Single-institution Evaluation of Outcomes in Patients Undergoing Surgical Intervention for Enterocutaneous Fistulas and Mesh Infection

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Background/Purpose

-Mesh infections and enterocutaneous fistulas (ECF) are technically challenging problems to manage.
-Mortality of 6-33%
-Recurrence rate with current management guidelines: 5-15%
-Objective: evaluate outcomes in patients undergoing surgical management of mesh infections and ECF
-Sub-analyses: Single vs Two-stage procedure and mesh selection

Methodology

-Retrospective review of prospectively maintained database
-Inclusion criteria: mesh infection or enterocutaneous fistula
-Primary outcomes: surgical site infections (SSI), surgical site occurrence (SSO), fistula recurrence, and hernia recurrence

Table 1. Summary Statistics

	Overall (N=29)
Age	60.4 (14.4)
BMI	31.5 (8.7)
Hypertension	16 (57.1%)
Diabetes	6 (21.4%)
COPD	3 (10.7%)
30-day SSO	5 (17.9%)
30-day SSI	5 (17.9%)
30-day ileus	3 (10.7%)
30-day small bowel obstruction	1 (3.6%)
30-day UTI	1 (3.6%)
30-day renal failure	4 (14.3%)
30-day DVT	2 (7.1%)
30-day PNE	1 (3.6%)
30-day respiratory failure	2 (7.1%)
30-day readmission	7 (26.9%)
30-day any complications	19 (67.9%)
Hernia recurrence	3 (10.7%)
Months for hernia recurrence	28.6 (4.7)
Length of stay	17.0 (21.5)
Mesh infection	4 (14.3%)
Fistula recurrence	2 (7.1%)
Type of mesh used	
1. Synthetic mesh	2 (14.3%)
2. Bio-absorbable mesh	10 (71.4%)
3. Biologic mesh used	2 (14.3%)
Staged repair	
1-stage repair	14 (50.0%)
2-stage repair	14 (50.0%)
Wound closure	
1. Primary closure	12 (42.9%)
2. Delayed primary closure	15 (53.6%)
3. Prolonged wound vac	1 (3.6%)

Table 4. Summary Statistics by Type of Mesh

	Synthetic mesh (N=2)	Bio-absorbable mesh (N=10)	Biologic mesh (N=2)	p value
30-day SSO	1 (50.0%)	0 (0.0%)	0 (0.0%)	0.29
30-day SSI	**2 (100.0%)**	**0 (0.0%)**	**1 (50.0%)**	**0.01**
30-day ileus	0 (0.0%)	2 (20.0%)	0 (0.0%)	1.00
30-day small bowel obstruction	0 (0.0%)	0 (0.0%)	0 (0.0%)	
30-day renal failure	0 (0.0%)	1 (10.0%)	0 (0.0%)	1.00
30-day DVT	1 (50.0%)	0 (0.0%)	0 (0.0%)	0.29
30-day PNE	0 (0.0%)	0 (0.0%)	0 (0.0%)	
30-day respiratory failure	0 (0.0%)	0 (0.0%)	0 (0.0%)	
30-day readmission	**2 (100.0%)**	**1 (10.0%)**	**1 (50.0%)**	**0.04**
30-day any complications	2 (100.0%)	7 (70.0%)	1 (50.0%)	1.00
Hernia recurrence	1 (50.0%)	0 (0.0%)	0 (0.0%)	0.29
Months for hernia recurrence	31.0 (NA)	NA	NA	
Length of stay	10.5 (12.0)	18.7 (24.6)	34.5 (40.3)	0.64
Mesh infection	**2 (100.0%)**	**1 (10.0%)**	**1 (50.0%)**	**0.04**
Fistula recurrence	0 (0.0%)	1 (10.0%)	1 (50.0%)	0.51

Table 2. Summary Statistics by Staged Repair

	1-stage repair (N=14)	2-stage repair (N=14)	p value
30-day SSO	1 (7.1%)	4 (28.6%)	0.33
30-day SSI	3 (21.4%)	2 (14.3%)	1.00
30-day ileus	1 (7.1%)	2 (14.3%)	1.00
30-day small bowel obstruction	0 (0.0%)	1 (7.1%)	1.00
30-day renal failure	1 (7.1%)	3 (21.4%)	0.60
30-day DVT	1 (7.1%)	1 (7.1%)	1.00
30-day PNE	0 (0.0%)	1 (7.1%)	1.00
30-day respiratory failure	0 (0.0%)	2 (14.3%)	0.48
30-day readmission	3 (21.4%)	4 (33.3%)	0.67
30-day any complications	10 (71.4%)	9 (64.3%)	1.00
Hernia recurrence	1 (7.1%)	2 (14.3%)	1.00
Months for hernia recurrence	31.0 (NA)	27.4 (6.0)	0.71
Length of stay	20.8 (24.3)	12.5 (17.6)	0.34
Mesh infection	4 (28.6%)	0 (0.0%)	0.10
Fistula recurrence	2 (14.3%)	0 (0.0%)	0.48

Conclusion

Single-stage repairs were associated with higher rates of surgical site infections, fistula recurrence, and mesh infections, particularly when synthetic mesh was used. These findings suggest that synthetic mesh in single-stage repairs may increase the risk of postoperative complications.