



"Be Safe, Be Good, and then Get Fast"- Operative Time on Perioperative Outcomes in MIS Inguinal Hernia Repair



Alanis E Rodriguez-Rosario^{1,2}; Ethan Shyu²; Jake Kothandaraman ²; Xavier Pereira, Assistant Professor²
¹University of Puerto Rico School of Medicine; ²NYU Langone Health Medical Center

Introduction

- Minimally invasive techniques for inguinal hernia repair (IHR), when available is preferred due to its advantages in recovery and postoperative quality of life.
- Operative time has been proposed as a surrogate marker of surgical quality, yet its association with outcomes in minimally invasive inguinal hernia repair (IHR) remains unclear
- We aimed to evaluate the relationship between operative time and postoperative outcomes following laparoscopic and robotic IHR using a national clinical registry.

Methods

Patients undergoing elective minimally invasive IHR with mesh were identified from the American College of Surgeons National Surgical Quality Improvement Program database (2022–2023). OT was stratified into quartiles and octiles for both laparoscopic and robotic cohorts. A forward stepwise approach was used to build two multivariable regression models to assess the relationship between operative time and postoperative outcomes in laparoscopic and robotic repairs.

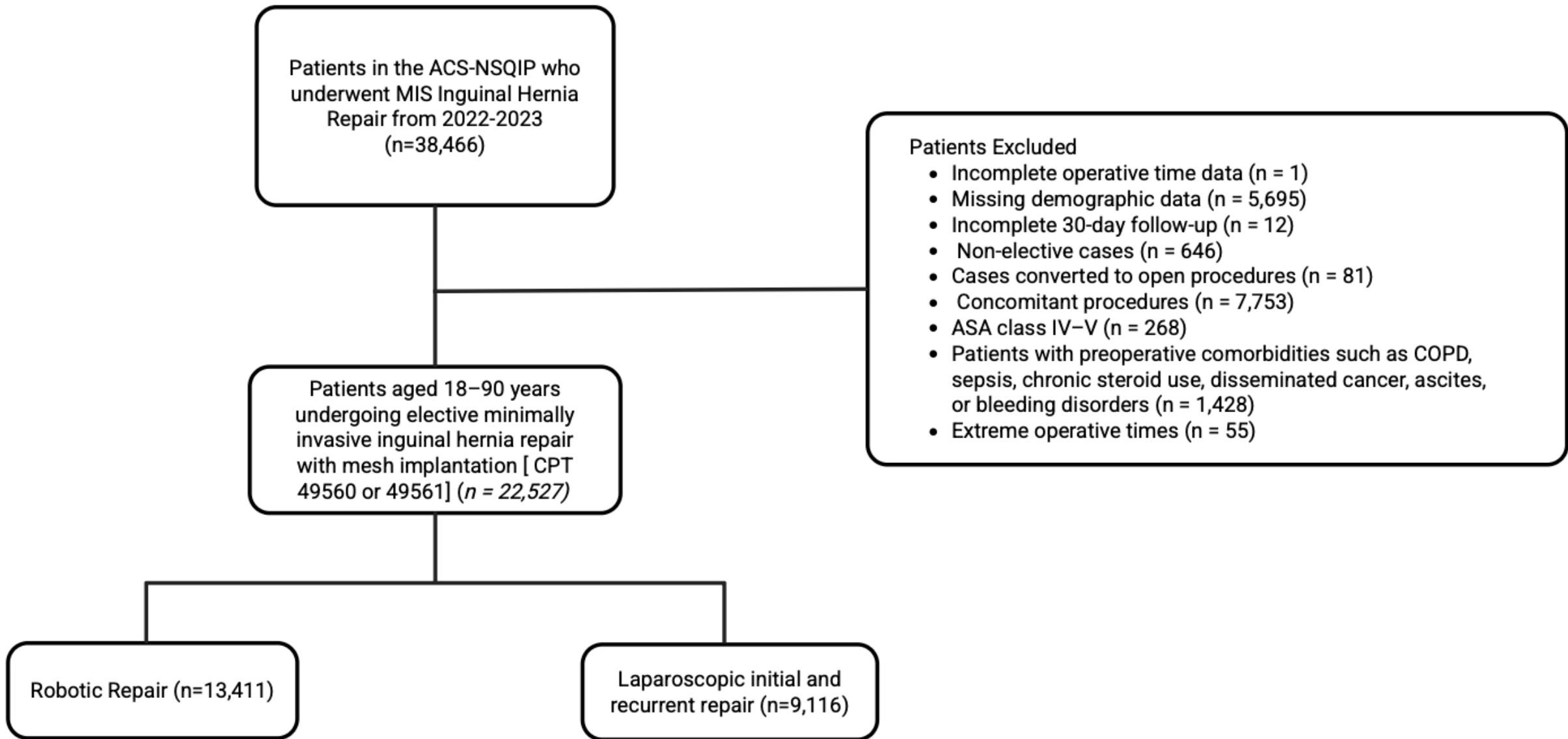


Figure 1. Patient inclusion and exclusion criteria.

