Conversion to open approach in bariatric surgery: A MBSAQIP cohort study evaluating complications and risk factors for conversion

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INTRODUCTION & OBJECTIVES

- Over the past 20 years, the **complication rate of bariatric surgery has decreased significantly, due in part to the increasing use of minimally invasive surgical techniques**. [1]
- Conversion from a minimally invasive approach to an open approach is rare with reported rates of **conversion less than 0.5%**[2]
- Previous studies have shown that conversion to an open approach significantly increases peri- and postoperative morbidity and mortality [2,3]
- **Objective: assess frequency of conversion to open in common bariatric procedures in a contemporary cohort, assess its implication on complication rates and determine reasons for and factors associated with conversion.**

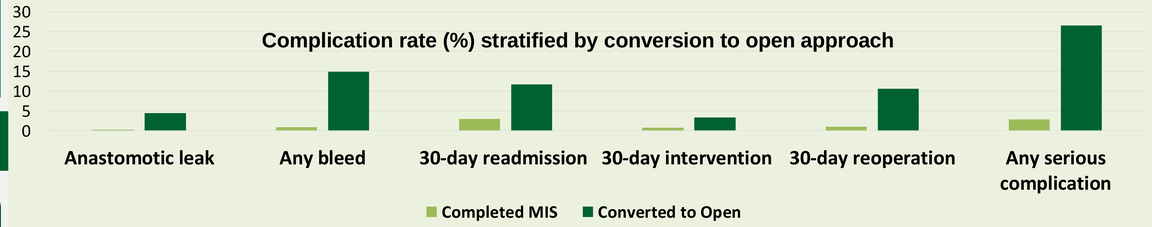
METHODS

- MBSAQIP database 2020-2022, two cohorts: Minimally invasive surgery / Required conversion to open
- Patients undergoing primary SG, RYGB, BPD-DS included
- Univariate analysis to characterize differences and assess for rate of complications between cohorts
- 30-day logistic regression was performed to determine factors associated with conversion and 30-day complications

RESULTS

	Completed minimally invasive (n = 524 043)	Conversion to open (n = 181)	p-value
Age, years (mean ± SD)	n = 523 930	n = 181	<0.001
	43.2 ± 11.7	49.8 ± 11.0	
Sex			0.017
Female	429 443 (82.0)	136 (75.1)	
Male	94 600 (18.1)	45 (24.9)	
BMI, kg/m² (mean ± SD)	n = 524 037	n = 181	<0.001
	45.2 ± 7.7	47.6 ± 9.7	
Procedure Type			<0.001
SG	373 163 (71.0)	77 (45.5)	
RYGB	137 018 (26.2)	91 (50.3)	
BPD-DS	12 213 (2.3)	11 (6.1)	
SADI	2649 (0.5)	2 (1.1)	
Robotic	127 522 (24.3)	35 (19.34)	0.117
Previous Foregut Surgery	6 758 (1.3)	14 (7.7)	<0.001

Table 1. Baseline patient characteristics of bariatric patients who had minimally invasive surgery compared to patients converted to laparotomy. Data represented as n (%)



Risk factors associated with serious complications:

- **Operation converted to open aOR 5.05**
- RYGB, BPD-DS, SADI aOR 1.94, 1.84, 1.86
- Black Race aOR 1.33
- Therapeutic anticoagulation aOR 1.93
- Previous foregut surgery aOR 1.29
- Smoking aOR 1.12
- Sleep apnea aOR 1.05
- Dependent functional status aOR 1.93

Factors Protective against serious complications:

- Later operative year aOR 0.87
- Anastomosis checked aOR 0.92
- Higher serum albumin aOR 0.94

On multivariate analysis**, previous foregut surgery, undergoing RYGB or BPD-DS, older age, higher BMI, sleep apnea and ASA class III increased likelihood of conversion** to an open operation. **Higher serum albumin was protective** against conversion.

CONCLUSIONS

- Conversion to open approach in bariatric surgery is becoming increasingly **rare - 0.03%**.
- Conversion to open is associated with **greater risk of postoperative complications**.
- Patients at increased risk **(older patients, patients with sleep apnea, those with a history of foregut surgery, undergoing RYGB or BPD-DS)** may benefit from preoperative risk mitigation.
- By identifying at risk populations surgeons may be able to prepare with a skilled revisional surgeon, additional leak testing, wound protection or preoperative sleep apnea treatment.

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