Colostomy for Sacral Decubitus Ulcers: Laparoscopic vs Open Approach

Sarah Haviland MD[1], Suzanne Arnott MD[2], Richard Amdur[2], Michael Horsey MD[1], Matthew Ng MD[3], Vincent Obias MD[3]

[1] Walter Reed National Military Medical Center, Bethesda, MD; [2] Department of Surgery, George Washington University Hospital, Washington, DC; [3] Department of Colorectal Surgery at the George Washington University Hospital, Washington, DC

Objective:

- Diverting colostomy has long been a treatment for severe sacral decubitus ulcers that have failed conservative management with local wound care.
- This study seeks to see if there are any differences in outcomes when the procedure is performed using a laparoscopic versus open approach.

Methods:

- The ACS-NSQIP database was searched for cases between 2005 and 2019 that had primary diagnosis code for decubitus ulcer and a CPT for colostomy.
- Patients with age < 18 years, ascites, disseminated cancer, or ASA class 5 were excluded.
- Patient demographics and outcomes were compared between patients who underwent open and laparoscopic procedures.
- Multivariable logistic regression models were used to adjust for potential pre-operative confounding variables. Covariates were selected using backward elimination when p>.20. SAS (version 9.4, Cary, NC) was used for data analysis with p<.05 considered significant.

Figure 1: Post-operative Outcomes

Outcome	Laparoscopic	Open	P value	Adjusted OR Lap vs Open (95% CI)	P value
30-day Mortality	56 (6.3%)	51 (8.2%)	0.19	0.89 (0.58-1.37)	0.60
MACE	16 (1.8%)	15 (2.4%)	0.46	0.78 (0.37-1.65)	0.52
Wound Events	30 (3.4%)	36 (5.8%)	**0.03**	0.55 (0.32-0.94)	**0.03**
Sepsis	129 (14.6%)	97 (15.6%)	0.61	1.15 (0.83-1.59)	0.40
Renal Events	14 (1.6%)	6 (1.0%)	0.37	1.79 (0.66-4.86)	0.26
Pulmonary Events	87 (9.8%)	88 (14.2%)	**0.011**	0.68 (0.48-0.97)	**0.04**
VTE	25 (2.8%)	17 (2.7%)	0.99	1.02 (0.54-1.95)	0.95
Return to OR	101 (11.4%)	93 (15.0%)	0.051	0.85 (0.61-1.19)	0.34
UTI	49 (5.5%)	49 (7.9%)	0.07	0.90 (0.57-1.42)	0.66
Intra- or Post-Op Bleeding	85 (9.6%)	55 (8.8%)	0.65	1.09 (0.74-1.59)	0.67

(MACE includes cardiac arrest, MI, stroke. Wound events: deep wound ,organ space, or superficial surgical site infection or dehiscence. Pulmonary events: pneumonia, prolonged intubation, re-intubation. Renal events: AKI or dialysis.)

Results:

- There were 885 laparoscopic and 622 open cases after exclusions.
- Patients who received open surgery were more often black, had higher pre-operative incidence of AKI, dialysis, CKD and sepsis, and were more likely to have serum albumin < 3.2 g/dL, HCT < 36, BUN > 23, but they did not differ significantly on sex, other comorbidities, ASA class, or emergency surgery.
- In univariable analysis, 30-day incidence of wound events (p=.03) and pulmonary events (p=.011) were significantly higher in patients who received open surgery and remained significant when adjusting for pre-op variables.
- Return to OR and UTI were higher in open surgery but not to statistical significance (return to OR p=.051, UTI p=.07), and this association decreased when adjusting for pre-operative variables.

Conclusions:

- After adjusting for confounding pre-operative variables, patients who undergo laparoscopic colostomy surgery for decubitus ulcers have lower rates of wound events and pulmonary events compared to patients who undergo open surgery.