Band to Sleeve or Band to Bypass? A Propensity Score Matching Analysis Using the 2020-2022 MBSAQIP Database

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INTRODUCTION

Revisional procedures, such as laparoscopic adjustable band (LAGB) removal with conversion to sleeve gastrectomy (SG) or Roux-en-Y Gastric Bypass (RYGB) are increasingly common though data on complications from these conversions is limited. We compared 30-day outcomes of single-stage LAGB conversion to SG or RYGB.

METHODS

This study included patients who underwent primary SG and RYGB. The variable PROCEDURE_TYPE: "conversion" was analyzed in the 2020-2022 MBSAQIP database. Using Propensity Score Matching analysis, the cohorts were matched for 23 preoperative characteristics. We then compared 30- day postoperative outcomes and bariatric-specific complications between primary SG versus LAGB to SG conversion (analysis 1), primary RYGB versus LAGB to RYGB conversion (analysis 2), and LAGB to SG versus LAGB to RYGB conversion (analysis 3). In the matched cohorts, the majority of patients were caucasian females with a mean age of 51, BMI of 43, and ASA class 3. The most common comorbidity was hypertension, present in almost half of all patients, followed by GERD and obstructive sleep apnea.

RESULTS

Figure 1: Select 30 day outcomes by cohort

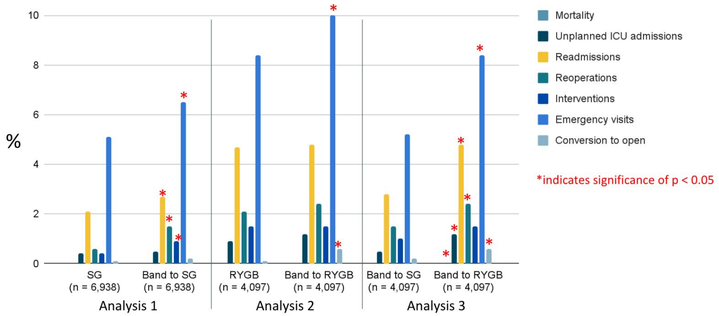


Figure 2: Incidence of staple line leak by cohort

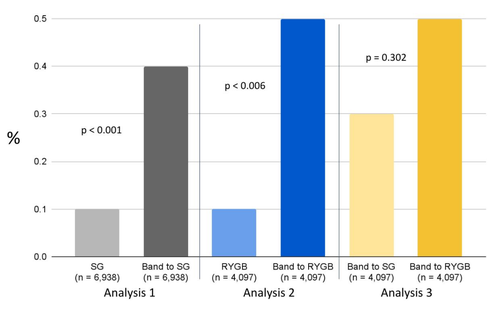


Table 1: 30-day outcomes of primary SG vs LAGB to SG conversion, primary RYGB vs LAGB to RYGB conversion, and LAGB to SG vs LAGB to RYGB conversion

