

Title: Risk of Appendiceal Neoplasia and Outcomes in Nonoperative Complicated Appendicitis: A Meta-Analysis of Randomized Clinical Trials and Observational Studies



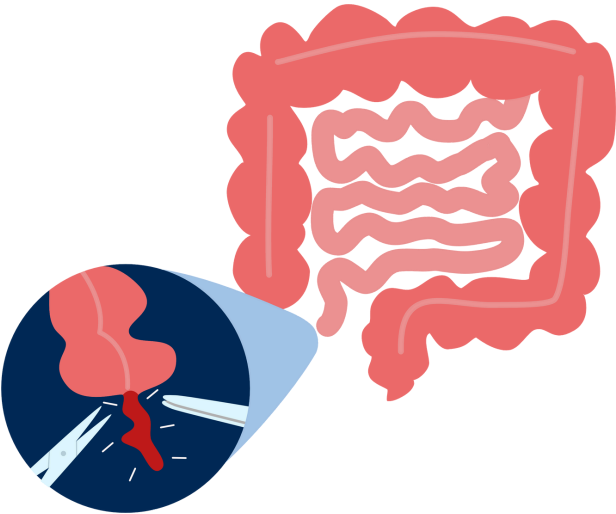
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BACKGROUND

Nonoperative management of complicated appendicitis is increasingly adopted, yet the role of interval appendectomy (IA) remains debated due to concerns about occult neoplasia, recurrence, and procedure-related morbidity. Comprehensive analyses of these outcomes are essential to guide surgical and oncologic decision-making.

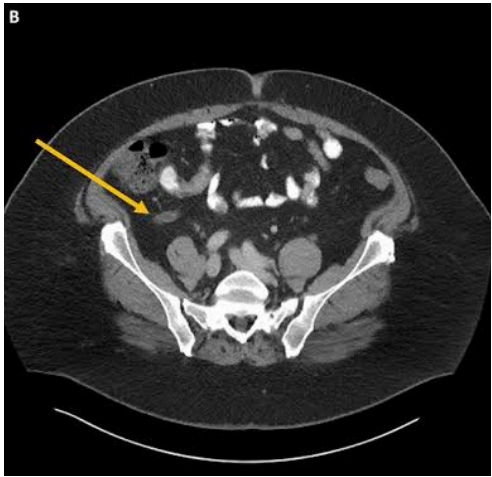
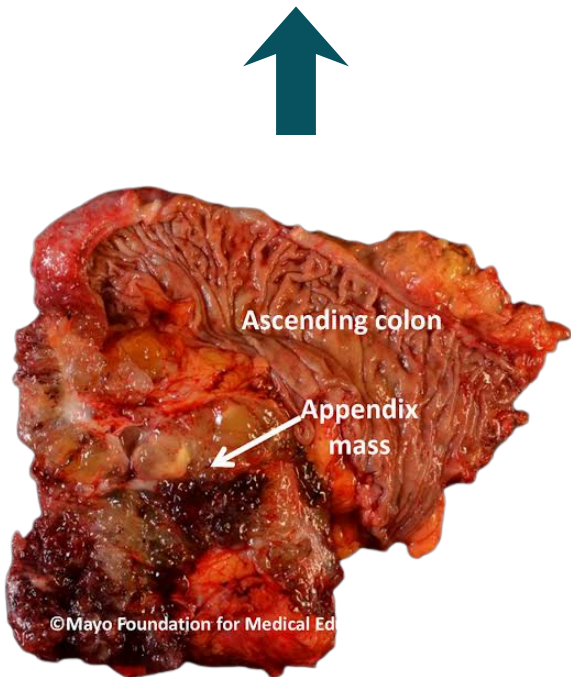
RESULTS

Across 8 studies, the pooled neoplasia incidence in single-arm analysis was 6% (95% CI, 2%–17%), with heterogeneity noted. Recurrence was uncommon (2%, 95% CI, 1%–3%). Comparative analysis showed IA significantly reduced recurrence (RR 0.09, 95% CI, 0.01–0.63; $p=0.016$) without significantly increasing missed malignancy (RR 0.17, 95% CI, 0.01–1.90) or overall complications (RR 3.00, 95% CI, 0.33–27.23). Surgical complexity occurred in 12% of IA cases (95% CI, 2%–53%), with readmissions at 19% (95% CI, 12%–30%). Sensitivity analyses confirmed consistent results.



METHODOLOGY

We systematically searched PubMed, Scopus, Embase, and Cochrane databases (through 2025). Out of 705 records, 8 eligible studies (adults ≥ 18 years) were included. Primary outcomes were incidence of appendiceal neoplasia, recurrence, and missed malignancy; secondary outcomes were complications, surgical complexity, readmission, and length of stay. Pooled estimates were calculated using random-effects models, incorporating both Single-arm and Comparative analyses. Sensitivity analyses assessed robustness.



CONCLUSION

Interval appendectomy substantially reduces recurrence with an acceptable safety profile, supporting its role in selected patients after nonoperative management of complicated appendicitis. While the absolute incidence of appendiceal neoplasia is low, its clinical significance underscores the need for careful surveillance and individualized decision-making. Future prospective trials are warranted to refine risk stratification and optimize treatment pathways.

