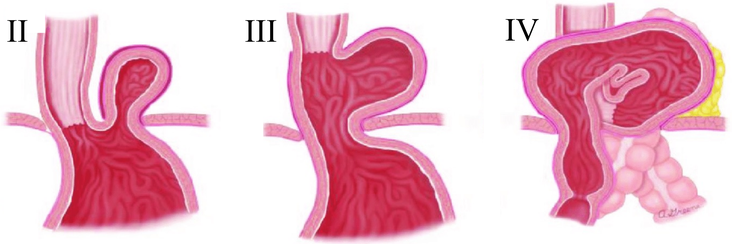
A 13-Year Experience with Biologic and Biosynthetic Absorbable Mesh Reinforced Laparoscopic Paraesophageal Hernia Repair

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Background Paraesophageal hernias (PEH) have high recurrence rates 11-67%.[1] Use of mesh and choice of mesh are variable amongst surgeons.[2] We aim to review outcomes and recurrence rates following PEH repair with 3 types of mesh at a single institution.

Methods Retrospective review of laparoscopic PEH repairs with 3 absorbable meshes from 2008-2021. Charts were reviewed for radiographic or endoscopic evidence of recurrence, defined as >2cm of vertical intrathoracic stomach. If no studies were available for review = no recurrence. Group comparisons were made using chi-square or Fisher's exact test with Bonferroni correction for multiple comparisons, p<0.05.

Results N=473 laparoscopic PEH repairs with mesh



N=6, 1.3% | N=407, 86.0% | N=60, 12.7%

Biologic Mesh 2008-2018 N=83, 17.55%

→ **Heavyweight Biosynthetic Absorbable Mesh (HBSA)** 2013-2019 N=261, 55.18%

→ **Lightweight Biosynthetic Absorbable Mesh (LBSA)** 2019-2021 N=111, 23.47%

- Groups didn't differ in age, BMI, sex, ASA, smoking, or hernia type
- Nissen fundoplications significantly decreased over time: Biologic (83.1%) > HBSA (52.9%) > LBSA (9.0%), p<0.001
- No differences in 30-day outcomes between groups: mortality (0.6% overall, p=0.56), complications (14.4% overall, p=0.09), ED visits (16.5% overall, p=0.62), readmission (9.9%, p=0.35)

	All Mesh	Biologic	HBSA	LBSA	p-value
Months to recur [Median (Q1-Q3)]	32 (17-54)	42 (17-72)	32 (18-50)	10 (6-13)	0.016[a,c]
Recurrence [N (%)]	79 (16.7)	20 (24.1)	46 (17.6)	5 (4.5)	<0.001[a,c]
<6 Months [N (%)]	4 (0.8)	1 (1.2)	2 (0.8)	1 (0.9)	0.933
<1 Year [N (%)]	11 (2.3)	4 (4.8)	4 (1.5)	3 (2.7)	0.322
<2 Years [N (%)]	27 (5.7)	8 (9.6)	12 (4.6)	5 (4.5)	0.187
<5 Years [N (%)]	62 (13.1)	13 (15.7)	40 (15.3)	5 (4.5)	0.011[a,c]
Follow-up, months [Median (Q1-Q3)]	60 (28-92)	116 (100-128)	62 (42-80)	10 (4-19)	<.001[a,b,c]

[a] Biologic vs LBSA p<0.05, [b] Biologic vs. HBSA p<0.05, [c] LBSA vs. HBSA p<0.05

Patient-Reported Outcomes Significantly higher Dysphagia scores (0-4) at 3-weeks postop with LBSA (2.4±0.9) compared to HBSA (1.9±0.9, p=0.036) mesh when controlling for choice of fundoplication and bougie; differences resolved by 6-months postop.
GERD-HRQL (typical GERD) & RSI (atypical GERD) scores did not differ at 3-weeks, 6-months, 1-year, or 2-years postop.

Discussion & Limitations No routine surveillance, difficult to define early vs late recurrences, recurrences may be asymptomatic or patients may leave the system.

Conclusion Laparoscopic PEH repair with mesh is feasible and safe, with equivalent recurrence rates and patient-reported outcomes, including dysphagia, for all three mesh types up to 2-years postop.

References
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