Comparative Long-term Effectiveness between Ventral Hernia Repairs with Absorbable and Synthetic Mesh

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Introduction

- Use of meshes for reinforcement greatly aids results of abdominal wall reconstructive surgery
- Alternative materials to synthetic have been developed aiming to decrease incidence of short-term complications and ultimately hernia recurrence

Purpose

- To compare the long-term effectiveness of utilizing synthetic mesh versus absorbable mesh for ventral hernia repair (VHR)

Methods

- 439 patients from UK were analyzed
- Included 101 patients with absorbable mesh (23%) and 338 patients with synthetic mesh (77%) in their ventral hernia repairs
- Local NSQIP data and electronic medical record review of VHRs from 2013-2018
- Looked at demographics, perioperative characteristics, comorbidities, mesh type, defect size, postoperative wound events to six months, duration of follow up, and hernia recurrence
- Longevity of repair was measured using Kaplan-Meier method and adjusted Cox proportional hazards regression

Results

- Absorbable mesh patients were older (57 years, SD = 13 vs. 52 years, SD = 13; p = .008)
- ASA Class ≥ III was more common in absorbable mesh cases (70.3% vs. 55.1%, respectively; p = .016)
- Absorbable more likely to have had prior abdominal infection (30.7% vs. 19.8%, p = .03) and open wound preoperatively (5.9% vs. 0.6%; p = .002)
- Median hernia defect size was greater among absorbable mesh cases (138 cm^2 vs $100cm^2$; p = .0140)
- Separation of components used with absorbable more (78.2% vs. 43.8%, p < .001)
- Similar percentages of superficial surgical site infections and hospital readmissions between groups
- Hernia recurrence occurred in 8 (7.9%) patients with absorbable mesh and 31 (9.2%) patients with synthetic mesh (ns)
- Adjusting for ASA Class III-IV, preoperative open wound, and separation of components, freedom from recurrence favored absorbable mesh (Recurrence Hazard Ratio for Absorbable vs. Synthetic Mesh 0.6, 95% CI 0.3-1.4, p = .291)

	Absorbable		Synthetic		All		
No. of Patients	101		338		439		
Outcome	n	%	n	%	n	%	p-value
Wound Event	33	32.7%	82	24.3%	115	26.2%	.095
Seroma	17	16.8%	31	9.2%	48	10.9%	.044
Superficial SSI	7	6.9%	25	7.4%	32	7.3%	1.000
Deep SSI	11	10.9%	33	9.8%	44	10.0%	.709
Mesh infection	1	1.0%	8	2.4%	9	2.1%	.691
Related Readmission	22	21.8%	67	19.8%	89	20.3%	.674
Recurrence	8	7.9%	31	9.2%	39	8.9%	.843
Median Follow-up, years [IQR]	1.3	0.2-3.1	0.6	0.1-2.3	0.7	0.1-2.4	< .001

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Conclusions

- Despite increased risk factors, patients that had absorbable mesh placed during open VHR did not have a significantly increased incidence of recurrence compared to synthetic mesh patients
- Suggests absorbable mesh may be successfully utilized in a more complex subset of patients requiring ventral hernia repair

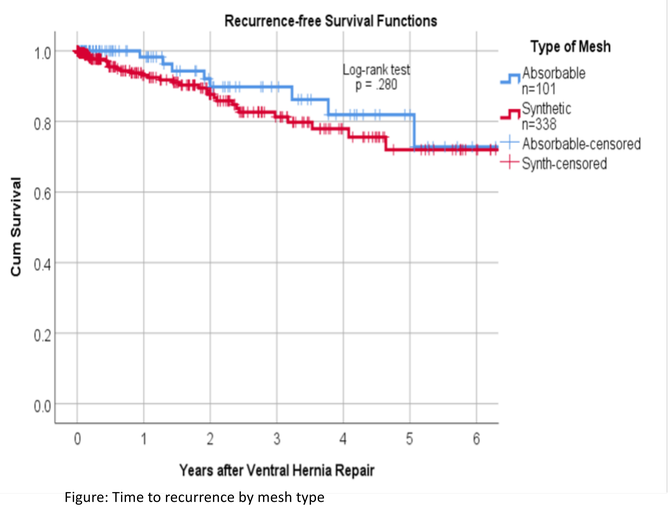


Figure: Time to recurrence by mesh type

References

- Montgomery, A. "The Battle between Biological and Synthetic Meshes in Ventral Hernia Repair." *Hernia : The Journal of Hernias and Abdominal Wall Surgery* 17.1 (2013): 3-11. Web.