

staple-line. The goal of this study is to show a further reduction in leak rate when multiple methods of reinforcement are combined, specifically the use of bioabsorbable material as a buttress with suture line imbrication. A secondary examination evaluated the utility of adding fibrin sealant to this already reinforced staple-line.

Methods and procedures: This is a retrospective analysis of prospectively collected data on patients who underwent laparoscopic sleeve gastrectomy with staple-line reinforcement at a single academic institution. Subjects were followed over time. Statistics are reported as mean with range.

Results: Three-hundred consecutive patients underwent laparoscopic sleeve gastrectomy. The mean age was 47 years (17-71) with an average BMI of 47.3 kg/m² (32-99). The average follow up was 13.56 months (0.2-79.9). All of the patients involved in this study receive bioabsorbable material as a buttress and suture line imbrication to reinforce the staple-line. Of these patients, 250 were also treated with the addition of fibrin sealant. The incidence of staple line leak for the study group was 0.33%, and with the addition of fibrin sealant 0.4%. These results were then compared to a meta-analysis that showed an average leak rate of 2.60% in non-reinforced staple-lines, and a leak rate of 1.09 with bioabsorbable material reinforcement which was found to be the single best mode of staple-line reinforcement in that study. A statistically significant difference in leak rate was found between three groups; no reinforcement (2.6%), bioabsorbable reinforcement alone (1.09%), and combined bioabsorbable with suture imbrication (0.33%), p-value < 0.001. There was no statistical significant difference seen with the addition of fibrin sealant, p-value 0.897.

Conclusion: Based on these results there does appear to be benefit when bioabsorbable material is combined with suture line imbrication in the reinforcement of the laparoscopic sleeve gastrectomy staple-line. There may also be utility with the additional use of fibrin sealant to the staple-line reinforcement. As noted there was no statistically significant benefit with the addition of sealant, however there may be a clinical benefit as the leak in the fibrin sealant group remained contained, required no additional surgical treatment, and was asymptomatic. Before any definitive statement is made in regard to staple-line reinforcement additional studies need to be conducted, as staple-line reinforcement will ultimately lead to an increase in the cost per operation, but hopefully will show a decrease in not only morbidity and mortality, but also cost related to post-operative complications.

A5262

GRIPPING SURFACE TECHNOLOGY FAILS TO REDUCE WASTED STAPLE CARTRIDGES IN SLEEVE GASTRECTOMY

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Background: Performing sleeve gastrectomy requires multiple staple cartridges (SC). Staple cartridges can be wasted by resecting portions of previously created staple line or by firing staples without tissue. In an attempt to minimize wasted sleeve cartridges (WSC), a new staple cartridge has been introduced to potentially limit tissue extrusion during multiple staple fires. Our study aim

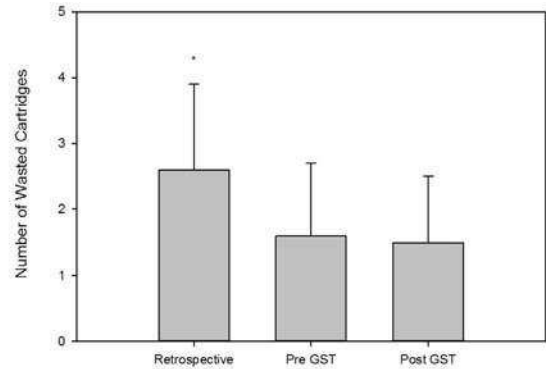


Figure 1: Mean number of staple cartridges wasted per case. * Indicates statistical significance between the Retrospective and the Pre GST groups ($p < 0.001$). The SD is indicated by the error bar. There was no statistical difference between the Pre and Post GST groups.

was to determine whether the number of WSC decreased after switching to Gripping Surface Technology (GST) cartridges.

Methods: To determine the minimum number of SC required for pouches of variable length, we calculated the number of staple cartridges per case that should be used—the ideal staple cartridge number (ISC). We used the formula $WSC = SC - ISC$ to calculate our staple cartridge waste for each case. All sleeve gastrectomy procedures were performed using the same technique – beginning the staple line 6cm from the pylorus and using a 40Fr bougie. Staple line length was measured in the pathology suite. ISC was calculated by dividing the measured staple line length by the length of a staple cartridge (6cm), rounding down to the nearest integer, and adding one. The date of the change to Gripping Surface Technology cartridges was recorded, which separated our prospective groups into Pre and Post GST. All comparisons were made using Student's t test.

Results: 224 cases were included in the analysis (99 Retrospective, 91 Prospective - Pre GST, 34 Prospective - Post GST). The average number of WSC per case was 2.6 ± 1.3 in the Retrospective group, 1.6 ± 1.1 in the Pre GST group, and 1.5 ± 0.96 in the Post GST group. There was a difference in WSC between the Retrospective group and the Pre GST group ($p < 0.001$). However, no difference in WSC was found between the Pre GST group and the Post GST group ($p = 0.656$).

Conclusion: Gripping Surface Technology failed to reduce the number of wasted staple cartridges in sleeve gastrectomy. Because our center began counting cartridges prospectively, prior to the introduction of GST, we were able to discern that minimizing WSC is due to counting SC, rather than the use of GST. This study is a reminder that surgeons are subject to the Hawthorne, or observer, effect and that the surgeon plays a critical role in both technologic evaluation and performance improvement.

