# Mild to Moderate GERD before Sleeve: Can we Better Predict Post-Operative GERD?

Justine Chinn, MD, Mark Shacker, BS, Perisa Ruhi-Williams, MD, Micaela M Esquivel, MD, FACS, Patricia Garcia, MD, John Clarke, MD, Dan Azagury, MD, FACS
Stanford University

Stanford MEDICINE Surgery

## Background

- New onset or worsening gastro-esophageal reflux disease (GERD) has been reported after sleeve gastrectomy (SG).
- However, to date we have not been able to reliably predict which patients will develop worsening symptoms post-operatively.
- **The aim of this study was to determine what findings from pre-operative pH testing and endoscopy were predictive of post-operative GERD after sleeve gastrectomy.**

## Methods

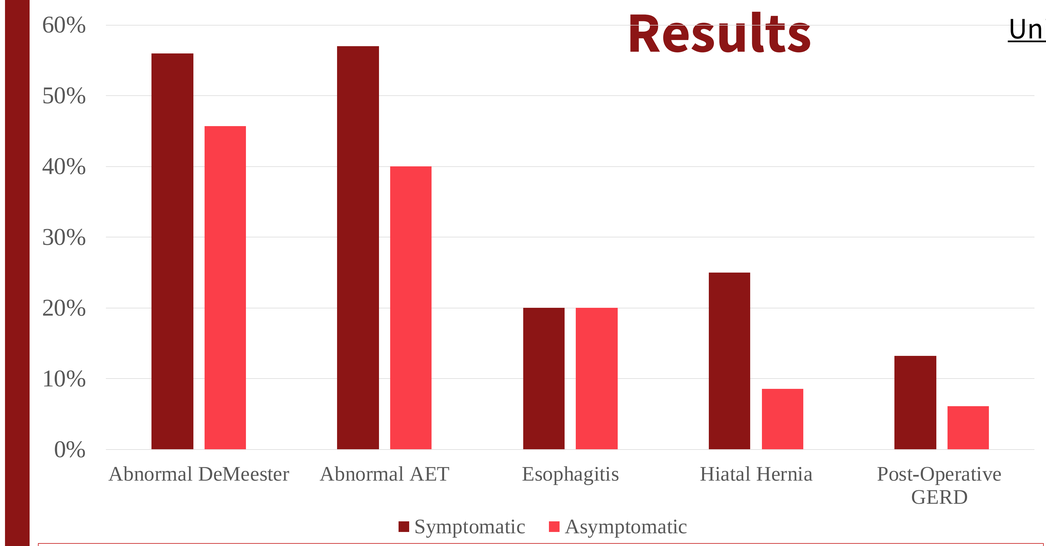
**Study population**

- Patients 18 years and older who underwent 48 or 96-hour Bravo pH studies prior to sleeve gastrectomy at a single US academic hospital between 2020-2024.

**Study Design:** Retrospective Cohort Study

- Analysis
  - **Impact of abnormal DeMeester score** (>14.7**), Acid Exposure Time (AET)** (>4% of time with pH<4), and presence of **esophagitis** or **hiatal hernia** on development of **post-operative GERD** requiring daily medication.
  - Statistical tests were conducted using Wilcoxon Rank-Sum testing, $\chi 2$ and Fischer's exact tests, univariate binary logistic regression, McNemar's test, and a Receiver Operating Characteristic (ROC) Curve. Analyses were conducted using SPSS V29.0 and Rstudio.

