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Permalink

<https://escholarship.org/uc/item/23z8h7d1>

Journal

DISEASES OF THE COLON & RECTUM, 60(6)

ISSN

0012-3706

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Publication Date

2017

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Peer reviewed

COMPARATIVE OUTCOMES OF ROBOTIC COLECTOMY: A 4-YEAR REVIEW OF THE TARGETED COLECTOMY NSQIP DATABASE.

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Purpose/Background: There have been limited large database studies comparing outcomes of robotic colectomy to both open and laparoscopic colectomy. The objective of this study is to compare the outcomes between these surgical approaches for elective colectomy.

Methods/Interventions: The 2012-2015 NSQIP targeted colectomy database was used to analyze patients undergoing elective colectomy. The patients were stratified by surgical approach (open surgery (OS), laparoscopic surgery (LS), and robotic surgery (RS)). Patient characteristics and co-morbidities were compared between surgical groups. Univariate and multivariate analyses were performed to assess risk adjusted primary outcomes (length of stay, anastomotic leak, post operative ileus, readmission, 30-day mortality, and serious morbidity).

Results/Outcome(s): From 2012-2015, 76,314 elective colectomies were identified. LS was the predominant surgical approach (61.5%). RS increased from 3.7% to 8.7%, while OS decreased from 48% to 30%. Hand-assist was used in 36.6% of LS and 35.9% of RS. Over the study period, the rate of conversion has decreased by 6.8% in LS (from 18% to 11.2%) and by 4.9% in RS (from 10.2% to 5.3%). RS had a longer mean operative time (231 ± 102 minutes) compared to OS (180 ± 111 minutes, $p < 0.05$) and LS (180 ± 87 minutes, $p < 0.05$). There was no significant difference in operative time between OS and LS. Length of stay was 4.94 ± 4.2 days in RS compared 6.06 ± 5.9 days in LS ($p < 0.01$) and 10.45 ± 9.4 days in OS ($p < 0.01$). RS had lower rates of anastomotic leak (3.49% vs. 5.02%, $p < 0.05$), ileus (OR=0.41, CI (0.37, 0.46), $p < 0.05$), readmission (OR=0.74, CI (0.66, 0.83), $p < 0.05$), mortality (OR=0.36, CI (0.22, 0.58), $p < 0.05$), and serious morbidity (OR=0.40, CI (0.36, 0.44), $p < 0.05$) compared to OS. LS was associated with lower rates of anastomotic leak (3.33% vs. 5.02%, $p < 0.05$), ileus (OR=0.46, CI (0.44, 0.48), $p < 0.05$), readmission (OR=0.71, CI (0.67, 0.74), $p < 0.05$), mortality (OR=0.47, CI (0.41, 0.55), $p < 0.05$), and serious morbidity (OR=0.43, CI (0.42, 0.45), $p < 0.05$) compared to OS. There were no significant differences in the above risk-adjusted outcomes between RS and LS.

Conclusions/Discussion: RS and LS have superior surgical outcomes compared to OS. More studies are needed to evaluate the potential benefits of robotic colectomy. RS is a safe and effective surgical approach, with similar morbidity and mortality compared to the LS, and improved outcomes compared to the open approach.