Safety & Feasibility of Magnetic Sphincter Augmentation with Concomitant Primary Sleeve Gastrectomy for Patients with Gastroesophageal Reflux

Courtney McEwen BS, Mannat Sandhu BS, Michaelia Sunderland MD, Joseph Sujka MD, Rahul Mhaskar PHD MPH, Ashley Mooney MD, Christopher DuCoin MD MPH

Department of Surgery, University of South Florida Morsani College of Medicine

Abstract

- Sleeve gastrectomy (SG) is the most common bariatric procedure
- Worsening gastroesophageal reflux disease (GERD) is a well-described complication
- A large group of patients undergoing bariatric surgery prefer an alternative to Roux-en-Y Gastric Bypass (RNY), the current clinical standard to treat co-morbid GERD
- An option for select patients would be performing SG with concomitant MSA, given that the staple line is sterile
- Our preliminary results show that the proximal staple line does not appear to harbor gastrointestinal bacteria
- Although the data supports feasibility, clinical practicality requires further investigation

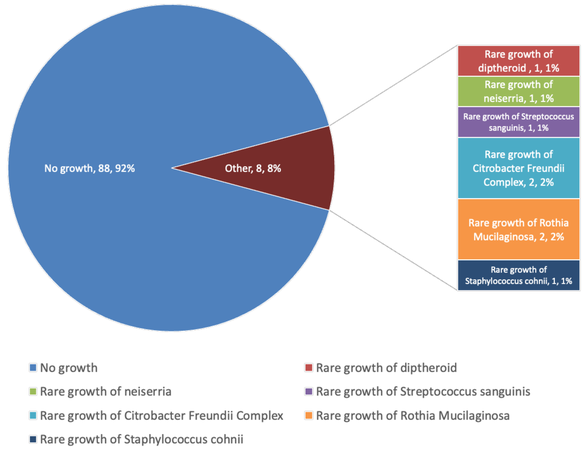
Introduction

- An estimated 50% of morbidly obese patients suffer from GERD, with 73% of patients experiencing de novo GERD following SG
- We hypothesize that SG with concomitant Magnetic Sphincter Augmentation (MSA) for weight loss and GERD reduction in selected patients would be feasible, given the staple line is sterile
- Translocation of bacteria at the staple line and subsequent infection of the MSA device is a limiting concern

Methods

- We preformed an IRB-approved prospective cohort study from June 2020 through September 2020
- All patients greater than age 18 undergoing sleeve gastrectomy were included
- Following the final staple fire of the SGE, the proximal staple line closest to the gastroesophageal junction was sent for gram stain and culture
- We collected basic demographics including BMI, gender, and age
- Resulting gram stain and culture data were collected and analyzed

Culture Results from Proximal Sleeve Gastrectomy Staple Line



Conclusion

- Based on our preliminary results, the operative field does not appear to harbor gastrointestinal bacteria
- Sleeve gastrectomy with concomitant MSA could be considered as a primary treatment option for GERD in the setting of morbid obesity
- Although the data supports the feasibility of this study, clinical practicality is a concern as the post-operative SG diet is vastly different than the post-operative MSA diet
- Further investigations are needed to determine the efficacy and practicality of combining these procedures

Results

- Ninety-three cultures were collected from 48 patients during the study period.
- The majority (92% of cultures from 43 patients) returned with no growth.
- Cultures from the remaining five patients resulted with rare growth:
  - Patient #1 had rare growth of *Diphtheroid* bacteria.
  - Patient #2 had rare growth of non-meningitidis, non-gonorrhoeae *Neisseria*, and rare growth of *Streptococcus sanguinis*.
  - Patients #3 and #4 had rare growth of both *Citrobacter Freundii* complex and *Rothia mucilaginosa*.
  - Patient #5 had rare growth of *Staphylococcus cohnii*. These results are summarized the figure.
- Gram stain was negative for all samples.

Discussion

- Eight percent of cultures demonstrated rare growth, however, the microbes in question likely represent commensal flora or lab contaminants based upon the quantity cultured.
- Literature describing clinical sequalae in immunocompetent hosts harboring these microbes is lacking.
- Limited existing literature describes *Rothia* bacteriemia only in severely immunocompromised patients and *Citrobacter* bacteremia as a component of polymicrobial septicemia or sepsis in the Neonatal Intensive Care Unit.
- *Staphylococcus cohnii* is a coagulase-negative species that colonizes the human skin, with the *Staphylococcus cohnii urealyticus* subspecies noted as a source of bacteriemia secondary to a pressure ulcer.

Key Takeaway:

- **Our preliminary results show the operative field does not harbor gastrointestinal bacteria**
- **Sleeve gastrectomy with concomitant MSA could be considered as a primary treatment option for GERD in the setting of morbid obesity pending further investigation of clinical practicality**

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