

Laparoscopic Intraperitoneal Onlay Mesh (IPOM) vs Robotic Retromuscular (RM) for Small and Medium-Sized Ventral Hernia Repair: A Systematic Review and Meta-Analysis

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Introduction

This study aims to perform a systematic review and meta-analysis to compare the laparoscopic intraperitoneal onlay mesh (IPOM) versus the robotic retromuscular (RM) techniques and their respective outcomes for small and medium-sized ventral hernia repair.

Material & Methods

A comprehensive online search was conducted using PubMed, Cochrane, and Embase. Studies comparing laparoscopic IPOM to robotic RM techniques were included. The results analyzed were the length of stay (LOS), surgical site infection (SSI), surgical site occurrence (SSO), readmission, and reoperation. Statistical analysis was performed with Review Manager 5.4 using a random-effects model.

Results

From 956 records, 3 retrospective observational studies were included, encompassing 1351 patients (laparoscopic IPOM n = 882; robotic RM n = 469). Primary hernias represented 63%, and 88% had horizontal defects between 3.1 and 3.4 cm (Figure 1). Overall analysis showed comparable results between groups regarding LOS (MD 0.58 days; 95% CI -0.07 to 1.24 days; p = 0.08), SSI (RR 0.90; 95% CI 0.28 to 2.85; p = 0.85), and SSO rates (RR 1.07; 95% CI 0.17 to 6.55; p = 0.94).

Additionally, no statistically significant results were seen for readmission (RR 1.50; 95% CI 0.79 to 2.85; p = 0.21) and reoperation rates (RR 1.16; 95% CI 0.47 to 2.86; p = 0.74), as shown in Figure 2.

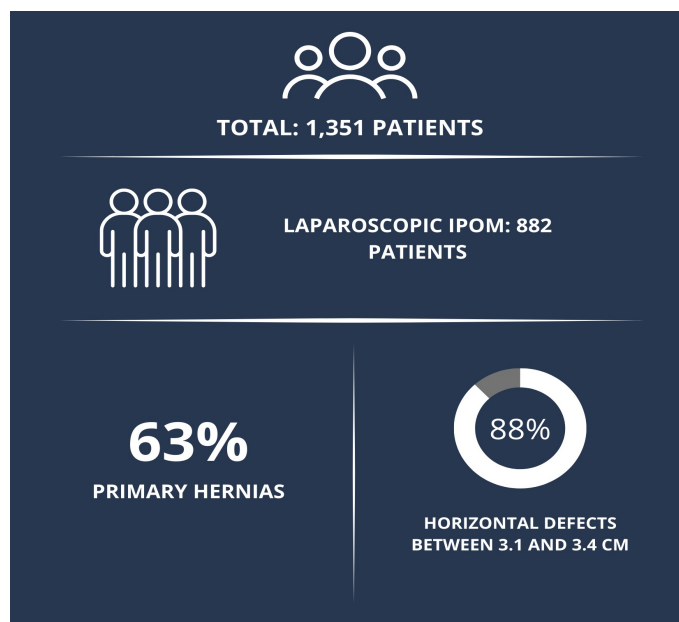


Figure 1. Summary of Patient distribution and key characteristics.

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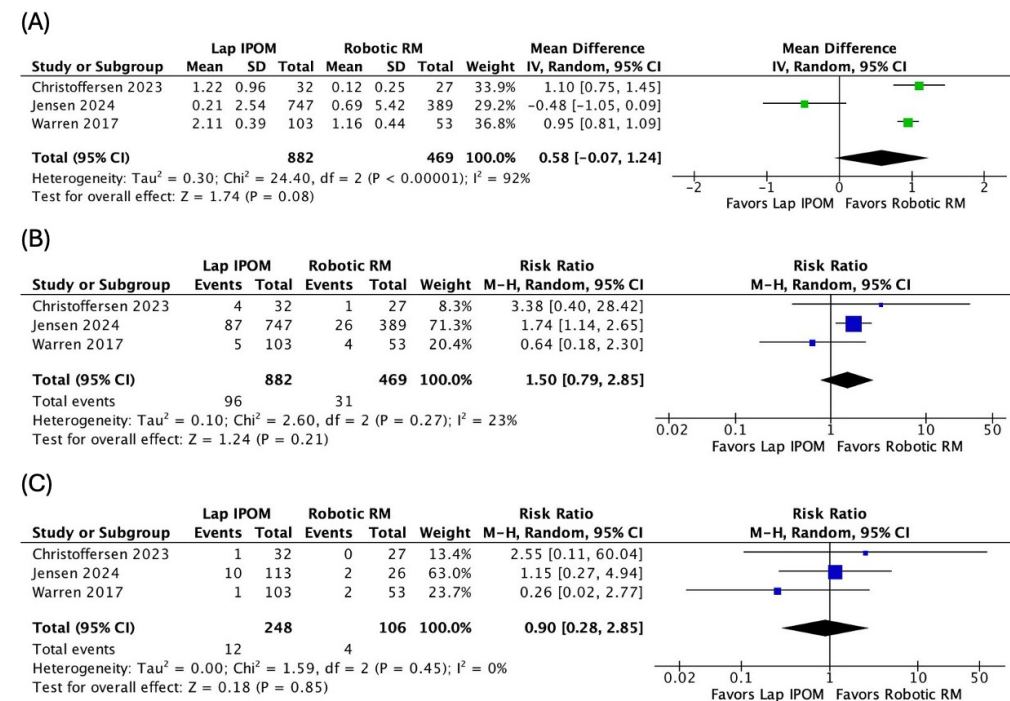


Figure 2. Laparoscopic intraperitoneal onlay mesh versus robotic retromuscular techniques for small and medium-sized ventral hernia repair were not significant between groups for (A) length of stay; (B) readmission; and (C) surgical site infection rates.

Conclusion

This meta-analysis found similar postoperative outcomes for both laparoscopic IPOM and robotic RM techniques. Future studies are still required to evaluate the role of these operative methods following small and medium-sized VHR.