Indications for conversion or revision surgery following primary sleeve gastrectomy: an analysis of the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program database

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INTRODUCTION

- A growing proportion of patients who undergo primary sleeve gastrectomy (SG) require revision/conversion surgery, but there is limited data on the landscape of procedures done for for these patients
- In this study, we sought to describe the most common indications for revision/conversion surgery following primary SG in the USA/Canada

METHODS

- We conducted a cross-sectional study using the 2020-2022 Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database
- We examined the indication for surgery for all revision/conversion procedures done after primary SG, collapsing all indications into one of five groups:
  a. Weight gain/inadequate weight loss (WG/IWL)
  b. Gastroesophageal reflux disease (GERD)
  c. Obstructive symptoms (including bowel obstruction, nausea/vomiting, dysphagia, and adhesions)
  d. GI tract disease (including anastomotic leak, GI ulcer, GI perforation, and GI bleed)
  e. Other causes (including electrolyte imbalance/nutritional depletion, patient intolerance, and 'other')
- For each indication, we examined patient characteristics and the most common revision/conversion procedures performed

RESULTS

- There were 33,348 total revision/conversion procedures for SG, with the most common indication being GERD (Figure 1)
- The most common procedure across all indications was Roux-en-Y gastric bypass, followed by sleeve gastrectomy and other procedures (Figure 2)
- As seen in Table 1, the WG/IWL group had a greater burden of comorbidities than the GERD group, including OSA (27.5% vs 20.9%), hypertension (38.1% vs 32.3%), diabetes (14.2% vs 9.4%), as well as ASA class III/IV (79.2% vs 68.2%)

Table 1: Baseline patient characteristics between groups

	WG/IWL	GERD	Obstructive symptoms	GI tract disease	Other
N (%)	14580 (48.9%)	16297 (43.7%)	1283 (3.8%)	99 (0.3%)	1087 (3.3%)
Age, mean (SD)	45.1 (10.3)	46.6(10.5)	45.9 (11.0)	44.5 (11.6)	46.3 (10.8)
BMI, mean (SD)	43.5 (7.6)	37.8 (7.3)	37.0 (8.5)	34.3 (7.4)	40.8 (8.6)
Female, n (%)	12684 (87.0%)	15124 (92.8%)	1161 (90.6%)	83 (83.8%)	930 (85.6%)
Smoker	681 (4.7%)	781 (4.8%)	59 (4.6%)	14 (14.1%)	48 (4.4%)
Diabetes **Insulin** **No Insulin**	 452 (3.1%) 1612 (11.1%)	 394 (2.4%) 1203 (7.0%)	 40 (3.1%) 85 (6.6%)	 1 (1.0%) 8 (8.1%)	 63 (5.8%) 118 (10.9%)
OSA	4014 (27.5%)	3413 (20.9%)	266 (20.7%)	28 (28.3%)	313 (28.8%)
GERD	3826 (44.3%)	8309 (87.9%)	570 (67.1%)	55 (69.6%)	363 (52.0%)
Hypertension	5551 (38.1%)	5267 (32.3%)	425 (33.1%)	35 (35.4%)	426 (39.2%)
COPD	135 (0.9%)	188 (1.2%)	23 (1.8%)	4 (4.0%)	21 (1.9%)
Hyperlipidemia	2556 (18.2%)	2744 (16.8%)	201 (15.7%)	19 (19.2%)	234 (21.5%)
Renal insufficiency	70 (0.5%)	45 (0.3%)	2 (0.2%)	1 (1.0%)	4 (0.4%)
ASA class **I** **II** **III** **≥IV**	 25 (0.2%) 2999 (20.6%) 11090 (76.1%) 452 (3.1%)	 35 (0.2%) 5113 (31.4%) 10871 (66.7%) 252 (1.5%)	 3 (0.2%) 376 (29.3%) 881 (68.7%) 22 (1.7%)	 0 (0%) 22 (22.2%) 69 (69.7%) 8 (8.1%)	 1 (0.1%) 216 (19.9%) 838 (77.1%) 27 (2.5%)

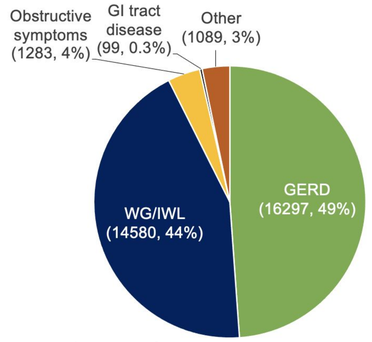


Figure 1: Most common indications for revision or conversion surgery after primary SG

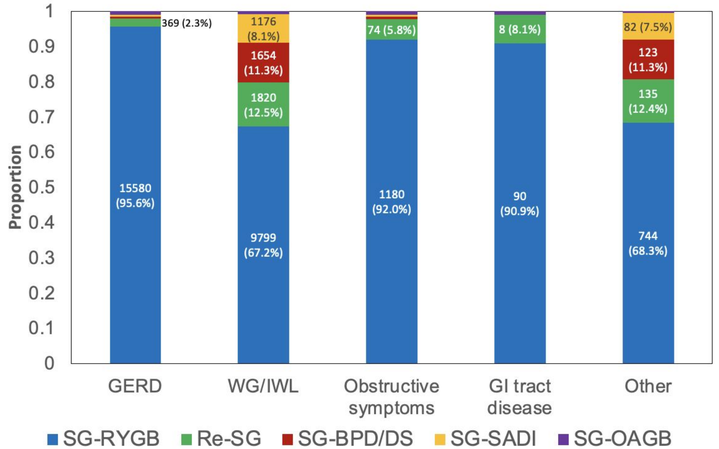


Figure 2: Procedures performed for each indication, shown as proportion of total. Roux-en-Y gastric bypass (SG-RYGB), revision SG (re-SG), biliopancreatic diversion/duodenal switch (SG-BPD/DS), single anastomosis duodenoileal bypass (SG-SADI), and one anastomosis gastric bypass (SG-OAGB). N (%) shown for procedures performed for at least 2% of group.

KEY POINTS

- WG/IWL and GERD were the two most common indications for revision or conversion surgery following primary SG
- WG/IWL patients appeared to have a greater burden of comorbidites at baseline compared to GERD patients
- RYGB was the most common procedure performed across all indications, although re-SG, BPD/DS, and SADI were also frequently performed for WG/IWL
- Interestingly, re-SG was the 2nd most common procedure performed for patients with GERD, which prompts further investigation
- Future work will focus on identifying whether outcomes differ for patients based on indication for surgery

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