Operative Techniques in Ventral/Incisional Hernia Repair

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Introduction

- The ideal operative technique in ventral/incisional hernia repair with mesh is debated

Methods

- Systematic review
- PubMed and Embase queried – 193 unique articles on ventral hernia repair – 7 specifically addressed operative techniques and were evaluated

Reference	Aim	Type of study	Outcome
Li, J., et al. (2022). "The Comparison of eTEP and IPOM in Ventral and Incisional Hernia Repair: A Systematic Review and Meta-analysis." Surg Laparosc Endosc Percutan Tech **32**(2): 252-258.2	• To compare efficacy and safety of eTEP and IPOM in ventral and incisional hernia repair	• Systematic review and meta-analysis	• eTEP with longer operative time than IPOM • eTEP with less early post op pain than IPOM • eTEP with shorter hospital stay compared to IPOM • No difference in incidence of hernia recurrence, seroma, hematoma, intraoperative complication, or post operative ileus
Aliseda, D., et al. (2022). "Short-term outcomes of minimally invasive retromuscular ventral hernia repair using an enhanced view totally extraperitoneal (eTEP) approach: systematic review and meta-analysis." Hernia **26**(6): 1511-1520.	• To evaluate safety and short term outcomes of eTEP for ventral hernia repair	• Systematic review and meta analysis	• Low rates of surgical sight infection, seroma, or other major postoperative complication • Low rate of intraoperative complication • Low 6 month recurrence rate (1% with 6 mo median follow up)
Köckerling, F., et al. (2018). "Treatment of Large Incisional Hernias in Sandwich Technique - A Review of the Literature." Front Surg **5**: 37.	• To analyze patient outcomes following mesh sandwich technique	• Systematic review	• Low recurrence rate (0-13% with follow up 1-7 years) • High rate of wound complications (68%)
Tryliskyy, Y., et al. (2023). "Systematic review and meta-analysis comparing ventral hernia repair using minimally-invasive extended totally extraperitoneal repair versus intraperitoneal onlay mesh repair." Pol Przegl Chir **95**(4): 1-5.	• To compare safety and effectiveness of eTEP and IPOM in patients undergoing minimally invasive ventral hernia mesh repair	• Systematic review and meta analysis	• No difference in rate of major postoperative complication. • Operative time longer in eTEP in IPOM • eTEP was associated with less postoperative pain at 24 hr and 7 days after surgery.
Soare, A. M., et al. (2021). "Complications of Intraperitoneal Mesh Techniques for Incisional Hernia - A Systematic Review." Chirurgia (Bucur) **116**(6 Suppl): S36-s42.	• To evaluate post operative complication and recurrence rate following IPOM	• Systematic review	• Most frequent post-operative complication is seroma with incidence up to 21% • Surgical site infection is second most common 1.3 - 18% • Hematoma incidence 2.3% • Rate of recurrence 3.2 - 20% • Low rates of EC fistula, mesh infection, and adhesive small bowel obstruction
Sosin, M., et al. (2018). "The Perfect Plane: A Systematic Review of Mesh Location and Outcomes, Update 2018." Plast Reconstr Surg **142**(3 Suppl): 107s-116s.	• To compare outcomes and complications by location of anatomic mesh placement (onlay, interposition, retromuscular, underlay) following ventral hernia repair	• Systematic review	• Underlay and retromuscular position were the most common • Prosthetic mesh more common than biologic. • At median follow up 37.5 months the mean recurrence rate was 8.3% (Retromuscular 5.8% , Underlay 10.9% , Onlay 12.9%, Interposition 21.6%) • Biologic mesh had higher recurrence rate than synthetic
Maatouk, M., et al. (2023). "Can ventral TAPP achieve favorable outcomes in minimally invasive ventral hernia repair? A systematic review and meta-analysis." Hernia **27**(4): 729-739.	• To evaluate the outcomes of patients who received minimally invasive TAPP VHR and compare to IPOM and eTEP	• Systematic review and meta analysis	• Ventral TAPP had lower level of post operative pain, reduced average cost, decreased surgical site infection compared to IPOM • Ventral TAPP consumed less operative time and shorter hospital stay than e-TEP

Conclusions

- Retro muscular and underlay mesh position - lowest rate of recurrence
- Open approach - higher rate of recurrence and wound complications than MIS approach
- Longer operative time in eTEP compared to IPOM
- Less post op pain and shorter hospital LOS in eTEP compared to IPOM
- TAPP had less post op pain, reduced cost, lower rates of surgical site infection compared to IPOM
- TAPP consumed less operative time and had shorter length of stay compared to compared to eTEP
- MIS approach to ventral hernia repair with mesh placement in the retro muscular or underlay position has demonstrated benefit but the ideal MIS technique remains unclear