A5263

PREOPERATIVE BMI DIABETES AND SLEEP APNEA CAN BE USED TO PREDICT LONG TERM SUCCESS OF OUTPATIENT VERTICAL SLEEVE GASTROSTOMIES

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Background: Currently there are no models to predict a patient's ability to succeed at a surgery before they receive it. Because of this many surgeons disagree on what procedures to offer to their patients and what variable should influence this decision.

Objective: To create a statistical model that predicts failure in a sleeve patient before surgery.

Methods: 491 patients undergoing SG in a Private Practice setting were included in this study. Data was collected retrospectively from March 2011 through September 2013. Percent excess weight loss (EWL) was calculated for each patient at 1 year. Linear regression was performed on all patients with greater than 1 year follow up in order to interpolate their weight at 1 year. Patients were included only if they had at least 3 follow up visits and their weight loss could be modeled with a $R^2 > 0.95$. Multivariate analysis was used to determine the predictive factors that influence weight loss success.

Results: Patients were divided into EWL quartiles. The patients quartiles were as follows at one year quartile 1 9-54%, quartile 2 55-68%, quartile 3 69-84%, quartile 4 >85%. Patients in the first quartile at one year were defined as failing the procedure. The positive and negative predictor values for our model were 58% and 81% respectively with sensitivity at 33% and specificity at 92%. The multivariate analysis indicated that diabetes, sleep apnea, and preoperative BMI were statistically significant predictors of the EWL% at 1 year.

Conclusions: We are the first group to show that weight loss at 1 year can be predicted before the surgery is performed. Patients with sleep apnea, diabetes, and a BMI greater than 48 should not be offered a sleeve gastrectomy because of the high failure probability.

A5264

LAPAROSCOPIC SLEEVE GASTRECTOMY: A FULLY AMBULATORY PROCEDURE IN A SERIES OF 328 SELECTED PATIENTS

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Introduction: Laparoscopic sleeve gastrectomy (LSG) is now becoming one of the most popular bariatric procedure. It has grown in popularity because of its short operative time, good resolution of comorbidities, excellent weight loss and low complications rate. However, the safety of LSG as a day-surgery procedure has not been yet widely documented.

Patients and methods: A retrospective analysis of our prospectively collected bariatric database was performed. From August 2012 till February 2015, 980 patients underwent LSG in a single institution. From those, 328 patients (33,5%), responding to established criteria were operated on a one day surgery basis.

Results: There were 260 (79%) primary LSG and 68 revisional LSG (21%). LSG was performed in 284 females and 44 males, with a mean age (\pm SD) of 38 ± 9 years. Mean (\pm SD) preoperative body mass index (BMI) was 45 ± 6 . Operative time was 68 ± 17 minutes (mean \pm SD). There was no mortality. A total of 294 patients (89,6%) were discharged home postoperatively, with no complication reported. There were 6 (1,8%) unplanned overnight hospitalization and 28 patients (8,5%) were readmitted between day 1 and 30. Most patients (25/34, 73%) were hospitalized for minor problems, such as pain, nausea and/or vomiting. Moreover, 2 (0,6%) developed gastric staple line leaks,

3 (0,9%) had intra-abdominal hematomas, 2 (0,6%) had pneumonias, 1 (0,3%) developed acute pancreatitis and 1 (0,3%) had urinary tract infection. All patients recovered well.

Conclusions: LSG can be performed as a day-surgery procedure in selected patients, with acceptable results in terms of retention, readmission and complications rates.

A5265

LAPROSCOPIC SLEEVE GASTRECTOMY FOR MORBID OBESITY FOLLOWING LIVER TRANSPLANTATION

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Background: In United States 7% of patients undergoing liver transplants are obese. The impact of obesity in the long-term result of liver transplantation has become increasingly evident with the increased incidence of diabetes, dyslipidemia, and cardiovascular disease, jeopardizing the survival of these patients.

Methods: We present a case of 37 year old male with morbid obesity who underwent liver transplantation for alpha 1-antitrypsin deficiency 5 years prior. His BMI was 52 kg/m^2 and had multiple comorbidities: mitral valve endocarditis, hypertension, diabetes mellitus, obstructive sleep apnea, and combined immunodeficiency. The patient was treated 1 month prior for liver rejection. The liver biopsy demonstrated 75% steatosis. Due to degree of obesity and presence of comorbidities, laparoscopic sleeve gastrectomy was recommended. Large amounts of adhesions between the bowel, omentum, and stomach were taken down from the abdominal wall. A 38-French bougie was passed through the pyloric channel, and stomach was vertically transected creating a gastric sleeve approximating 100 cc in diameter.

Result: The recovery was uneventful. The patient was discharged after 2 days.

Conclusion: Obesity is a common problem in managing liver transplant patients. Sleeve gastrectomy is the preferred technique in these patients as it does not demand the maintenance of the gastric band, and does not compromise the absorption of nutrients or medications (e.g. immunosuppressive drugs) that is commonly seen from Roux-en-Y gastric bypass.

A5266

A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL IN LAPAROSCOPIC SLEEVE GASTRECTOMY (LSG): BUTTRESSING VERSUS HAND-SEWN SUTURING IN STAPLE LINE REINFORCEMENT

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Background: Laparoscopic sleeve gastrectomy (LSG) has a specific significant morbidity pattern including gastric staple line leak and bleeding. Reinforcement of the staple line may decrease these specific complications. We evaluated the use of two different techniques during LSG: buttressing the staple line with Seamguard (GORE) versus a running hand-sewn invagination with absorbable suture. Evaluated were operative times, surgical cost, complications and change in gastrointestinal quality of life.