	SG (n = 6,938)	Band to SG (n = 6,938)	p*	RYGB (n = 4,097)	Band to RYGB (n = 4,097)	p*	Band to SG (n = 4,097)	Band to RYGB (n = 4,097)	p*
30-Day outcomes									
Mortality	3 (0.0)	3 (0.0)	1.000	5 (0.1)	9 (0.2)	0.285	2 (0.0)	9 (0.2)	**0.035**
Cardiac complications	5 (0.1)	8 (0.1)	0.581	9 (0.2)	5 (0.1)	0.301	7 (0.2)	5 (0.1)	0.563
Pulmonary complications	2 (0.0)	2 (0.0)	1.000	8 (0.2)	6 (0.1)	0.593	2 (0.0)	6 (0.1)	0.289
Renal complications	5 (0.1)	8 (0.1)	0.581	15 (0.4)	5 (0.1)	**0.026**	4 (0.1)	5 (0.1)	1.000
Unplanned ICU admission	26 (0.4)	32 (0.5)	0.430	37 (0.9)	50 (1.2)	0.161	20 (0.5)	50 (1.2)	**<0.001**
Blood transfusion	36 (0.5)	38 (0.5)	0.816	46 (1.1)	44 (1.1)	0.832	26 (0.6)	44 (1.1)	**0.031**
Readmissions	147 (2.1)	190 (2.7)	**0.018**	194 (4.7)	196 (4.8)	0.917	114 (2.8)	196 (4.8)	**<0.001**
Reoperations	40 (0.6)	105 (1.5)	**<0.001**	85 (2.1)	97 (2.4)	0.368	63 (1.5)	97 (2.4)	**0.007**
Interventions	30 (0.4)	64 (0.9)	**<0.001**	62 (1.5)	60 (1.5)	0.855	42 (1.0)	60 (1.5)	0.073
Emergency visits	353 (5.1)	453 (6.5)	**<0.001**	344 (8.4)	408 (10.0)	**0.014**	215 (5.2)	344 (8.4)	**<0.001**
Venous thromboembolism	19 (0.3)	19 (0.3)	1.000	14 (0.3)	17 (0.4)	0.589	12 (0.3)	17 (0.4)	0.352
Surgical site infection	1 (0.0)	3 (0.0)	0.625	1 (0.0)	0 (0.0)	1.000	3 (0.1)	0 (0.0)	0.250
Incisional hernia	1 (0.0)	1 (0.0)	1.000	2 (0.0)	4 (0.1)	0.453	1 (0.0)	4 (0.1)	0.219
Wound disruption	4 (0.1)	1 (0.0)	0.219	1 (0.0)	1 (0.0)	1.000	1 (0.0)	1 (0.0)	1.000
Sepsis or septic shock	-	-	-	-	-	-	-	-	-
Conversion to open	6 (0.1)	14 (0.2)	0.073	6 (0.1)	25 (0.6)	**<0.001**	8 (0.2)	25 (0.6)	**0.003**
Non-home discharge	14 (0.2)	18 (0.3)	0.479	15 (0.4)	12 (0.3)	0.563	10 (0.2)	12 (0.3)	0.669
Postoperative-LOS (days)	1.23 ± 0.97	1.27 ± 1.21	**0.034**	1.63 ± 2.01	2.10 ± 3.82	**<0.001**	1.27 ± 1.35	1.71 ± 1.49	**<0.001**
Operative Time (minutes)	65.73 ± 36.37	95.53 ± 48.52	**<0.001**	146.63 ± 59.28	167.33 ± 80.27	**<0.001**	97.47 ± 50.56	154.34 ± 72.18	**<0.001**
Bariatric-specific complications									
Staple line leak	5 (0.1)	25 (0.4)	**<0.001**	6 (0.1)	20 (0.5)	**0.006**	14 (0.3)	20 (0.5)	0.302
Postoperative bleeding	0 (0.0)	1 (0.0)	1.000	2 (0.0)	1 (0.0)	0.625	1 (0.0)	1 (0.0)	1.000
Stricture/stomal obstruction	0 (0.0)	3 (0.0)	0.250	3 (0.1)	8 (0.2)	0.226	3 (0.1)	8 (0.2)	0.226
Intestinal obstruction	1 (0.0)	1 (0.0)	1.000	0 (0.0)	1 (0.0)	1.000	1 (0.0)	1 (0.0)	1.000
Internal hernia	-	-	-	4 (0.1)	3 (0.1)	1.000	0 (0.0)	3 (0.1)	0.250
Gastrointestinal perforation	1 (0.0)	5 (0.1)	0.219	1 (0.0)	9 (0.2)	**0.012**	2 (0.0)	9 (0.2)	**0.038**
Anastomotic ulcer	-	-	-	6 (0.1)	2 (0.0)	0.289	0 (0.0)	2 (0.0)	0.500
Gallstone disease	2 (0.0)	1 (0.0)	0.625	2 (0.0)	3 (0.1)	1.000	1 (0.0)	3 (0.1)	0.625

CONCLUSION

Conversion from LABG to SG or RYGB has a higher complication rate than primary bariatric procedures. Furthermore, conversion from LABG to SG has fewer short-term complications and lower mortality than patients who underwent conversion from LABG to RYGB.