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Is the transaction of the hernia sac during laparoscopic inguinal hernioplasty safe and feasible? A meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 November 2023 and was last updated on 17 November 2023.

INTRODUCTION

Review question / Objective This study systematically assessed the efficacy and safety of the transected sac (TS) compared to the completely reduced sac (RS) in laparoscopic tension-free repair of inguinal hernia through a meta-analysis approach.

Condition being studied This research aims to assess the effectiveness of two approaches—transecting versus completely reducing the hernial sac—during laparoscopic inguinal hernia repair. By conducting a meta-analysis, the study seeks to provide valuable insights into the optimal surgical management of the hernial sac, addressing an ongoing debate in the field and contributing to improved decision-making in inguinal hernia treatment.

METHODS

Participant or population Patients with inguinal hernia.

Intervention The experimental group received laparoscopic transection of the hernial sac.

Comparator The control group underwent complete reduction of the hernial sac under laparoscopy.

Study designs to be included Randomized controlled study or nonrandomized controlled study.

Eligibility criteria This research encompasses patients diagnosed with inguinal hernia.

Information sources Data sources for this review include Embase, PubMed, and the Cochrane Library.

Main outcome(s) Time to resume normal activities; Operation time; Incidence of hematoma; Incidence of acute postoperative pain; Recurrence rate; Overall postoperative complication rate.

Quality assessment / Risk of bias analysis Two authors independently assessed the risk of bias in the included studies, resolving any discrepancies through discussion or consultation with a third author. Quality evaluation of the randomized controlled trials (RCTs) followed the Cochrane Handbook for Systematic Reviews of Interventions 5.3 guidelines. This assessment encompassed random sequence generation, allocation concealment, blinding of participants, personnel, and outcome assessors, handling of incomplete outcome data, selective reporting, and other potential biases. Each item was categorized as low risk, unclear, or high risk.

Strategy of data synthesis Mean differences (MD) served as effect measures for continuous variables, and relative risks (RR) were utilized for dichotomous variables. A 95% confidence interval (CI) accompanied each effect measure. Statistical heterogeneity was assessed using the χ^2 test, with the degree quantified by I^2 . In the absence of significant statistical heterogeneity ($P > 0.10$, $I^2 \leq 50\%$), a fixed-effects model was employed for meta-analysis. For clinical heterogeneity, a random-effects model was used after addressing sources of heterogeneity. Sensitivity analysis involved systematically removing one study at a time to evaluate its impact on the combined effect. Publication bias was assessed through funnel plots when the number of included articles for a specific research indicator was ≥ 10 .

Subgroup analysis This analysis was carried out specifically for studies displaying significant heterogeneity.

Sensitivity analysis To assess the robustness of the findings, sensitivity analysis involved the systematic exclusion of individual studies, evaluating their influence on the overall results for each outcome indicator.

Country(ies) involved China.

Keywords Laparoscopic; Inguinal hernia; Hernia Sac; Meta-analysis.

Contributions of each author

Author 1 - Xi Li.

Author 2 - Yue-Juan Li.

Author 3 - Deng-Chao Wang.

Author 4 - Jian Wei.