PERI-OPERATIVE RISK FACTORS FOR INCISIONAL HERNIA AFTER MINIMALLY INVASIVE BARIATRIC SURGERY - AN MBSAQIP ANALYSIS

SURAJ PANJWANI MD[1], SANTOSH SWAMINATHAN MD[1], SHOHAN SHETTY MD FACS[1]

1 - Department of Surgery - St. Mary's Hospital, Waterbury, CT

INTRODUCTION

- Incidence of incisional hernia following minimal invasive surgery is far less compared to open surgery[1,2].
- There is an increase in the annual number of bariatric procedures being performed worldwide[3].

AIM

- We evaluated the incidence and risk factors for incisional hernia within 30 days after minimal invasive bariatric procedures.

METHODS

- We used the Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) database between 2015-2019 to identify adult patients who underwent laparoscopic or robotic sleeve gastrectomies (SG) and Roux en-Y-gastric bypasses (RYGB) for BMI 30 or higher.
- We excluded those converted to open and when there was a concurrent ventral/incisional/umbilical hernia repair.
- Outcome of interest was incisional hernia examined post operatively and the peri-operative risk factors associated with it.
- Factors identified on univariate analysis (p<0.1) were included in a multivariable logistic regression to recognize independent predictors of reoperation (p<0.05)

RESULTS

- Out of 744,781 patients, 612 (0.08%) had an incisional hernia on post-operative examination within 30 days.
- Incisional hernias were associated with
  - patient factors such as age, females, current smoker, COPD, previous surgery
  - operative factors such as operative time; post operative factors such as pneumonia, deep surgical site infection (DSI) and wound disruption (Table).
- On multivariate analysis, the following were independent risk factors for post-operative incisional hernia.
  - increasing age (Odds Ratio 1.02, p<0.001)
  - current smokers (OR 1.37, p=0.02),
  - increasing operative time (OR 1.004, p<0.001),
  - pneumonia (OR 6.76, p<0.001)
  - DSI (OR 6.28, p<0.001)

Table-Univariate Analysis Baseline Characteristics

	No Incisional Hernia, n=744,169	Incisional Hernia, n=612	p value
Age, mean (SD)	44.9 (11.9)	48.2(11.8)	<0.001*
Female (%)	80.1	76.8	0.039*
BMI			0.086
30-34.9	29,226 (3.9%)	33 (5.40%)	
35-39.9	171,436 (23.1%)	139 (22.7%)	
40-49.9	379,216 (51.1%)	309 (50.5%)	
50-59.9	127,110 (17.1%)	92 (15%)	
60+	35,516 (4.8%)	39 (6.4%)	
Race			0.06
White	537,000 (99.9%)	465 (0.1%)	
Black	135,071 (99.9%)	91 (0.1%)	
Other	8933 (99.9%)	10 (0.1%)	
ASA			0.45
1	2359 (0.3%)	2 (0.3%)	
2	161,354 (21.2%)	121 (19.8%)	
3	552,510 (74.6%)	461 (75.6%)	
4	24,852 (3.4%)	26 (4.6%)	
Current smoker	60521 (8.1%)	68 (11.1%)	0.007*
Diabetes	191,542 (25.7%)	176 (28.8%)	0.09
COPD	11,849 (1.6%)	20 (3.3%)	0.001*
Steroid use	7666 (1.8%)	9 (2.5%)	0.33
Renal Insufficiency	4636 (0.6%)	4 (0.6%)	0.92
Hypoalbuminemia	144,615 (21.8%)	132 (24.5%)	0.13

Table-Univariate Analysis Baseline Characteristics (Continued)

	No Incisional hernia, n=744,169	Incisional Hernia, n=612	p value
Previous surgery	52,907 (7.1%)	63 (10.3%)	0.002*
Procedure			0.15
Sleeve Gastrectomy	537,613 (72.2%)	426 (69.6%)	
Gastric Bypass	206,556 (27.8%)	186 (30.4%)	
Approach			0.50
Laparoscopic	675,483 (90.8%)	556 (90.9%)	
Robotic	68,686 (9.2%)	56 (9.2%)	
Revision/Conversion	50,463 (6.8%)	49 (8%)	0.23
Operative time, mean (SD) mins	87.7 (49.7)	105 (62.4)	<0.001*
Deep Surgical Infection	469 (0.1%)	5 (0.8%)	<0.001*
Superficial Surgical Infection	3283 (0.4%)	5 (0.8%)	0.16
Wound disruption	412 (0.1%)	2 (0.3%)	0.04*
Pneumonia	1459 (0.2)	12 (1.9%)	<0.001*

CONCLUSION

Incisional hernia after minimal invasive bariatric surgery is quite rare affecting only 0.08% of the patients.

There was no difference between laparoscopic versus robotic or SG versus RYGB procedures, however certain patient and perioperative factors were associated with a higher risk.

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CONTACT INFORMATION

Suraj Panjwani MD

General Surgery Resident

56 Franklin St

Waterbury CT 06706

Email panjwanisj@gmail.com

@surajpanjwani