Minimally Invasive Right Versus Left Colectomy for Cancer: Does Robotic Surgery Mitigate Differences in Short-Term Outcomes?

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Background

- Past research shows disparities in short-term outcomes between right (RC) and left (LC) colectomies for cancer
- Previous studies had not included robotic procedures

Aim & Hypothesis

- Compare 30-day postoperative outcomes between laparoscopic and robotic RC and LC for cancer
- *Hypothesis: Utilization of robotic techniques may mitigate previously observed outcome differences*

Methods

- A retrospective review of a prospective database
- Preoperative risk factors, intraoperative events, and 30-day postoperative outcomes were recorded
- Sub-analysis of robotic RC and LC was conducted

Results

- N = 115 Patients
- 68 RC (38 Robotic, 30 Laparoscopic)
- 47 LC (34 Robotic, 13 Laparoscopic)

Results

Table 1 Demographic and Preoperative Characteristics

	RC (n=68)	LC (n=47)	P value
Age, years	71.1	63.9	0.007
Sex, n (%)			
Male	40 (58.8)	28 (59.6)	0.94
Female	28 (41.2)	19 (40.4)	
BMI, kg/m2	27.5	27.0	0.69
ASA, n (%)			
1-2	26 (38.2)	23 (48.9)	0.25
3-5	42 (61.8)	24 (51.1)	
Charlson Deyo Score, μ	5.8	5.1	0.13
Smoking Status, n (%)			
Current Smoker	2 (2.9)	2 (4.3)	
Prior Smoker	14 (20.6)	13 (27.7)	0.61
Never Smoked	52 (76.5)	32 (68.1)	
Surgical Technique, n (%)			
Laparoscopic	30 (44.1)	13 (27.6)	0.052
Robotic	38 (55.9)	34 (72.4)	

Table 2 Intra-Operative Events

	RC (n=68)	LC (n=47)	P Value
Operation Time, min	212.4	224.2	0.48
Mean Robotic console Time, min	153.5	92.9	<0.001
Estimated Blood Loss, mL	83.3	243.8	0.27
Conversions, n (%)	4 (5.9)	3 (7.5)	0.91
Intra-op Complications, n (%)	1 (1.5)	1 (2.1)	0.79

Table 3 - Postoperative Events

	RC (n=68)	LC (n=47)	P-Value
Overall Complications, n (%)	34 (50.0)	14 (29.8)	0.03
Overall Medical Complications, n (%)	19 (27.9)	7 (14.9)	0.10
Overall Surgical Complications, n (%)	26 (38.2)	11 (23.4)	0.09
Wound Infection	6 (9.0)	2 (4.3)	0.34
Anastomotic Leak	2 (2.9)	1 (2.1)	0.79
Small Bowel Obstruction & Ileus	19 (27.9)	9 (19.1)	0.28
Abdominal/Pelvic Abscess	3 (4.4)	1 (2.1)	0.51
Death, n (%)	1 (1.5)	0	—
Time to First Flatus/BM, days (median)	3.0 (3.0)	2.7 (3.0)	0.38
Length of Hospital Stay, days (median)	7.7 (5)	6.9 (4)	0.47
30-day Readmissions, n (%)	6 (9.0)	4 (8.5)	0.72

- There were no postoperative outcome differences between minimally invasive RC and LC for cancer
- No significant outcome difference between **robotic** RC and LC
- Multivariate analysis revealed a **2.5x higher** rate of complications for laparoscopic versus robotic surgery for the entire cohort

Conclusion

- Previously reported outcome differences between laparoscopic RC and LC for cancer may be mitigated by robotic surgery.
- This may be due to the facilitation of intracorporeal anastomosis and suturing in robotics