Revisional bariatric surgery due to weight recidivism: An MBSAQIP analysis

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Introduction

Weight recidivism is one of the most common indications for revisional bariatric surgery, with Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) being the most common procedures in this population. Despite this, there is still a gap in the literature comparing these two groups. Data regarding patient demographics and complications can contribute to patient-provider decision making.

Objective

The aim of the study was to characterize demographics and 30-day complications for those undergoing RYGB or SG after weight recidivism following bariatric surgery.

Methods

This was a retrospective cohort study including patients who underwent a revisional bariatric surgery, due to weight recidivism or inadequate weight loss, between 2020 and 2021. Patients were organized by revisional surgery type, RYGB versus SG. Statistical analysis included bivariate analysis and multivariable logistic regression modeling.

Results

Table 1. Patient Characteristics

	SG (n=7,129)	RYGB (n=12,162)	*p*-value
Patient Factors			
Age (years)	49.2 ± 10.5	47.8 ± 10.5	<0.0001
Female	5,925 (83.1)	10,619 (87.3)	<0.0001
BMI	43.2 ± 7.6	43.6 ± 7.4	0.001
ASA Category			<0.0001
ASA 3	5,455 (75.1)	9,476 (77.9)	
ASA 4-5	219 (3.0)	374 (3.0)	
Comorbidities			
DLD	1,601 (22.5)	2,439 (20.0)	<0.0001
Diabetes			0.778
Non- & Diet Controlled	5,966 (83.7)	10,225 (84.1)	
Non-insulin Dependent	881 (12.4)	1,466 (12.1)	
Insulin Dependent	282 (4.0)	471 (3.9)	
Previous PCI/PTCA	131 (1.8)	165 (1.4)	0.009
Therapeutic Anticoagulation	223 (3.1)	397 (3.3)	0.605
Surgical Factors			
Procedure length (min)	98.0 (51.6)	142.8 (73.6)	0.0001

Table 2. Post-operative Complications at 30-days

	SG (n=7,129)	RYGB (n=12,162)	*p*-value
Leak	70 (1.0)	89 (0.7)	0.064
Bleed	57 (0.8)	205 (1.7)	<0.0001
Cardiac	8 (0.1)	18 (0.2)	0.513
Pneumonia	12 (0.2)	52 (0.4)	0.003
AKI	7 (0.1)	12 (0.1)	0.992
Deep SSI	65 (0.9)	159 (1.3)	0.013
Wound Disruption	4 (0.06)	14 (0.1)	0.195
Sepsis	18 (0.3)	47 (0.4)	0.121
VTE	37 (0.5)	41 (0.3)	0.055
SSI	38 (0.5)	111 (0.9)	0.004
PE	11 (0.15)	21 (0.17)	0.762
GI bleed	20 (0.3)	63 (0.6)	0.002
Bowel Obstruction	11 (0.2)	123 (1.0)	<0.0001
Serious complication	270 (3.8)	736 (6.0)	<0.0001
Re-operation	106 (1.5)	323 (2.7)	<0.0001
Intervention	92 (1.3)	223 (1.8)	0.004
Re-admission	236 (3.3)	720 (5.9)	<0.0001

BMI – body mass index; *ASA* – American Society of Anesthesiologists; *HTN* – hypertension; *VTE* – venous thromboembolism; *SSI* – surgical site infection; *PE* – pulmonary embolus; *UTI* – urinary tract infection; *GI* – gastrointestinal; *MI* – myocardial infarction

Discussion

- RYGB was more common (63%) than SG (37%)
- most common initial surgeries were adjustable gastric banding (44%) and SG (30%)
- RYGB cohort was younger, had higher BMI and were more often female
- Baseline comorbidities were similar, except there were more SG patients with DLD and a history of PCI.
- RYGB cohort had more post-operative bleeds, and both deep and superficial infections
- RYGB cohort had higher rates of re-operation, re-intervention, and hospital admissions.

Table 3. Predictors of serious complications controlling for age, BMI, female, comorbidities, op length, smoking status, ASA

	Odds Ratio	95% CI	p-value
Patient Factors			
Age (per 10 years)	1.04	0.97 – 1.11	0.241
BMI	0.97	0.92 – 1.01	0.180
Female	0.98	0.82 – 1.18	0.839
ASA			
Class 3	1.15	0.96 – 1.37	0.139
Class 4 - 5	1.50	1.04 – 2.17	0.030
Comorbidities			
Diabetes			
Non-insulin dependent	0.97	0.80 – 1.18	0.762
Insulin dependent	1.07	0.79 – 1.46	0.665
HTN	1.14	0.98 – 1.32	0.079
MI	1.67	1.05 – 2.65	0.029
Smoker	0.89	0.65 – 1.21	0.460
VTE	2.00	1.49 – 2.68	<0.0001
Surgical Factors			
Operative length	1.003	1.002 – 1.004	<0.0001
RYGB	1.42	1.22 – 1.65	<0.0001

- RYGB patients had a near two-fold increased rate of serious complications
- Multivariable regression analysis revealed that RYGB was amongst the single greatest modifiable independent predictor of serious complications after adjusting for comorbidities
- Other independent risk factors for serious 30-day complications included a history of MI, an ASA class of IV-V, and a history of VTE

Conclusion

While RYGB cases represent the majority of revisional procedures, they are associated with a substantial burden of 30-day morbidity. Further work is needed to develop strategies with which to improve the short-term safety profile of revisional cases as well as understanding their long-term metabolic benefit.

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