Predictive Factors for Developing GERD after Sleeve Gastrectomy: Is Preoperative Endoscopy Necessary?

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Introduction

- Sleeve gastrectomy (SG) is the most common bariatric procedure performed in the United States.
- There is concern for new gastroesophageal reflux disease (GERD) and Barrett's esophagus after SG.
- Endoscopic screening before bariatric surgery is controversial.
- We sought to identify preoperative endoscopic factors that may predict development of GERD after SG.

Methods

- We prospectively evaluated **217 patients** undergoing **primary robotic-assisted SG**.
- All patients underwent endoscopy before SG and for-cause postoperatively.
- Patients were followed for the development of GERD, diagnosed by either biopsy-proven reflux esophagitis or a positive esophageal pH test.
- Patients were separated into 2 groups: Those who developed GERD (**GERD group**) and those who did not (**No GERD group**).
- Patients with a **positive preoperative pH test, LA Grade B or greater esophagitis, or hiatal hernia >5 cm** were counseled to undergo gastric bypass and **excluded**.

Results

Table 1 – *Preoperative SG Patient Characteristics*

	No GERD (n=180)	GERD (n=37)	*p*
% Male (n)	**25.6 (46)**	**8.1 (3)**	**0.02**
Age (years), mean ± SD	44 ± 13	42 ± 12	0.27
Race			0.66
White	27.2 (49)	32.4 (12)	
Black	35.6 (64)	37.8 (14)	
Other	37.2 (67)	29.7 (11)	
BMI (kg/m^2), mean ± SD	46.2 ± 8.3	46.5 ± 7.1	0.48
% Hypertension (n)	42.8 (77)	32.4 (12)	0.24
% Diabetes mellitus (n)	18.3 (33)	21.6 (8)	0.64
% Hemoglobin A1c, mean ± SD	6.1 ± 1.1	6.1 ± 1.6	0.21
% Hyperlipidemia	24.4 (44)	10.8 (4)	0.07
% Obstructive Sleep Apnea (n)	20 (30)	24.3 (9)	0.55
% Home CPAP/BiPAP (n)	7.8 (14)	5.4 (2)	0.62
% Preop Heartburn Symptoms	**23.9 (43)**	**40.5 (15)**	**0.04**
% Preop PPI Use	61.7 (111)	54.1 (2)	0.39

SD – standard deviation, BMI – body mass index, PPI – proton pump inhibitor

Table 2 – *Preoperative SG Endoscopic Findings*

	No GERD (n=180)	GERD (n=37)	*p*
% Hiatal hernia (n)	62.8 (113)	67.7 (25)	0.58
HH size (cm), mean ± SD	2.7 ± 0.8	3 ± 1.1	0.6
% Visual esophagitis (n)	**13.3 (24)**	**29.7 (11)**	**0.01**
% Bx-proven esophagitis (n)	**11.1 (20)**	**24.3 (9)**	**0.03**
% Bx-proven *H. pylori* (n)	25.6 (46)	24.3 (9)	0.88

HH – hiatal hernia, Bx - biopsy

Table 3 – *Multivariate Analysis for Post-SG GERD Risk Factors*

	Odds Ratio	95% Confidence Interval		*p*
		Lower	Upper	
Male Sex	**0.23**	**0.06**	**0.85**	**0.03**
Hyperlipidemia	0.47	0.15	1.48	0.2
Heartburn	1.78	0.80	3.95	0.16
Visual esophagitis	**2.79**	**1.17**	**6.69**	**0.02**
Bx-proven esophagitis	**2.80**	**1.06**	**7.37**	**0.04**

Summary & Conclusions

- Nearly 1 in 5 of the patients in the study population (n=37, 17%) developed postoperative GERD.
- Preoperatively, **visual and biopsy-proven esophagitis** were significantly associated with postoperative GERD.
- Clinical characteristics associated with postoperative GERD included **preoperative heartburn and female sex**.
- These findings **strengthen the rationale for routine preoperative endoscopy** and highlight critical criteria – clinical and endoscopic - that should prompt consideration of alternatives to SG for weight loss.