Limited Predictive Value of Preoperative Symptoms and Manometry for Postoperative Complications in Bariatric Surgery Patients with Abnormal Upper Gastrointestinal Findings

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INTRODUCTION

- Preoperative evaluation for bariatric surgery typically includes an upper gastrointestinal (UGI) series to check for hiatal hernia and other abnormalities
- Dysmotility and tertiary contractions are identified on UGI in a subset of bariatric patients, prompting concern about postoperative risk
- When abnormal UGI findings are present, many centers proceed with additional preoperative manometry even for asymptomatic patients
- It remains unclear whether this additional testing affects patient outcomes, particularly in asymptomatic individuals
- Despite existing evidence suggesting that diagnosing esophageal dysmotility may influence the choice of bariatric procedure, there remains a lack of consensus on the routine use of manometry in patients with incidentally found UGI findings suggestive of dysmotility but no overt symptoms

AIM

To determine whether preoperative symptoms or manometry testing predict postoperative complications in bariatric surgery patients with dysmotility or tertiary contractions noted on UGI series.

Hypothesis: Asymptomatic patients with abnormal UGI findings do not benefit from additional manometry testing in terms of postoperative outcomes.

METHOD

- **Design:** Retrospective cohort study
- **Setting:** Carle Foundation Hospital, October 2013 – October 2023
- **Participants:** Patients aged 18+ who underwent primary sleeve gastrectomy with dysmotility or tertiary contractions on preoperative UGI series
- **Cohorts:** Patients classified as symptomatic or asymptomatic based on preoperative presence of dysphagia, regurgitation, GERD, PPI use, odynophagia, or food intolerance; further stratified by whether preoperative manometry was performed
- **Primary outcome:** Any postoperative complication within 1 year of surgery
- **Statistics:**
- Risk ratios (RR) with 95% confidence intervals (CI) were calculated to compare complication rates between groups
- Baseline demographics, preoperative symptoms and weight loss outcomes were compared using t-test for continuous variable and chi-square or Fisher's exact test for categorical variables
- Significance threshold $p < 0.05$

RESULTS

Table 1. Demographics and Weight Loss Outcomes by Preoperative Symptom Status and Manometry Use

	Symptomatic No Manometry (n=29)	Symptomatic Manometry (n=10)	Asymptomatic No Manometry (n=19)	Asymptomatic Manometry (n=10)	p-value
Demographics					
Age (years), mean ± SD	54.6 ± 11.5	53.4 ± 7.6	53.1 ± 9.9	52.8 ± 13.8	0.624
Female, n (%)	27 (93.1%)	9 (90.0%)	13 (68.4%)	8 (80.0%)	0.044*
Preoperative BMI (kg/m²), mean ± SD	46.0 ± 7.7	42.7 ± 5.9	46.9 ± 8.5	41.6 ± 4.9	0.955
Weight Loss Outcomes					
Preoperative Weight (lbs), mean ± SD	276.2 ± 56.7	260.1 ± 40.2	292.5 ± 65.3	279.4 ± 63.7	0.280
Weight Loss % at 6 months, mean ± SD	18.1 ± 6.2	24.1 ± 6.2	19.5 ± 4.7	19.1 ± 7.3	0.861
Weight Loss % at 1 year, mean ± SD	21.1 ± 8.4	24.4 ± 7.6	23.3 ± 9.2	17.0 ± 10.2	0.708

** $p < 0.05$. p-values compare overall symptomatic (n=39) vs. asymptomatic (n=29) groups. BMI = Body Mass Index.*

Study Population

- 68 total patients: 29 asymptomatic (42.6%) and 39 symptomatic (57.4%) preoperatively

Overall Complication Rates

- Asymptomatic: 31.0% (9/29) vs. Symptomatic: 48.7% (19/39)
- RR 0.64 (95% CI: 0.34–1.20), p = 0.22

Stratified by Manometry Status

- Asymptomatic: 40.0% (4/10) with manometry vs. 26.3% (5/19) without (RR 1.52, 95% CI: 0.53–4.37)
- Symptomatic: 50.0% (5/10) with manometry vs. 48.3% (14/29) without (RR 1.04, 95% CI: 0.49–2.18)

