

Timing of Smoking Cessation Affects Outcomes After Laparoscopic Gastric Bypass

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Abstract

With the growth of bariatric surgery and the inevitable need for conversion/revision to other weight loss procedures, there exists a clear need to identify those characteristics that can help to guide beneficent decision making. Among gastric bypass patients, marginal ulcers are a common complication and are thought to be predisposed by a number of factors, including smoking. To date, no study has focused on whether smoking status of a patient at the time of gastric bypass is related to later marginal ulcer formation and other complications.

A meta-analysis of prior studies was performed with the addition of new data to determine the correlation between common postoperative complications (marginal ulcers, nausea/vomiting, bleeding, stricture), need for reintervention, weight loss and patient smoking habits at the time of laparoscopic gastric bypass. Trends and Relative Risks among smokers, former smokers and never smokers were calculated using this data.

Results demonstrate that current smokers have a statistically significant higher incidence (within the first year after surgery) of marginal ulcers, overall postoperative complications, percent excess weight loss, need for reintervention and postop pain with nausea/vomiting as compared to never smokers and smokers who have undergone at least six weeks of smoking cessation prior to surgery. In this regard, never smokers and former smokers were nearly equivocal in outcomes.

The results of this study support current recommendations for smoking cessation among patients who are undergoing a laparoscopic gastric bypass whether as a primary procedure or as a revision surgery. This analysis supports at least 6-8 weeks of cessation which can provide significantly improved outcomes in gastric bypass patients, particularly in regards to initial postoperative complications and later marginal ulcer development.

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BACKGROUND

Preoperative smoking has well documented increases in all bariatric surgery complications¹, particularly after laparoscopic gastric bypass (LGBP).

Most surgeons require documentation of cessation, negative blood cotinine levels (nicotine surrogate, half life 10d) and frequent self-reporting of non-smoking before proceeding to surgery.

ASMBS recommends:²

- "patients who smoke cigarettes should stop, preferably at least 6 weeks³ before bariatric surgery" and
- "tobacco use should be avoided after bariatric surgery given the increased risk for poor wound healing, anastomotic ulcer, and overall impaired health."

However, this recommendation was not supported by a 2011 meta-analysis on non-bariatric surgeries⁴ and there is no long term data on outcomes past 30d.

OBJECTIVES

Primary: ascertain the affect of timing of smoking cessation on short-term (30d) and long-term (5yr) complications following LGBP

Secondary: ascertain the affect of timing of smoking cessation on percent excess body weight loss (%EBWL)

METHODS

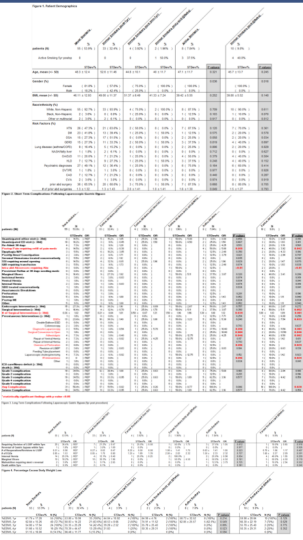
Prospective cohort study of four surgeons at high-volume Bariatric Center of Excellence (Weight Loss Clinic, Harrisburg, PA) performing Roux-Y LGBP as described by Madan et al and illustrated below.⁵



Former smokers were divided into quit times of >1yr, between 3mo-1yr, and at 6wk. Complications and weight loss were then followed over 5yr.

One-way ANOVA testing and Odds Ratios (OR) were calculated when able for each outcome measured.

RESULTS

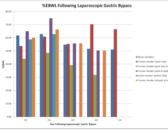


LIMITATIONS OF THE STUDY

- Cohort study of a single year (2013)
- Underpowered populations of "Former Smokers" subsets
- Excluded common scenario of band to bypass conversion
- Single center, single operative technique
- Loss to follow-up (under-reporting of adverse events and %EBWL)
- Accuracy of patient self-reporting⁶

NOTABLE FINDINGS - 6WK CESSATION

- High Recidivism:
 - 80% restarted smoking within 30d,
 - By 5yr, 40% still smoking.
- Within 30d, statistically increased risk of:
 - Refilling pain medication,
 - Micro-perforation/abscess,
 - Requiring surgery,
 - Requiring EGD,
 - Requiring IR,
 - Any Complication.
- By 5yr, no statistically increased risk of complications, but increased risk of:
 - Requiring EGD/revision of LGBP,
 - Internal Hernias,
 - Marginal Ulcers,
 - Malnutrition.
- By 5yr, no statistically significant difference in %EBWL.



DISCUSSION

While further study is needed for validation of our findings, the results of this study (supported by other recent literature⁷⁻⁹) are concerning that the ASMBS 6wk cessation recommendation is too short.

Findings are concerning that cessation at 6wk has an unacceptably high smoking recidivism rate and high odds ratios of complications approaching or equivalent to active smokers:

- Short-term ORs highest in Grade 1, 2, and 3 complications (no events for Grade 4 and 5)
- Long-term ORs highest across all complications, including serious complications

While there are no statistically significant differences in %EBWL after 5yr, there appears to be a nadir in weight loss at 2yrs post-LGBP before regaining weight. Further study is needed to validate these findings and elucidate a long term weight loss profile among these patients.

Based on this study, we recommend at least 3mo of smoking cessation before any bariatric surgery, especially LGBP. Overall reduction of short-term complications favors longer than the recommended ASMBS cessation. Further study is needed to validate findings regarding long-term complications, but this study supports at least 3mo of cessation to decrease the risks of marginal ulcers, internal hernias and need for EGD/reoperation.

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