OPEN VERSUS MINIMALLY INVASIVE SEGMENTAL COLECTOMY FOR CROHN'S COLITIS: A NSQIP RETROSPECTIVE REVIEW AND ANALYSIS

Michael L. Horsey MD, Richard Amdur, PhD, Matthew Ng, MD, Vincent Obias MD

Walter Reed National Military Medical Center

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

Clinical Question

Operative management of colonic Crohn's disease depends on the extent of the disease process. For short segments of disease, a segmental colectomy is an appropriate management option. The primary aim of this study was to analyze and compare short-term outcomes of open and minimally-invasive surgical (MIS) approaches for partial colectomy for Crohn's disease limited to the colon.

Methods

- The American College of Surgeons National Surgical Quality Improvement Program (NSQIP) targeted colectomy database
- Patient's diagnosed Crohn's disease or complications related to Crohn's disease who underwent segmental colectomy utilizing open or minimally-invasive (to include laparoscopic and robot-assisted) approaches between 2012 and 2018.
- Patients with ascites, disseminated cancer, pre-operative sepsis, ASA class 5, and patients requiring mechanical ventilation were excluded.
- Preoperative, intraoperative, and 30-day postoperative outcomes were compared between the groups using both univariable analysis and multivariate logistical regression models, adjusting for pre-operative variables associated with procedure.

Results

Outcome	MIS (n=354)	OPEN (n=174)	aOR (95% CI)	P
30 d mortality	2 (0.6%)	2 (1.2%)	0.76 (0.08-6.90)	.60
Wound event	42 (11.9%)	35 (20.1%)	0.55 (0.33-0.93)	**.02**
Pulmonary event	5 (1.4%)	6 (3.5%)	0.81 (0.21-3.08)	.19
Stroke	0	1 (0.6%)	Na	.33
UTI	2 (0.6%)	2 (1.2%)	0.73 (0.08-6.66)	.60
Cardiac	0	3 (1.7%)	Na	-
VTE	5 (1.4%)	4 (2.3%)	0.57 (0.14-2.23)	.49
Sepsis	23 (6.5%)	19 (10.9%)	0.65 (0.33-1.27)	.09
Return to OR	19 (5.4%)	4 (2.3%)	2.48 (0.80-7.76)	.12
Prolonged Ileus	43 (12%)	37 (21%)	0.50 (0.30-0.84)	**.009**
Anastomotic Leak	14 (4%)	8 (5%)	0.84 (0.32-2.17)	.82
Adjusted Mean Hospital Length of Stay (days)	12.2 (8.4-16.0	15.0 (11.4-18.7)	-	**<.0001**
Adjusted Mean Operative Time (min)	213 (160-265)	204 (154-255)	-	0.31

- After exclusions, there were 528 patients with colonic Crohn's disease who underwent partial colectomy, 157 of whom underwent open surgery and 354 of whom underwent MIS.
- The mean age of patients was 43 ± 15, and mean BMI was 26. 55% of patients were female.
- Patients who underwent the open approach were much more likely to have undergone emergency surgery than those who underwent MIS (p=0.0074).
- After adjusting for possible confounders with multivariable analysis, patients who underwent open surgery had a higher incidence of wound events (surgical site infection and dehiscence) (p=0.03) and prolonged postoperative ileus (p=.008).
- Hospital length of stay was also significantly shorter in the MIS cohort compared to open (12.2 days vs. 15 days; p<0.0001).
- The rate of anastomotic leak was not significantly different comparing open and MIS approaches (p=0.82).

Conclusions

1. This retrospective review of NSQIP demonstrates that minimally-invasive partial colectomy is associated with equivalent or improved morbidity and shorter hospital stay than open surgery.
2. Additional studies are needed to determine long-term outcomes of this approach.