Intracorporeal vs Extracorporeal Anastomosis: Effect on 30-Day Readmission After Minimally Invasive Right Hemicolectomy

Kristen Coleman, DO; Caroline Couch, MD; Angela N Fellner, PhD CCRP; Hamza Guend, MD | Cincinnati, OH

Background / Objective

- As minimally invasive approaches to right hemicolectomy (RHC) are becoming standard practice, exploring the potential benefits of intracorporeal (IC) vs extracorporeal (EC) anastomosis creation is a prevalent area of research
- Multiple studies have shown decreased rates of short-term complications with IC anastomosis, including surgical site infection and length of stay
- None have shown a significant difference in readmission rate
- The goal of this study was to evaluate the effects of anastomotic technique during elective, minimally invasive RHC on 30-day readmission and emergency department visits

Methods

- Retrospective cohort study
  - 95 patients underwent elective, minimally invasive RHC from 2014-2018
  - EC group, 58 patients
  - IC group, 37 patients
- Procedures performed by multiple surgeons at a single institution
- Primary outcomes were:
  - 30-day ED visits
  - 30-day readmissions
- Short-term outcomes compared using Fisher's Exact Test and Student's *t*-test, as appropriate

Table 1. Demographics and Comorbidities

	Intracorporeal	Extracorporeal	
Scale variables	**Mean (SD)**	**Mean (SD)**	***p*-value**
Age, years	65.8 (11.8)	64.9 (10.8)	0.715
BMI, kg/m^2	32.4 (8.4)	29.5 (5.5)	0.070
Categorical variables	**N (%)**	**N (%)**	***p*-value**
Sex			0.504
Female	18 (48.6)	27 (46.6)	
Male	19 (51.4)	31 (53.4)	
ASA			0.578
II	15 (40.5)	18 (31.0)	
III	21 (56.8)	37 (63.8)	
IV	1 (2.7)	3 (5.2)	
COPD	4 (10.8)	9 (15.5)	0.372
DM	13 (35.1)	21 (36.2)	0.547
CAD/CHF	14 (37.8)	12 (20.7)	0.057

Table 2. Complications and Outcomes

	Intracorporeal	Extracorporeal	
Categorical variables	**N (%)**	**N (%)**	***p*-value**
Post-op transfusion	0 (0)	2 (3.4)	0.370
Cardiovascular complications	0 (0)	2 (3.4)	0.370
Pneumonia	0 (0)	1 (1.7)	0.611
Ileus (requiring NG)	4 (10.8)	8 (13.8)	0.464
UTI	0 (0)	2 (3.4)	0.370
Wound infection (superficial)	0 (0)	2 (3.4)	0.370
Leak/Intraabdominal abscess	0 (0)	4 (6.9)	0.133
Return to OR	0 (0)	4 (6.9)	0.133
30d ED visit	2 (5.4)	8(13.8)	0.170
30d Readmission	**0 (0)**	**7 (12.1)**	**0.027**
30d Mortality	0 (0)	1 (1.7)	0.611

Results

- Demographics, ASA class, and comorbidities were similar between the two groups (Table 1)
- Significantly more patients who underwent EC anastomosis were readmitted within 30 days, $p = 0.027$ (Table 2)
- 30-day ED visits (p=0.170), 30-day mortality (p=0.611), and incidence of leak (p= 0.133) were not significantly different (Table 2)
- Other short-term outcomes and complications were not significantly different between the groups (Table 2)

Conclusions

- In our study population, we found a statistically significant increase in 30-day readmissions for patients who underwent minimally invasive right hemicolectomy with extracorporeal anastomosis vs. an intracorporeal approach
- This study, in conjunction with other published studies, suggests that creating an intracorporeal anastomosis may reduce some short-term complications, such as 30-day readmission

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