Cross-Comparisons Within Manometry Subgroups

- Among patients without manometry: symptomatic vs. asymptomatic RR 1.83 (95% CI: 0.78–4.32)
- Among patients with manometry: symptomatic vs. asymptomatic RR 1.25 (95% CI: 0.46–3.41)

Weight Loss Outcomes

- Comparable between groups at both 6 months and 1 year postoperatively

Table 2. Postoperative Complications by Preoperative Symptom Status

Postoperative Complication	Asymptomatic (n=29) n (%)	Symptomatic (n=39) n (%)	Risk Ratio (95% CI)
Any Complication	**9 (31.0%)**	**19 (48.7%)**	**0.64 (0.34–1.20)**
GERD	5 (17.2%)	10 (25.6%)	0.67 (0.26–1.76)
Dysphagia	2 (6.9%)	4 (10.3%)	0.67 (0.13–3.42)
Nausea or Vomiting	6 (20.7%)	11 (28.2%)	0.73 (0.31–1.75)
Food Intolerance	2 (6.9%)	5 (12.8%)	0.54 (0.11–2.58)
Fullness	0 (0.0%)	0 (0.0%)	—
Early Satiety	0 (0.0%)	0 (0.0%)	—
Bloating	1 (3.4%)	1 (2.6%)	1.34 (0.09–20.62)
Pain	4 (13.8%)	5 (12.8%)	1.08 (0.32–3.66)
Reoperation	0 (0.0%)	1 (2.6%)	—
ED Visit	0 (0.0%)	3 (7.7%)	—
Repeat UGI Series	0 (0.0%)	4 (10.3%)	—
EGD	1 (3.4%)	2 (5.1%)	0.67 (0.06–7.06)
Dilation	1 (3.4%)	0 (0.0%)	—

Risk ratio = complication rate asymptomatic / symptomatic. GERD = Gastroesophageal Reflux Disease; EGD = Esophagogastroduodenoscopy; ED = Emergency Department; UGI = Upper Gastrointestinal.

Table 3. Postoperative Complications by Symptom Status and Manometry Use

Postoperative Complication	Symptomatic No Manometry (n=29) n (%)	Symptomatic Manometry (n=10) n (%)	Asymptomatic No Manometry (n=19) n (%)	Asymptomatic Manometry (n=10) n (%)
Any Complication	**14 (48.3%)**	**5 (50.0%)**	**5 (26.3%)**	**4 (40.0%)**
GERD	8 (27.6%)	2 (20.0%)	3 (15.8%)	2 (20.0%)
Dysphagia	4 (13.8%)	0 (0.0%)	2 (10.5%)	0 (0.0%)
Nausea or Vomiting	10 (34.5%)	1 (10.0%)	4 (21.1%)	2 (20.0%)
Food Intolerance	4 (13.8%)	1 (10.0%)	1 (5.3%)	1 (10.0%)
Fullness	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Early Satiety	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Bloating	1 (3.4%)	0 (0.0%)	1 (5.3%)	0 (0.0%)
Pain	4 (13.8%)	1 (10.0%)	2 (10.5%)	2 (20.0%)
Reoperation	1 (3.4%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
ED Visit	3 (10.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Repeat UGI Series	4 (13.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
EGD	2 (6.9%)	0 (0.0%)	1 (5.3%)	0 (0.0%)
Dilation	0 (0.0%)	0 (0.0%)	1 (5.3%)	0 (0.0%)

GERD = Gastroesophageal Reflux Disease; EGD = Esophagogastroduodenoscopy; ED = Emergency Department; UGI = Upper Gastrointestinal.

CONCLUSIONS

- Preoperative symptom status did not significantly predict postoperative complication risk in sleeve gastrectomy patients with abnormal UGI findings
- Manometry use did not appear to influence postoperative outcomes or care plans in either symptomatic or asymptomatic patients
- Reflux was the most prevalent postoperative complication regardless of preoperative symptom burden
- This study did not include patients with normal UGIs or patients who were excluded from surgery, conclusions about the predictive value of UGI overall are limited
- Study was limited by small subgroup sizes, which may have reduced power to detect clinically meaningful differences
- These considerations could potentially reduce unnecessary testing, healthcare costs, and patient inconvenience without compromising surgical outcomes; our results should be validated through larger, prospective multi-center studies

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