ELSEVIER

Surgery for Obesity and Related Diseases ▮ (2017) 00–00

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

High acuity sleeve gastrectomy patients in a free-standing ambulatory surgical center

Peter Billing, Josiah Billing*, Jedediah Kaufman, Kurt Stewart, Eric Harris, Rob Landerholm

Eviva Bariatrics, Shoreline, Washington

Received October 3, 2016; revised February 17, 2017; accepted March 10, 2017

Abstract

Background: Procedures performed in ambulatory surgical centers (ASC) can provide several advantages over hospital-based surgery. Understandably, concerns have been raised regarding "high acuity" cases in the ASC setting. Recently the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) presented protocols for ASCs to follow, requiring them to perform only "low acuity" cases to be compliant with accreditation.

Objective: Assess the safety and efficacy of outpatient sleeve gastrectomy (SG) on the "high acuity patient" in a free-standing ASC.

Setting: Free-standing ASC, Eviva Bariatrics, Seattle, Washington.

Methods: Data were collected retrospectively for all patients who underwent sleeve gastrectomy from January 1, 2013 to December 31, 2015, n = 1112. Of those patients, 120 were classified as "high acuity."

Results: Mean age was 51.7 years (24–73), mean body mass index was 42.4 (26.2–65.9). Mean operative time was 91 minutes. Five patients (4.2%) were readmitted within 30 days. Causes of re-admission were portal vein thrombosis (n = 2), intra-abdominal abscess (n = 1), infected hematoma (n = 1), and postoperative bleeding (n = 1). One patient (0.83%) was transferred from the ASC to a nearby hospital due to a postoperative bleed. One patient (0.83%) had a re-operation to evacuate a hematoma. One patient had a re-operation to wash out an infected hematoma. There were 0 confirmed staple line leaks. There were no open conversions and no deaths within 30 days or at 1 year. Follow-up was 83% (n = 100) at 6 months, and 65.0% at 1 year (n = 78).

Conclusion: Criteria such as age, body mass index, or prior bariatric surgery did not reflect worse outcomes in a specialized ASC. With experienced surgeons, appropriate protocols, and a consistent operative team, SG can be performed safely in a free-standing ASC on select "high acuity" patients. (Surg Obes Relat Dis 2017;▮:00–00.)

Keywords: Outpatient surgery; Laparoscopic sleeve gastrectomy; Bariatric surgery; Ambulatory surgery; Outcomes; Day-case surgery; Morbid obesity

Current published data support gastric banding procedures in free-standing ambulatory surgical centers (ASC) but minimal data exist regarding gastric stapling procedures [1,2]. Previously, we reported the outcomes of our first 250 outpatient sleeve gastrectomy (SG) cases in a free-standing ASC [3]. To date since 2008, we have completed over 2000 outpatient or 23-hour SG cases in the free-standing ASC. Although our center is unique, other centers are considering instituting similar programs due to lower costs, improved access to care, dedicated teams, and improved outcomes [4–8].

SG has rapidly gained interest, bridging the gap between safety and efficacy in bariatric surgery between laparoscopic adjustable gastric banding (LAGB) and laparoscopic

*Correspondence: Josiah Billing, 19930 Ballinger Way NE, Shoreline, WA 98155.

E-mail: jbilling@pssurgicalcenter.com; jbilling@evivamd.com

http://dx.doi.org/10.1016/j.soard.2017.03.012

1550-7289/

Roux-en-Y gastric bypass (RYGB). The SG procedure was originally the gastric component of the duodenal switch, and employed as the first step in staged operations for super-obese and high-risk patients. The number of LAGB procedures has greatly diminished whereas stand-alone SG is now the most commonly performed bariatric procedure in the United States [9].

The SG mechanism of action is likely due to reduced gastric capacity, changes in enteric hormones, and changes in gastric emptying. Evidence has shown fewer complications and increased safety of the SG compared with LAGB and RYGB [6]. With efficacy comparable to RYGB with regard to weight loss and resolution of co-morbidities, the SG has shorter operative time, shorter length of stay, faster recovery, lower costs, and creates fewer long-term complications than RYGB (e.g., internal hernia, marginal ulcer, bowel obstruction, malnutrition) or LAGB (e.g., gastric herniation or "slip," erosion, esophageal dilation, port leak or flip, food intolerance) [9–11].

The Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) defines national accreditation standards for bariatric procedures. Previously, ASCs could achieve the highest level of designation as a "Comprehensive Center." In late 2016, however, MBSAQIP changed its standards. Effective October 1, 2016, ASCs could only perform "low acuity" patient procedures. "High acuity" patient operations were thereafter to be performed in a hospital setting. Low acuity patients are defined in Table 1.

The new MBSAQIP criteria therefore restrict "high acuity" patients from having bariatric operations in an ASC. This led us to investigate formally our results to see if carefully selected "high acuity" patients could have surgery safely performed in an outpatient setting. What follows are our outcomes of "high acuity" SG patients performed in a free-standing ASC.

Table 1
Definition of a low acuity patient and procedure selection for ambulatory surgical centers as defined by the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP)

Low acuity patient and procedure selection
1 Age $\geq$18 and $<$65 yr
2 Males with a body mass index (BMI) $<$55 kg/m^2 and females with a BMI $<$60 kg/m^2
3 Patients without organ failure, organ transplant, significant cardiac or pulmonary impairment
4 Patients must not be a candidate on a transplant list.
5 Patients must be ambulatory.
6 Ambulatory surgery centers are only approved to perform revisional intra-abdominal procedures when classified as an emergent case. No revisional bariatric procedures will be allowed with the exception of gastric band replacement, repositioning, band or port removal, or port revisions.

Table 2
Demographic characteristics of high acuity patients who underwent sleeve gastrectomy in a free-standing ambulatory surgical center; n = 120

Demographic characteristics	
Age, yr	51.7 (24.45–73.36)
BMI, kg/m^2	42.4 (26.2–65.9)
GERD	34 (28.3%)
Diabetes	15 (12.5%)
Hypertension	47 (39.2%)
Sleep Apnea	86 (71.7%)
Hyperlipidemia	27 (22.5%)
Mean operative time, min	91 (43–180)

BMI = body mass index; GERD = gastroesophageal reflux disease.

Methods

Institutional review board approval was obtained to perform this study under protocol number RRBP-2016 by Aspire. We then performed a retrospective analysis on all SG patients completed at our center from January 1, 2013, to December 31, 2015; n = 1112. The database was queried for all patients who met the MBSAQIP guidelines of "high acuity." Of those patients, 116 (10.4%) of total SG cases were classified as "high acuity" as illustrated in Table 2. Our series included 33 patients $\geq$65 years old, 8 male patients with a body mass index (BMI) $\geq$55 kg/m^2, 3 female patients with a BMI $\geq$60 kg/m^2, and 72 patients with a history of previous bariatric surgery (revisional). Although Nissen fundoplication to SG is not defined as "high acuity" per the MBSAQIP standards, we included them in our study due to the potential increased difficulty of these cases. Thus, 120 patients were included in our study. All cases were done in a single free-standing ASC with 23-hour stay capability.

Patients undergoing band to sleeve conversion were done in 2 stages with initial band removal a minimum of 4 weeks before the SG. We routinely take down the gastric fundoplication and remove the capsule anteriorly and laterally. Patients with a history of Nissen fundoplication had the fundoplication taken down routinely as well before performing the SG.

Five different surgeons performed the SG using a 38French bougie. Gastric resection started approximately 2–6 cm from the pylorus. Concomitant hiatal hernia repairs were performed when present. Intraoperative leak testing was not performed. Oversewing the proximal 3 cm of the staple line was performed at the surgeon's discretion. Staple line reinforcement was not used. Fibrin glue was used at the surgeon's discretion. Patients were scheduled preoperatively for overnight (23-hr stay) if they had sleep apnea (71.7% of patients). Patients with poorly controlled pain, nausea, concerns for postoperative bleeding, or failure to meet their surgeons discharge criteria (e.g., pain and nausea controlled, vitals stable, and oxygen saturation within normal parameters) were kept overnight. Patients not spending the night returned the following morning to receive intravenous fluids