Results

Table 1 Adjusted Odds Ratio for postoperative outcomes across operative time octiles. Models were adjusted for age, BMI, recurrent hernia, sex, diabetes, hypertension, dialysis, chronic heart failure and ASA class (reference octile =1).

Outcomes Variables	Laparoscopic IHR			Robotic IHR		
	Operative time, minutes	Adjusted Odds Ratio (95% CI)	p-value	Operative time, minutes	Adjusted Odds Ratio (95% CI)	p-value
Any complication	< 37	1		< 46	1	
	37-46	0.89 (0.47-1.67)	0.720	46-57	0.88 (0.52-1.48)	0.625
	46-55	1.27 (0.72-2.26)	0.417	57-67	1.02 (0.61-1.69)	0.941
	55-64	0.56 (0.26-1.13)	0.115	67-78	0.87 (0.51-1.56)	0.586
	64-74	1.04 (0.55-1.94)	0.904	78-90	1.24 (0.76-2.03)	0.387
	74-88	1.13 (0.62-2.07)	0.691	90-106	0.93 (0.55-1.56)	0.785
	88-111	1.19 (0.65-2.16)	0.577	106-132	1.04 (0.63-1.72)	0.872
	> 111	1.45 (0.83-2.59)	0.198	> 132	1.93 (1.25-3.05)	0.004
Prolonged LOS	< 37	1		< 46	1	
	37-46	0.87 (0.31-2.33)	0.775	46-57	1.53 (0.63-3.92)	0.356
	46-55	0.59 (0.18-1.71)	0.343	57-67	1.30 (0.51-3.43)	0.578
	55-64	2.70 (1.27-6.25)	0.013	67-78	1.72 (0.73-4.32)	0.226
	64-74	2.50 (1.14-5.87)	0.026	78-90	2.68 (1.20-6.53)	0.021
	74-88	1.12 (0.43-2.88)	0.816	90-106	2.06 (0.89-5.14)	0.102
	88-111	3.36 (1.62-7.66)	0.002	106-132	2.10 (0.92-5.23)	0.089
	>111	8.19 (4.22-17.87)	<0.001	> 132	5.80 (2.85-13.45)	<0.001
Serious complication	< 37	1		< 46	1	
	37-46	0.63 (0.29-1.31)	0.222	46-57	0.87 (0.47-1.60)	0.663
	46-55	1.02 (0.53-1.96)	0.946	57-67	0.97 (0.53-1.76)	0.921
	55-64	0.47 (0.19-1.04)	0.075	67-78	0.96 (0.53-1.72)	0.883
	64-74	0.82 (0.39-1.66)	0.588	78-90	1.10 (0.62-1.98)	0.740
	74-88	0.94 (0.47-1.85)	0.864	90-106	0.93 (0.51-1.70)	0.825
	88-111	1.13 (0.59-2.17)	0.711	106-132	1.22 (0.70-2.15)	0.480
	>111	1.60 (0.88-2.95)	0.125	>132	2.21 (1.36-3.72)	0.002

Discussion

- Operative time was not associated with increased complications in laparoscopic inguinal hernia repair, although longer operative times were associated with prolonged length of stay.
- In robotic inguinal hernia repair, operative time exceeding 2 hours was associated with higher rates of overall complications, serious complications, and prolonged LOS, suggesting operative duration may reflect increasing case complexity.
- These findings suggest that efficient operative performance may be particularly important in robotic repairs, while shorter operative times in straightforward cases likely reflect surgical proficiency rather than compromised quality.
- One limitation of this study is that NSQIP database does not distinguish unilateral from bilateral repairs, which may influence operative time and represents an inherent limitation of this analysis.

Conclusion

- Prolonged operative time does not appear to adversely affect outcomes in laparoscopic inguinal hernia repair but is associated with worse outcomes in robotic repairs when exceeding two hours.