Outcomes of Robotic eTEP vs. TARM approaches for Midline Ventral Hernia Repair: Insights from a Large ACHQC Cohort

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Introduction

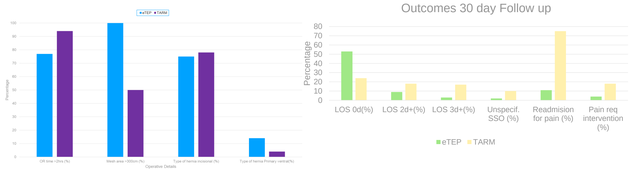
The evolution of midline ventral hernia repair has advanced from traditional open techniques to minimally invasive robotic approaches, notably the trans-abdominal retromuscular (TARM) and enhanced-view totally extraperitoneal (eTEP) methods. In a prior study, we compared these two techniques based on a single surgeon's experience, demonstrating how eTEP was associated with a larger area of implanted mesh, reduced hospital length of stay and postoperative pain compared to TARM. This current study aims to expand on these findings by utilizing a larger dataset from the Abdominal Core Health Quality Collaborative (ACHQC) database, allowing for a more robust comparative analysis.

Methods

A retrospective analysis was conducted on adult patients who underwent robotic retromuscular midline ventral hernia repair recorded in the ACHQC database between 2019 - 2023. After inclusion criteria, 479 patients were identified: 27 underwent TARM approach and 452 the eTEP approach. The primary outcomes were mesh area, hospital length of stay, operative time and postoperative pain scores. Secondarily, the type of hernia repaired, 30-day readmission, and surgical site occurrence (SSO) were also studied.

Results

The eTEP group demonstrated a significantly shorter median hospital length of stay compared to the TARM group (0.5 vs. 1.2 days; *p=0.002*). Postoperative pain was also better in the former (median pain score: 2.1 vs. 3.4; *p=0.01*). The median hernia width was 5cm in both groups. Additionally, the eTEP approach also allowed for a larger average area of mesh implanted (700 cm^2 vs. 330 cm^2; *p<0.001*). While not statistically significant, the analysis also revealed a lower incidence of surgical site occurrences (SSO) at 30-days in the eTEP group (17%) compared to TARM (19%). Both 30-day readmissions and type of hernia repaired were comparable between the groups; however, notably, the TARM group had more incisional hernias, while the eTEP group had more primary ventral hernia repairs, including epigastric and umbilical.



Conclusions

The eTEP approach is associated with a shorter hospital length of stay, reduced postoperative pain, and a larger area of mesh implantation. These findings, now reinforced by a larger cohort from the ACHQC database, corroborate our previous single-surgeon study. The statistically significant advantages of the eTEP technique suggest it may offer superior outcomes for midline ventral hernia repairs. Further research is recommended to evaluate long-term impacts and refine patient selection criteria for each approach.

References

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