A cost comparison of mesh usage in laparoscopic paraesophageal hernia repair

Amareshwar Chiruvella MD[1], Daniel Lomelin MPH[2], Dmitry Oleynikov MD[1,2]

1. Department of Minimally Invasive Surgery, University of Nebraska Medical Center, Omaha, Nebraska.
2. Center for Advanced Surgical Technology, University of Nebraska Medical Center, Omaha, Nebraska.

University of Nebraska Medical Center

Background

- Use of absorbable mesh in paraesophageal hernia (PEH) repair has been shown in several studies to decrease recurrence rates in the short term
- Several biomaterials including ALLERGAN ALLODERM Regenerative Tissue Matrix and ALLERGAN STRATTICE Reconstructive Tissue Matrix have been shown to reduce hernia recurrence rates to 15–20%
- Introduction of the absorbable GORE® BIO-A® Tissue Reinforcement has shown similar outcomes to ALLERGAN STRATTICE Reconstructive Tissue Matrix and to ALLERGAN ALLODERM Regenerative Tissue Matrix
- This has resulted in an increased utilization of GORE® BIO-A® Tissue Reinforcement
- The aim of this study was to compare costs of the GORE® BIO-A® Device, ALLERGAN ALLODERM Device, and ALLERGAN STRATTICE Device in relation to the outcomes in terms of length of stay and recurrence rate following PEH repair
- Using this data, we also seek to determine whether cost difference should be a determining factor in the type of mesh used

Methods

- We performed a retrospective analysis of patients who underwent PEH repair at our institution between December 2004 and June 2014
- Previously published analysis from our institution has shown that while absorbable mesh has a lower radiologic recurrence rate than primary repair, recurrence does increase with time
- Despite this, symptom resolution is maintained in patients who undergo mesh repair compared with primary crural repair without mesh
- For our analysis, we compared the cost of individual meshes and outcomes in terms of length of stay and one-year recurrence rate

Results

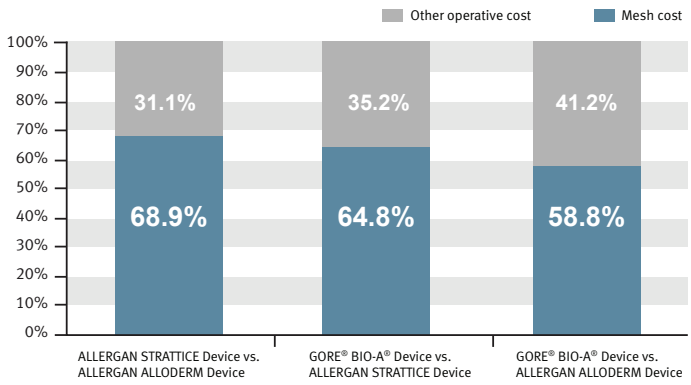
- 227 patients underwent PEH repair with mesh
  - – ALLERGAN ALLODERM Regenerative Tissue Matrix – 157 patients
  - – ALLERGAN STRATTICE Reconstructive Tissue Matrix – 35 patients
  - – GORE® BIO-A® Tissue Reinforcement – 35 patients
- All patient groups were matched for confounding factors
- Recurrence rates and outcomes were similar in all groups – Overall recurrence rate was 12%
- No erosions or complications were observed with the use of any mesh
- No difference was observed in hospital length of stay

Mesh comparison

Table 1. Mesh Comparison. *Only age significantly differed between mesh groups; all other basic demographics were non-significant. Importantly, both LOS and one-year recurrence did not differ by mesh utilized.*

	ALLERGAN STRATTICE Reconstructive Tissue Matrix	ALLERGAN ALLODERM Regenerative Tissue Matrix	GORE® BIO-A® Tissue Reinforcement	p-Value
Number of patients	35	157	35	
Age	63.1 ± 12	59.1 ± 13.9	58.6 ± 13.7	0.001
Gender				
Male	9 (25.7%)	67 (42.7%)	17 (48.6%)	0.111
Female	26 (74.3%)	90 (57.3%)	18 (51.4%)	
BMI	30.8 ± 6.3	30.0 ± 5.7	29.6 ± 4.14	0.684
Fundoplication				
Nissen	29 (82.9%)	142 (90.4%)	28 (80%)	0.431
Toupet	5 (14.3%)	12 (7.6%)	6 (17.1%)	
Dor	1 (2.9%)	2 (1.3%)	1 (2.9%)	
LOS	1 (1–2)	1 (1–2)	1 (1–2)	0.082
Recurrence (one-year)	5 (14.3%)	19 (12.1%)	2 (5.7%)	0.560
Mesh cost comparison				
Mesh cost	$1,202	$783	$483	–
Average operative cost	$7,000	$6,480	$5,890	–

Figure 1. Overall cost difference attributable to mesh choice. *Of the cost difference between surgeries using different meshes, the cost of the mesh itself was the largest contributing factor.*



Conclusions and future directions

- Our study shows that while the outcomes of the three mesh groups were similar in a matched patient cohort, there was significant difference in the mesh cost, increasing the overall operative cost
- While surgeon and hospital preference still plays a role in choosing the type of mesh used, knowledge of the individual mesh cost will help surgeons make more informed decisions in the future

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