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## Elective Epigastric Hernia Repair – A Nationwide Registry-Based Study of Long-Term Recurrence, Mesh-Related, and Other Complications

**Aim:** To thoroughly investigate reoperation for hernia recurrence and mesh-related complications following elective primary epigastric hernia repair (EHR).

**Material and Methods:** A retrospective nationwide study of all patients who underwent EHR (n = 1,112) from 2011 to 2020. All patients who underwent reoperation were followed up through nationwide registries and medical files. The primary and secondary outcomes were operations for recurrence and other complications, respectively. Severe complications included late mesh infection, ileus, gastrointestinal perforation, and life-threatening bleeding.

**Results:** Among 1,112 patients, 69.1% underwent mesh repair (open onlay: 38.2%, open sublay: 16.9%, or laparoscopic-intraperitoneal (Lap-IPOM): 13.9%). In total 49 (4.4%) were reoperated due to a complication during follow-up. Follow-up was 99.9%, median 4.9 years. No early (<90 days) non-recurrence reoperations

occurred after sublay, contrary to onlay, n=7 (1.6%), suggesting a higher risk (OR 5.73 (0.73-259.32); p=0.081) compared with suture repair. Mesh reduced operation for hernia recurrence compared to suture repair; in subgroup analysis sublay (zero recurrences) and Lap-IPOM caused this reduction. Mesh repair increased the long-term risk of non-recurrence reoperations compared to suture; onlay and Lap-IPOM constituted this increase. Mesh-related reoperations were rare; onlay n=9 (2.1%), sublay n=1 (0.5%), and Lap-IPOM n=2 (1.3%). The number of severe complications was none after suture and sublay, three (0.7%) after onlay, and two (1.3%) after Lap-IPOM.

**Conclusion:** Mesh reduced recurrences after EHR, while leading to operations for other complications. Contrary to sublay, onlay caused more early reoperations. Sublay and Lap-IPOM reduced recurrence most effectively, while onlay and Lap-IPOM were associated with non-recurrence complications. Severe and mesh-related complications were rare.

Reoperation for...	Suture vs Mesh	Suture vs onlay	Suture vs sublay	Suture vs Lap-IPOM
... recurrence	HR 0.25 p = 0.009	HR 0.42 p = 0.079	-	HR 0.08 p = 0.027
... non-recurrence	HR 5.31 p = 0.034	HR 6.72 p = 0.018	HR 1.89 p = 0.550	HR 6.93 p = 0.018

