TRENDS IN SURGICAL APPROACH FOR PROCTECTOMIES USING ACS-NSQIP

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Introduction

- Colorectal surgery has witnessed advancements in surgical techniques for proctectomies leading to a growing emphasis on minimally invasive techniques.
- Understanding the trends in surgical approach for proctectomies is crucial for optimizing patient outcomes and healthcare resource utilization.

AIM

- The aim of this study was to evaluate the trends in surgical approach for proctectomies using the ACS-NSQIP database.

Methods

- The *ACS-NSQIP database* was used to identify all reported proctectomies during the years 2018-2021.
- *The surgical method (robotic, laparoscopic, and open), tumor location, and leak rate were all investigated.*
- The Pearson chi-square test was performed to see whether there were changes in surgical strategy based on the location of the rectal cancer.

Table 1

	2018	2019	2020	2021	Total
	(N=4621)	(N=4905)	(N=4189)	(N=4328)	(N=18043)
Robotic	802 (17.4%)	911 (18.6%)	832 (19.9%)	484 (11.2%)	3029 (16.8%)
Laproscopic	1463 (31.7%)	1494 (30.5%)	1333 (31.8%)	673 (15.6%)	4963 (27.5%)
Open (planned)	2089 (45.2%)	2230 (45.5%)	1802 (43.0%)	974 (22.5%)	7095 (39.3%)
Other	258 (5.6%)	268 (5.5%)	222 (5.3%)	134 (3.1%)	882 (4.9%)
Unknown	9 (0.2%)	2 (0.0%)	0 (0%)	2063 (47.7%)	2074 (11.5%)

Results

- Between 2018 and 2021, 18,043 proctectomies were performed.
- The most prevalent approach was open surgery, accounting for 39.3% of cases.
- From 2018 through 2020, there was a year-by-year growth in the robotic approach (17.4%, 18.6%, and 19.9%) (Table 1).
- There was a notable correlation in using the robotic approach for lower rectal tumors (lower third 25.1%, middle third 22.4%, upper third 16.3%) and the laparoscopic approach for upper rectal tumors (upper third 40.5%, middle third 33.6%, lower third 27%) when the data was categorized by tumor location (lower third <5 cm from the anal verge, middle third 5-10 cm, and upper third >10 cm) (Table 2).
- There was a higher incidence in leaks in open (34.3%) cases and laparoscopic cases (31.4%) compared to robotic cases (18.0%) (Table 3).

Table 2

Rectal Mass Location	Lower third	Middle third	Upper third	Unknown	
	(N=4089)	(N=2383)	(N=1238)	(N=1384)	p-value
Robotic	1028 (25.1%)	533 (22.4%)	202 (16.3%)	221 (16.0%)	
Laparoscopic	1106 (27.0%)	800 (33.6%)	502 (40.5%)	369 (26.7%)	
Open (planned)	1327 (32.5%)	731 (30.7%)	385 (31.1%)	629 (45.4%)	
Other	117 (2.9%)	54 (2.3%)	17 (1.4%)	20 (1.4%)	
Unknown	511 (12.5%)	265 (11.1%)	132 (10.7%)	145 (10.5%)	

Discussion

- A steady increase in the utilization of the robotic surgery suggests a growing acceptance of robotic-assisted techniques in the management of rectal cancer; this is supported by studies that highlight the efficacy and safety of robotic techniques (1,2,3), including lower risk of leak (4).
- Open surgery remained the most common approach in proctectomies which may be influenced by surgeon experience and other clinical considerations (5).
- The correlation between surgical approach and tumor location suggests laparoscopic surgery may be inferior to robotic in low rectal tumors, however there is literature that argues they are equivocal (6).
- The discrepancy in reported robotic cases in 2021 stresses challenges in data completeness and accuracy within large-scale databases.

Conclusions

- Our study adds to the growing literature on surgical trends in rectal cancer surgery, specifically in use of robotic techniques
- Aligning our analysis with prior research underscores the importance of personalized treatment strategies and the need for ongoing efforts to improve data completeness and accuracy in large-scale databases.

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Table 3

	No Dx	Any Leak	Unknown
	(N=8846)	(N=239)	(N=9)
Robotic	1941 (21.9%)	43 (18.0%)	0 (0%)
Laproscopic	2700 (30.5%)	75 (31.4%)	2 (22.2%)
Open (planned)	2984 (33.7%)	82 (34.3%)	6 (66.7%)
Other	197 (2.2%)	11 (4.6%)	0 (0%)
Unknown	1024 (11.6%)	28 (11.7%)	1 (11.1%)

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