Is robotic repair a possible solution to improving wound complications in morbidly obese hernia patients?

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INTRODUCTION

- Large, complex ventral hernias are frequently repaired via a transversus abdominis release (TAR).
- While first described as an open procedure, robotic TAR has become more prevalent with advances in minimally invasive surgical techniques.
- Obesity, particularly a BMI ≥40, is one of the strongest predictors of wound morbidity following an open TAR.



OBJECTIVE

- To determine if minimally invasive techniques minimized wound morbidity following TAR in those with a BMI ≥40.

METHODS

- Retrospective chart review of all patients with a BMI ≥40 who underwent an open or robotic TAR at a tertiary academic medical center from January 2018 to December 2021.
- Demographics, medical history, operative details, and postoperative outcomes were collected and analyzed.

RESULTS

- 42 patients with a BMI ≥40 underwent a TAR
  - Open: 27 (64.3%)
  - Robotic: 15 (35.7%)

Table 1. Patient Demographics.

	Open TAR n=27	Robotic TAR n=15	p value
Age (years), average (range)	55.7 (29-73)	52.9 (34-68)	0.47
Sex (female), n (%)	19 (70.4%)	8 (53.3%)	0.27
Current Smoker, n (%)	2 (7.4%)	2 (13.3%)	0.53
Recurrent Hernia, n (%)	19 (70.4%)	9 (60.0%)	0.49
History of SSI, n (%)	9 (33.3%)	3 (20.0%)	0.36
Comorbidities, n (%)			
Hypertension	18 (66.7%)	10 (66.7%)	1.00
Diabetes Mellitus	10 (37.0%)	6 (40.0%)	0.85
Obstructive Sleep Apnea	15 (55.6%)	3 (20.0%)	**0.03**
Chronic Kidney Disease	3 (11.1%)	2 (13.3%)	0.83
COPD	1 (3.7%)	2 (13.3%)	0.25
Coronary Artery Disease	3 (11.1%)	3 (20.0%)	0.43

SSI: surgical site infection; COPD: chronic obstructive pulmonary disease

Table 2. Day of Surgery Details.

	Open TAR n=27	Robotic TAR n=15	p value
BMI Day of Surgery (kg/m^2), average (range)	42.1 (40.1-48.7)	41.6 (40.0-52.0)	0.55
Operating Room Time (minutes), average (range)	305.4 (148-447)	297.2 (206-392)	0.71
Hernia Defect Size (cm^2), average (range)	395.4 (33-1400)	141.3 (24-375)	**0.003**

Table 3. Postoperative Outcomes.

	Open TAR n=27	Robotic TAR n=15	p value
Length of Stay (days), average (range)	5 (3-18)	1.8 (0-3)	**0.0005**
SSO, n (%)	13 (48.1%)	2 (13.3%)	**0.02**
Seroma, n (%)	6 (22.2%)	2 (13.3%)	0.26
Hematoma, n (%)	0 (0.0%)	0 (0.0%)	N/A
SSI, n (%)	7 (25.9%)	0 (0.0%)	**0.03**
Cellulitis, n (%)	6 (22.2%)	0 (0.0%)	**0.049**
Abscess, n (%)	5 (18.5%)	0 (0.0%)	0.08
SSOPI, n (%)	4 (14.8%)	0 (0.0%)	0.12
Readmission at 30 Days, n (%)	2 (7.4%)	1 (6.7%)	0.93

SSO: surgical site occurrence, SSI: surgical site infection; SSOPI: surgical site occurrence requiring procedural intervention

CONCLUSIONS

- Patients with a BMI ≥40 had faster recovery times and significantly fewer wound complications following robotic TAR.
  - No SSIs following robotic repair.
- There were no differences in operative time between open and robotic TARs, however patients undergoing robotic repair had smaller hernia defects.
- The traditional cutoff of a BMI ≥40 for elective TAR may not be indicated if hernia amenable to robotic repair.
- Long-term outcome data, including hernia recurrence rates, in this population is needed.

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