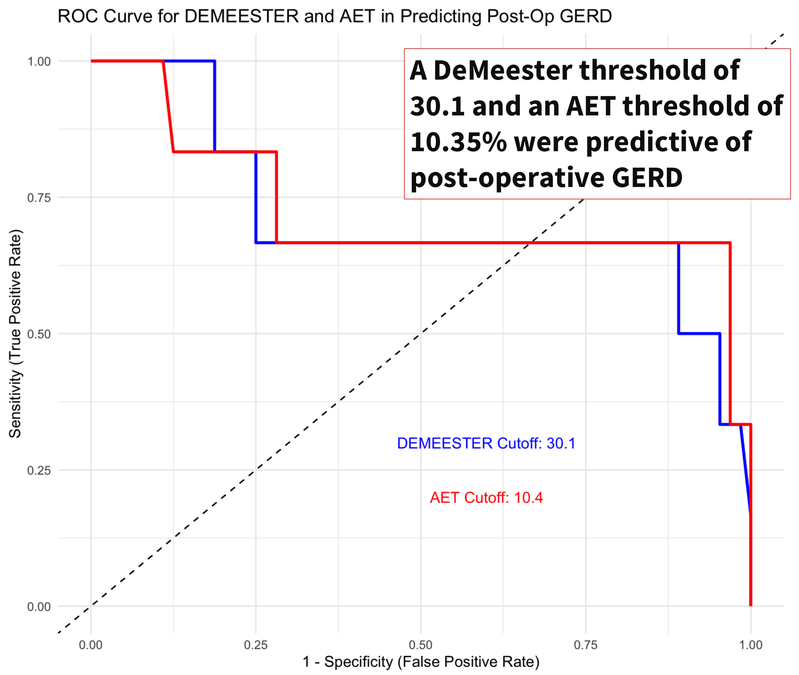
## Results



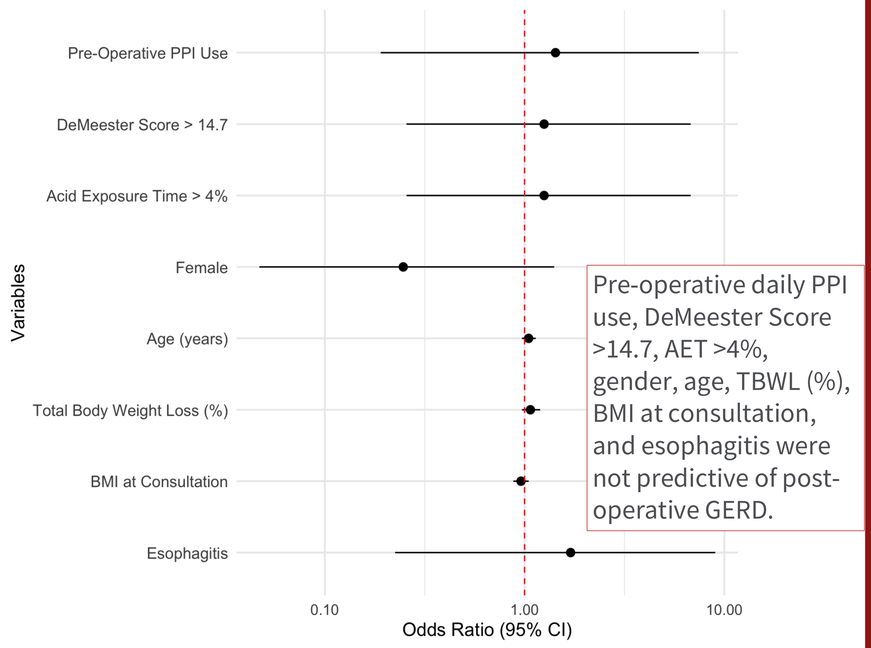

**Comparison of Symptomatic vs Asymptomatic Patients:**
76 patients were included:

- 41 (54%) reported pre-operative GERD symptoms
- There was no significant difference in the proportion of patients with abnormal DeMeester, AET scores, or esophagitis:
  - However, symptomatic patients had a higher average DeMeester Score (19.8 vs 13.8, p=0.038) and AET (5.4 vs 3.5, p=0.037) and were more likely to have a hiatal hernia (p=0.06).

- There was no significant difference between race, ethnicity, gender, consultation BMI, or % Total Body Weight Loss (%TBWL) in pre-op symptomatic vs asymptomatic patients.
- The presence of post-operative GERD was not significantly different between groups (13.2% vs 6.1%, p=0.4)
- In symptomatic patients, **there was a significant reduction in daily GERD medication use after surgery:** 44% of patients pre-operatively (18/41), decreasing to 13% (5/38) post-operatively (**p = 0.015**).




Univariate Logistic Regression:




Pre-operative daily PPI use, DeMeester Score >14.7, AET >4%, gender, age, TBWL (%), BMI at consultation, and esophagitis were not predictive of post-operative GERD.

## Conclusions

- In patients with mild to moderate GERD, **standard cut-offs** for pre-operative pH testing and endoscopy findings **were not predictive of post-operative GERD**.
- Even in **symptomatic** patients with **abnormal pH studies**, rates of **post-operative GERD were low**.
- In our cohort, a **threshold of DeMeester score ≥ 30.1** and **Acid Exposure Time of ≥ 10.35%** were predictive of post-operative GERD.

jchinn1@Stanford.edu

@StanfordSurgery