

Current Evidence of Single-Port Laparoscopic versus Single Port-Robotic Techniques in Colorectal Surgery: A Meta-Analysis

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Abstract

Introduction: The primary aim of this meta-analysis was to compare the operative outcomes of single-port laparoscopic versus single-port robotic platforms in colorectal surgery.

Materials and Methods: A comprehensive literature search was conducted for studies comparing operative outcomes and short-term follow-up data of single-port laparoscopic versus single-port robotic colectomy. Data from eligible studies were extracted, qualitatively assessed, and included in a meta-analysis. Odds ratios (ORs) and mean differences with 95 per cent confidence intervals were calculated.

Results: Three studies with a total of 346 patients (Robotic: 112 cases versus Laparoscopic: 234 cases) were included. There was no statistical difference noted with regard to overall morbidity, length of hospital stay and intra- and postoperative complications between the two groups. However, the robotic approach resulted in higher lymph nodes yield in oncologic cases (SMD -0.25, 95% CI -0.50 to -0.01, $p = 0.04$, $I^2 = 0\%$).

Conclusion: Both single-port laparoscopic and robotic techniques appear to be safe and feasible options in colorectal surgery displaying comparable perioperative outcomes. Larger randomized controlled trials are needed to justify their application, particularly with regard to procedure-related costs.

Key words: colorectal surgery, minimally-invasive surgery, laparoscopic, robotic, outcome