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Ventral Incisional Hernia Repair With Synthetic Versus Biosynthetic Mesh; Retrospective Comparative Analysis From a Tertiary Reference Center.

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Background

Developed in 2010's, biosynthetic mesh made from Poly-4-Hydroxybutyrate (P4HB) is fully absorbable after 12-18 months. Its long absorption time is considered to offer an optimal trade-off between lowering ventral incisional hernia (vIH) recurrence, with lower infectious complications compared to synthetic material.

Aim of this study was to retrospectively compare outcomes of vIH repair with biosynthetic mesh (BS) versus synthetic mesh (S) in a tertiary referral center.

Patients and Methods

Primary endpoint: SSO (surgical site occurences): seroma, infection or hematoma in the surgical site.

Direct univariable comparisons were performed with x^2 ,Fisher's test and Mann-Whitney U test, whereas the Kaplan-meier method and log-rank test assessed recurrence. Multivariable logistic regression was used to identify independent predictors of SSO.

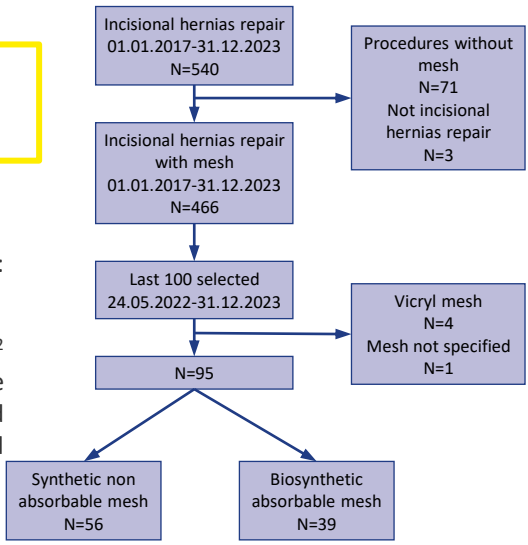

Fig. 1 Study flowchart

Results

- 95 patients were included in the present study (57.9% males, mean age 63±14years). 56 (58.9%) patients were in the S and n=39 (41.1%) in the BS group (Figure 1)
- No differences in baseline characteristics or comorbidities between S and BS patients
- **Surgical characteristics**: > 90% were open, elective procedures in both groups.
- The mesh was placed in a sublay position in 61% of S patients, and onlay in 51% of BS patients ($p<0.001$): accordingly, more subcutaneous drains were placed in the BS group (2.15 BS vs 1.27 S, $p<0.001$).
- Mesh type was not predictive of SSO in multivariable analysis (aOR 0.67, 95%CI 0.23-1.94).
- vIH recurrence was observed in 5.4% S vs 7.7% BS patients (p=0.687) during follow-up, with similar mean time-to-recurrence times (456d S versus 625d BS, p=0.100).

	S group N=56	BS group N=39	P-value
Overall SSO	27 (48.2%)	17 (43.6%)	0.657
Seroma	**14 (25%)**	**2 (5.1%)**	**0.011**
Hematoma	10 (17.9%)	4 (10.2%)	0.304
SSI			0.102
Superficial	4 (7.1%)	7 (17.9%)	
Deep	2 (3.6%)	4 (10.2%)	
Overall complications	25 (44.6%)	22 (56.4%)	0.398
90-day readmissions	2 (3.6%)	7 (17.9%)	0.019

Conclusion

vIH repair with a slowly absorbable biosynthetic mesh was associated with lower seroma formation, but similar overall SSO and recurrence rates as non-absorbable synthetic mesh.