COMPARATIVE ANALYSIS OF LAPAROSCOPIC AND ROBOTIC APPENDECTOMY: A MULTI-HOSPITAL RETROSPECTIVE COHORT STUDY

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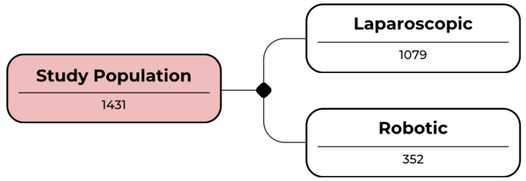
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Introduction

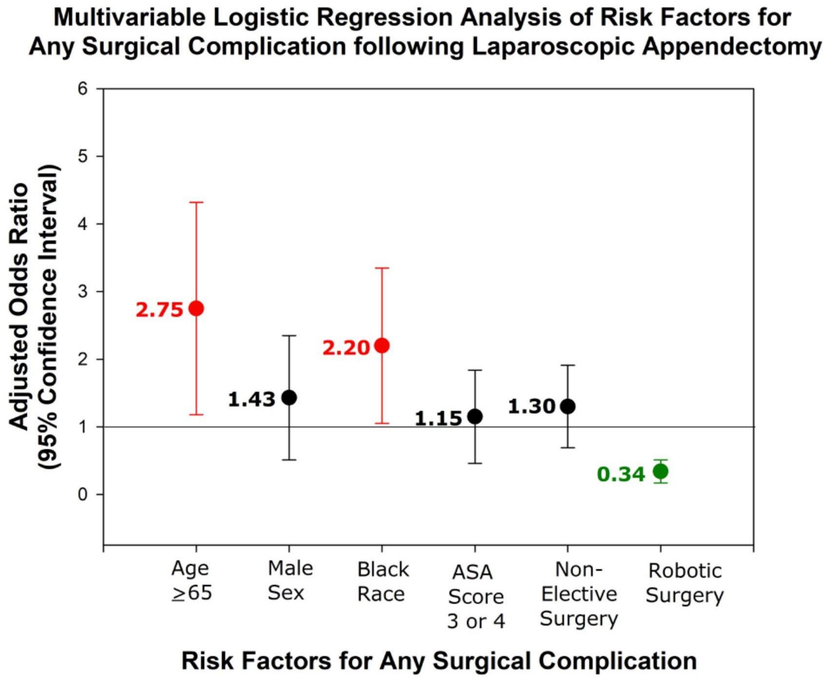
Appendicitis is the most common abdominal surgical emergency worldwide [1]. The laparoscopic approach has been the standard for decades [2]. However, adoption of robotic assistance for the treatment of diseases of the appendix continues to grow. Despite this growth, clinical outcomes regarding laparoscopic versus robotic appendectomy remain unclear. This study analyzed the difference in complication rate between laparoscopic and robotic appendectomies.

Methods



A retrospective cohort study was performed using data obtained from patient charts across the Prisma Health system. Charts were from appendectomy patients between October 1, 2021 and February 29, 2024. Charts were excluded if the patient was younger than eighteen years old, the appendectomy was part of a planned larger bowel resection, appendectomies due to trauma, or if the appendectomy was a planned open procedure. Preoperative clinical characteristics, intra-operative surgical details, and post-operative outcomes were compared between the laparoscopic and robotic groups. Statistical analyses included student's t-test, chi-squared tests, and multivariable logistic regression.

Results



Discussion

In this study, the robotic approach showed a lower complication rate than the laparoscopic approach – specifically, a 66% decreased risk of any complication (OR = 0.34, 95% CI [0.17, 0.68]). The robotic approach had a significantly lower rate of cases convert to an open procedure and become unexpected extended bowel resections. This data shows that the robotic approach to appendectomy is a safe option and should be explored further.

Table 1. Post-operative outcomes (30-day) by type of surgery

Characteristic	Laparoscopic	Robotic	P-value
No. of patients	1,079	352	---
No. (%) of Patients with:			
Conversion to open	34 (3.2)	0	<0.001*
Unexpected extended resection	18 (1.7)	0	0.015*
Blood Transfusion	17 (1.6)	2 (0.6)	0.152
Readmission	33 (3.1)	9 (2.6)	0.628
Return to O.R.	12 (1.1)	2 (0.6)	0.368
Abscess requiring IR drain	13 (1.2)	1 (0.3)	0.128
Death	1 (0.1)	0	0.568
Any of above complications	***80 (7.4)***	***10 (2.8)***	***0.002****

References:

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2. Ruffolo C, Fiorot A, Pagura G, et al. Acute appendicitis: what is the gold standard of treatment?. *World J Gastroenterol*. 2013;19(47):8799-8807. doi:10.3748/wjg.v19.i47.8799

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