

RISK FACTORS FOR SURGICAL SITE INFECTIONS FOLLOWING PARASTOMAL HERNIA REPAIR: A NATIONAL DATA ANALYSIS

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Introduction

- Parastomal hernias have a reported incidence of 17-50% after stoma creation
- 1 in 3 cases require operative intervention often with mesh
- Risk factors for parastomal hernias:** obesity, diabetes, smoking, and immunosuppressant use
- Surgical site infections (SSI) from parastomal hernia repair are not well understood with limited, large-scale, contemporary risk factors analyses
- Objective:** Identify independent predictors of SSI associated with parastomal hernia repair and the effects in operative outcomes using the ACS-NSQIP database

Methods

- Retrospective study** of the 2015-2023 ACS-NSQIP database was utilized to identify parastomal hernia repairs by CPT and ICD-10 codes
- Descriptive analyses and logistic regression models performed for outcomes analysis
- Multivariate logistic regressions were adjusted for 65 and older, emergent and elective case status, sex, race, and ASA class

Results

Table 1. Univariate Logistic Regression

Exposure	Odds Ratio [95% CI], p-value*		
	Superficial Incisional SSI	Deep Incisional SSI	Organ/Space SSI
Mesh Use	0.29 [0.21, 0.40]*	0.38 [0.22, 0.66]*	0.92 [0.66, 1.26] (p=0.59)
BMI ≥30	1.63 [1.27, 2.09]*	1.25 [0.81, 1.92] (p=0.31)	1.05 [0.77, 1.43] (p=0.76)
Diabetes	1.17 [0.87, 1.56] (p=0.31)	1.10 [0.65, 1.85] (p=0.73)	0.72 [0.46, 1.10] (p=0.12)
Smoking	1.13 [0.82, 1.55] (p=0.46)	1.05 [0.59, 1.88] (p=0.86)	1.54 [1.06, 2.23] (p=0.02)
Steroid Use	1.22 [0.83, 1.79] (p=0.31)	1.13 [0.56, 2.27] (p=0.73)	1.80 [1.17, 2.76] (p=0.007)
Operative Time (Hours)	1.07 [0.99, 1.15] (p=0.09)	1.08 [0.95, 1.23] (p=0.21)	1.28 [1.19, 1.38]*
LOS (days)	1.02 [1.003, 1.03] (p=0.02)	0.99 [0.98, 1.005] (p=0.22)	1.03 [1.008, 1.04] (p=0.005)

Table 2. Multivariate Logistic Regression

Exposure	Odds Ratio [95% CI], p-value*		
	Superficial Incisional SSI	Deep Incisional SSI	Organ/Space SSI
Mesh Use	0.27 [0.18, 0.39]*	0.33 [0.16, 0.67] (p=0.002)	1.02 [0.72, 1.44] (p=0.92)
BMI ≥30	1.49 [1.13, 1.96] (p=0.005)	1.36 [0.81, 2.27] (p=0.25)	0.94 [0.68, 1.31] (p=0.71)
Diabetes	1.08 [0.77, 1.50] (p=0.67)	1.05 [0.56, 1.95] (p=0.88)	0.77 [0.49, 1.22] (p=0.26)
Smoking	1.07 [0.75, 1.52] (p=0.72)	1.07 [0.53, 2.15] (p=0.85)	1.43 [0.95, 2.14] (p=0.08)
Steroid Use	1.20 [0.80, 1.80] (p=0.38)	0.98 [0.42, 2.30] (p=0.96)	1.63 [1.04, 2.56] (p=0.03)
Operative Time (Hours)	1.09 [1.009, 1.18] (p=0.03)	1.16 [1.006, 1.34] (p=0.04)	1.30 [1.20, 1.41]*
LOS (days)	1.007 [0.99, 1.02] (p=0.30)	1.01 [0.98, 1.04] (p=0.51)	1.02 [1.002, 1.04] (p=0.03)

*p<0.001

Results (cont'd)

- Among 5,324 cases, most were ages 60-79 (54.0%), female (52.3%), White (81.4%), overweight (30.6%) and ASA Class III (67.9%)
- Common risk factors* included diabetes (19.2%), smoking (15.4%), and use of immunosuppressive therapy (9.3%)
- Case distribution:* 77.0% elective and 10.6% emergent, with 35.3% using mesh
- Smoking status no longer affected SSI after covariate adjustment**

Conclusions

- Risk factors for parastomal hernias remain pertinent predictors of postoperative SSI
- Mesh placement reduced odds of superficial and deep SSI**, perhaps related to reduced usage of mesh in likely contaminated fields
- Further studies on longer-term outcomes, mechanisms, mesh type, and approach are necessary to identify and mitigate risk factors in the perioperative setting