CHARACTERIZATION OF SMALL BOWEL OBSTRUCTIONS FOLLOWING ELECTIVE BARIATRIC SURGERY

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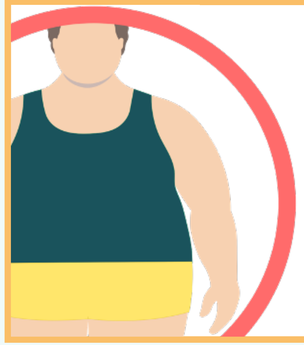
BACKGROUND

- Small bowel obstruction (SBO) after bariatric surgery is a rare but important complication and is estimated to occur in up to 5% of patients.
- SBO is poorly characterized among bariatric surgical patients.

OBJECTIVES

- The aims of the present study were to:
  1. Characterize the prevalence of SBOs using the largest North American bariatric data registry
  2. Compare 30-day complication rates among bariatric surgery patients who developed an SBO with those who did not.
  3. Determine the independent predictors of patient and procedure factors associated with the development of SBO among elective bariatric surgery cases.

METHODS



- All data was extracted from the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database.
- Patients who underwent sleeve gastrectomy (SG) or roux-en-Y gastric bypass (RYGB) for the 2020 operative year were included.
- Results were organized into two cohorts represented by patients who developed an SBO and those who did not (no SBO) within the post-operative period.
- Bivariate analysis was used to compare cohorts.
- The influence of patient and operative factors on the development of SBO was determined using multivariable logistic regression modelling.

RESULTS

- Of a total of 142 111 patients, 408 (0.3%) were identified as having developed an SBO within the study timeframe.
- Overall, SBO patients were older (45.7 +/- 11.5 vs. 43.5 +/- 11.9 years; p=0.0002), of reduced BMI (43.6 +/- 6.8 vs. 45.1 +/- 7.7; p=0.0001), and more likely to be of female sex (92.2% vs. 81.1%; p<0.0001).

	SBO n = 408	No SBO n = 141703	p-value
Leak	25.0 (6.1)	307.0 (0.2)	<0.0001
GI Bleed	11.0 (2.7)	485.0 (0.3)	<0.0001
MI	2.0 (0.5)	40.0 (0.0)	<0.0001
CVA	0.0 (0.0)	15.0 (0.0)	0.8
Pneumonia	28.0 (6.9)	276.0 (0.2)	<0.0001
UTI	14.0 (3.4)	460.0 (0.3)	<0.0001
AKI	16.0 (3.9)	115.0 (0.1)	<0.0001
Deep SSI	10.0 (2.5)	69.0 (0.1)	<0.0001
Wound Disruption	3.0 (0.7)	74.0 (0.1)	<0.0001
Sepsis	11.0 (2.7)	159.0 (0.1)	<0.0001
Unplanned Intubation	13.0 (3.2)	181.0 (0.1)	<0.0001
30-day Reoperation	244.0 (59.8)	1401.0 (1.0)	<0.0001
30-day Reintervention	52.0 (12.8)	1203.0 (0.9)	<0.0001
30-day Readmission	291.0 (71.3)	4300.0 (3.0)	<0.0001
30-day ICU Admission	40.0 (9.8)	794.0 (0.6)	<0.0001

Table 2: Post-operative complications of patients with (SBO) and without (No SBO) small bowel obstruction following bariatric surgery. Values represent raw numbers and percentages. GI – gastrointestinal; MI – myocardial infarction; CVA – cerebrovascular incident; UTI – urinary tract infection; AKI – acute kidney injury; SSI – surgical site infection: ICU – intensive care unit

Predictors of SBO	Odds Ratio	95% Confidence Interval	p-value
Older Age (per 10 years)	1.01	0.92 - 1.12	0.82
Female Sex	0.38	0.27 - 0.56	<0.0001
Lower BMI (per 5kg/m^2)	0.83	0.77 - 0.90	<0.0001
Lower Pre-op Functional Status	1.61	1.04 - 2.49	0.03
Diabetes			
Insulin Dependent	0.86	0.60 - 1.23	0.40
Non-insulin Dependent	0.72	0.54 - 0.95	0.02
HTN	1.07	0.85 - 1.33	0.58
GERD	1.03	0.84 - 1.27	0.78
DLD	1.04	0.80 - 1.34	0.78
OSA	0.96	0.78 - 1.19	0.73
COPD	2.60	1.54 - 4.38	<0.0001
Prior DVT	2.37	1.49 - 3.77	<0.0001
RYGB	11.91	8.92 - 15.90	<0.0001
Longer Operative Length	1.00	1.00 - 1.01	<0.0001

Table 3: Predictors of small bowel obstruction (SBO) in patients following bariatric surgery. BMI – body mass index; HTN – hypertension; GERD – gastroesophageal reflux disease; DLD – dyslipidemia; OSA – obstructive sleep apnea; COPD – chronic obstructive pulmonary disease; DVT – deep venous thromboembolism; RYGB – Roux-en-Y Gastric Bypass

Figure 1: Major predictors of SBO in patients following elective bariatric surgery

- RYGB
- Female
- Lower BMI
- Longer operative length
- COPD
- Prior DVT



CONCLUSION

- **SBO following bariatric surgery is a rare but important clinical entity and occurs in approximately 0.3% of all patients.**
- **This work highlights several patient and surgical factors associated with the development of SBO following elective bariatric surgery.**
- **Furthermore, it identifies key predictive factors that may aid in patient selection, inform surgical consent, and offer important avenues for intervention to reduce overall post-operative SBO risk.**

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