery room. They were discharged with an intravenous (IV) cannula in place and a saline lock. All patients returned the following morning for postoperative check and further intravenous fluids of 1–2 liters.

Aftercare included surgeon visits at 1 week, 3, 6, 9, 12, 18, and 24 months, and then yearly. Nutritional visits were at 2 weeks and 1, 2, 3, 4, 6, 9, 12, 15, 18, 21, and 24 months. Fitness visits were encouraged, and occurred at the time of the nutrition visits. Bariatric Lab Panels were drawn at 3, 6, 9, 12, 18, and 24 months, and then yearly.