

# EMERGENT ROBOTIC HERNIA REPAIRS AMONG PATIENTS WITH ELEVATED BMI: INSIGHTS FROM THE ACS-NSQIP DATABASE

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## Introduction

- Obesity has been a prominent risk factor for adverse outcomes after hernia repair
- Robotic hernia repairs have been increasingly performed, with obese patients experiencing positive outcomes, like low recurrence
- However, the outcomes of emergent robotic hernia repair are less well understood
- Objective:** Evaluate the effects of obesity on outcomes after emergent robotic hernia repair

## Methods

- Retrospective analysis of the 2022-2023 ACS-NSQIP database was performed (n=135,800 hernia repairs identified by CPT code)
- Inclusion Criteria:** patients who underwent emergent robotic-assisted hernia repair (n=261) and subgroup analysis of ventral/epigastric hernia repairs (n=236)
- Descriptive analyses and univariate regression models for short-term perioperative outcomes comparing patients with BMI $\geq$ 30 vs.  $<$ 30

## Results

**Table 1.** Chi square analysis of outcomes by emergent overall versus emergent robotic ventral/epigastric ventral hernia repair for elevated BMI

| Outcomes                   | Emergent Overall BMI $\geq$ 30 (n=183) |                        |         | Emergent Ventral/Epigastric BMI $\geq$ 30 (n=173) |                        |         |
|----------------------------|----------------------------------------|------------------------|---------|---------------------------------------------------|------------------------|---------|
|                            | BMI $\geq$ 30 (%)                      | BMI $<$ 30 (%)         | P-value | BMI $\geq$ 30 (%)                                 | BMI $<$ 30 (%)         | P-value |
| Superficial SSI            | 3 (1.6%)                               | 1 (1.3%)               | 0.830   | 3 (1.7%)                                          | 1 (1.6%)               | 0.938   |
| Deep Incisional SSI        | 2 (1.1%)                               | 2 (2.6%)               | 0.376   | 2 (1.2%)                                          | 2 (3.2%)               | 0.288   |
| Organ Space SSI            | 3 (1.6%)                               | 4 (5.1%)               | 0.110   | 2 (1.2%)                                          | 4 (6.3%)               | 0.025*  |
| Wound Disruption           | 1 (0.5%)                               | 0 (0.0%)               | 0.513   | 0 (0%)                                            | 0 (0%)                 | N/A     |
| Sepsis                     | 3 (1.6%)                               | 0 (0.0%)               | 0.255   | 3 (1.7%)                                          | 0 (0%)                 | 0.293   |
| Septic Shock               | 1 (0.5%)                               | 1 (1.3%)               | 0.533   | 1 (0.6%)                                          | 1 (1.6%)               | 0.454   |
| 30-Day Readmission         | 5 (2.7%)                               | 5 (6.4%)               | 0.156   | 4 (2.3%)                                          | 4 (6.3%)               | 0.130   |
| Still in Hospital >30 Days | 0 (0%)                                 | 0 (0%)                 | N/A     | 0 (0%)                                            | 0 (0%)                 | N/A     |
| Unplanned Reoperation      | 6 (3.3%)                               | 3 (3.8%)               | 0.818   | 3 (1.7%)                                          | 3 (4.8%)               | 0.191   |
|                            | BMI $\geq$ 30 Mean (S.D.)              | BMI $<$ 30 Mean (S.D.) | P-value | BMI $\geq$ 30 Mean (S.D.)                         | BMI $<$ 30 Mean (S.D.) | P-value |
| Operative Time (Minutes)   | 130.5 (62.8)                           | 114.5 (50.9)           | 0.048*  | 131.0 (63.09)                                     | 113.8 (50.87)          | 0.053   |
| Length of Stay (Days)      | 4.15 (3.9)                             | 4.9(5.2)               | 0.238   | 4.0 (3.883)                                       | 5.1 (5.285)            | 0.147   |

**Table 2.** Univariate logistic regression of outcomes by emergent overall vs. emergent robotic ventral/epigastric hernia repairs for elevated BMI

| Outcomes                   | Emergent Overall BMI $\geq$ 30 (n=183) |                    |         | Emergent Ventral/Epigastric BMI $\geq$ 30 (n=173) |                    |         |
|----------------------------|----------------------------------------|--------------------|---------|---------------------------------------------------|--------------------|---------|
|                            | Odds ratio                             | 95% CI             | P-value | Odds ratio                                        | 95% CI             | P-value |
| Superficial SSI            | 1.283                                  | [0.131, 12.532]    | 0.830   | 1.094                                             | [0.112, 10.716]    | 0.938   |
| Deep Incisional SSI        | 0.420                                  | [0.058, 3.036]     | 0.390   | 0.357                                             | [0.049, 2.588]     | 0.308   |
| Organ Space SSI            | 0.308                                  | [0.067, 1.411]     | 0.130   | 0.173                                             | [0.031, 0.966]     | 0.046*  |
| Wound Disruption           | N/A                                    | -                  | -       | N/A                                               |                    |         |
| Sepsis                     | N/A                                    | -                  | -       | N/A                                               |                    |         |
| Septic Shock               | 0.423                                  | [0.026, 6.851]     | 0.545   | 0.360                                             | [0.022, 5.851]     | 0.473   |
| 30-Day Readmission         | 0.410                                  | [0.115, 1.459]     | 0.169   | 0.349                                             | [0.085, 1.440]     | 0.146   |
| Still in Hospital >30 Days | N/A                                    | -                  | -       | N/A                                               |                    |         |
| Unplanned Reoperation      | 0.847                                  | [0.206, 3.478]     | 0.818   | 0.353                                             | [0.069, 1.796]     | 0.210   |
|                            | Mean difference                        | Standard deviation | P-value | Mean difference                                   | Standard deviation | P-value |
| Operative Time (Minutes)   | 15.99                                  | 8.04               | 0.048*  | 17.19                                             | 8.84               | 0.053   |
| Length of Stay (Days)      | -0.69                                  | 0.59               | 0.238   | -1.07                                             | 0.63               | 0.093   |

## Results (cont'd)

- Most patients were 50-69 years (51.3% vs. 49.5%), female (57.4% vs. 58.4%), and White (69.4% vs. 68.8%)
- Approximately 1/3 per cohort had diabetes, 10% current smokers, and most had hypertension (61.7% vs. 61.8%)
- Statistically significant statistics are highlighted in chi-square analyses and univariate logistic regression comparing emergent overall vs. ventral/epigastric robotic hernia repairs. (Tables 1 and 2).

## Conclusions

- Elevated BMI was not associated with changes in outcomes during emergent robotic surgery
- In the subgroup of ventral/epigastric hernia repair, **BMI $\geq$ 30 had reduced odds of organ space SSI**
- Future studies focused on longer-term data and identifying confounders are needed to validate these findings