Hartmann Procedure or Anastomosis With Diversion For Sigmoid Colon Volvulus?

Western Michigan University Homer Stryker M.D. School of Medicine

Daniel VanZweden, MD; Conor Dillon, DO; Saad Shebrain, MD

Department of General Surgery, Western Michigan University Homer Stryker MD School of Medicine, Kalamazoo, MI

Introduction

- Third most common cause of large bowel obstruction in the United States (after colon cancer and diverticulitis)
  - More common in developing countries (from 3-5% up to 50%)
- Three operative approaches are available: resection and anastomosis, resection and anastomosis *with* Diverting Ileostomy (RS-PADI), and resection with end colostomy (or Hartmann procedure (HP))
  - Hartmann is current gold standard and traditionally viewed as safer, but RS-PADI associated with decreased overall complications
- Comparative study for 30-day outcomes of RS-PADI vs. Hartmann procedure

Methods

- Retrospective review
- ACS-NSQIP database from 2005-2017
- Diagnosis of sigmoid volvulus who underwent RS-PADI and HP
- Propensity Score Matching (PSM) to balance sample size and baseline covariates (demographic, comorbidities, preoperative data)
- Analyzed 30-day morbidity/mortality, operative time, length of stay, reoperation, and readmission

Limitations

- Degree of contamination controlled for by propensity matching, however surgeons are more likely to choose Hartmann procedure if heavy contamination or unstable patient.
- There is still potential for unobservable bias
- Small sample size
- Some patients may have benefited from endoscopic detorsion and may have undergone RS-PADI on a more elective basis

Results

1511 patients with Hartmann procedure, 57 with RS-PADI. After PSM 55 patients in each group.

30 Day Outcomes	HP (n=55)	RS-PADI (n=55)	Total (N=110)	p-value
Unplanned Reoperation	4 (7.5)	3 (5.3)	7 (6.4)	0.624
Any Readmission	6 (12.8)	8 (17.0)	14 (14.9)	0.562
30-Days Mortality	2 (3.8)	3 (5.3)	5 (4.5)	0.708
Serious morbidity	15 (28.3)	17 (29.8)	32 (29.1)	0.861
Minor morbidity	16 (30.2)	17 (29.8)	33 (30.0)	0.967
Overall Morbidity	24 (45.3)	27 (47.4)	51 (46.4)	0.827
Operative Time, mean (SD)	112 (47)	116 (53)	114 (50)	0.688
Length of hospital stay, mean (SD)	16 (11.7)	14.8 (14)	15.4 (13)	0.631
LOS, median (IQR)	11 (8, 22.5)	11 (8, 16)	11 (8, 20.3)	0.563

Secondary Results

30 Day Secondary Outcomes	HP (n=55)	RS-PADI (n=55)	Total (N=110)	p-value
Superficial surgical site infection	3 (5.7)	3 (5.3)	6 (5.5)	0.927
Organ Space SSI	2 (3.8)	5 (8.8)	7 (6.4)	0.283
Wound Disrupt	4 (7.5)	0 (0.0)	4 (3.6)	0.035
Pneumonia	7 (13.2)	12 (21.1)	19 (17.3)	0.277
Unplanned Intubation	3 (5.7)	6 (10.5)	9 (8.2)	0.352
Pulmonary Embolism	1 (1.9)	0 (0.0)	1 (0.9)	0.298
Ventilator > 48 Hours	7 (13.2)	8 (14.0)	15 (13.6)	0.899
Progressive Renal Insufficiency	2 (3.8)	1 (1.8)	3 (2.7)	0.516
Acute Renal Fail	0 (0.0)	1 (1.8)	1 (0.9)	0.333
Urinary Tract Infection	5 (9.4)	2 (3.5)	7 (6.4)	0.203
Cardiac Arrest Requiring CPR	1 (1.9)	2 (3.5)	3 (2.7)	0.602
Myocardial Infarction	2 (3.8)	1 (1.8)	3 (2.7)	0.516
Bleeding Transfusions	1 (1.9)	5 (8.8)	6 (5.5)	0.112
DVT/Thrombophlebitis	1 (1.9)	0 (0.0)	1 (0.9)	0.298
Sepsis	3 (5.7)	3 (5.3)	6 (5.5)	0.927
Septic Shock	5 (9.4)	5 (8.8)	10 (9.1)	0.904

Conclusion

- In this study, RS-PADI has similar 30-day postoperative outcomes compared to HP.
- Given the decreased morbidity of subsequent loop ileostomy takedown compared with a Hartmann's reversal, this procedure should be given consideration in the management of acute sigmoid volvulus.