

Piecemeal resection and advanced histology independently predict local recurrence after colorectal snare-based endoscopic resection: a time-to-event cohort study

Study Protocol and Statistical Analysis Plan

February 24, 2026

Brief summary

This retrospective time-to-event cohort study aims to identify clinical, endoscopic, and histopathological variables associated with local recurrence after colorectal snare polypectomy. The study includes 255 consecutive adult patients who underwent snare-based colorectal polypectomy at a tertiary referral center between 2023 and 2025 and completed at least one surveillance colonoscopy. The primary outcome is local recurrence at the previous resection site. Secondary outcomes include metachronous adenoma and procedure-related adverse events. Time-to-event analyses will be performed to identify independent predictors of recurrence.

Detailed description

Endoscopic resection is one of the main strategies for colorectal cancer prevention. Snare polypectomy, with or without electrocautery, is widely performed; however, predictors of post-resection local recurrence remain incompletely understood.

This study is a retrospective observational cohort conducted at Hospital das Clínicas, Ribeirão Preto Medical School, University of São Paulo. We included consecutive adult patients who underwent colorectal snare polypectomy between 2023 and 2025 and completed at least one surveillance colonoscopy.

Lesions were characterized according to size, location, Paris classification, resection technique (en bloc or piecemeal), and histopathological findings. Advanced histology was defined as high-grade dysplasia and/or intramucosal adenocarcinoma (Tis). Lesion size was dichotomized as <10 mm or ≥10 mm, based on the maximum lesion diameter per patient.

The primary outcome is local recurrence, defined as detection of adenomatous tissue at the previous resection scar or at the same topographic site. Time-to-event analyses using Kaplan-Meier and Cox proportional hazards models will be performed to identify independent predictors. Secondary outcomes include metachronous adenomas and procedure-related adverse events.

Study type

Observational

Observational study model

Cohort

Time perspective

Retrospective

Enrollment

255 participants

Study start date

January 2023

Primary completion date

December 2025

Study completion date

December 2025 (data analysis and follow-up completion)

Outcome measures**Primary outcome measure****Local recurrence**

- Definition: adenomatous lesion detected at the prior resection scar or same topographic site;
- Time frame: from index polypectomy to first surveillance colonoscopy (time-to-event analysis);

Secondary outcome measures**Metachronous adenoma**

- Definition: new adenomatous lesion detected at a site different from the original resection area;
- Time frame: at surveillance colonoscopy;

Procedure-related adverse events

- Includes: perforation, post-polypectomy syndrome, clinically significant delayed bleeding, 30-day readmission, need for surgery, and mortality;
- Time frame: within 30 days of index procedure;

Eligibility criteria**Inclusion criteria**

- Age ≥ 18 years;
- Underwent colorectal snare polypectomy (with or without electrocautery);
- Histopathological diagnosis available;
- At least one surveillance colonoscopy completed;

Exclusion criteria

- No post-polypectomy surveillance colonoscopy;
- Missing essential clinical or pathological data;

Sex

All

Gender based

No

Age limits

18 Years and older

Accepts healthy volunteers

No

Sampling method

Non-Probability Sample (Consecutive Sampling)

Study population

Adult patients undergoing colorectal snare polypectomy at a tertiary referral center between 2023 and 2025 who completed surveillance colonoscopy.

Study setting

Hospital das Clínicas, Ribeirão Preto Medical School, University of São Paulo – Ribeirão Preto, São Paulo, Brazil.

Statistical analysis plan

Descriptive statistics will summarize baseline characteristics. Time-to-event analyses will be conducted using Kaplan-Meier survival curves, with comparisons by log-rank test. Multivariable Cox proportional hazards regression models will identify independent predictors of local recurrence. Hazard ratios (HR) with 95% confidence intervals will be reported.

Analyses will focus primarily on local recurrence. Metachronous adenoma and adverse events will be analyzed descriptively and, when appropriate, using regression modeling.

Ethical oversight

The study protocol was reviewed and approved by the Research Ethics Committee of the Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto, University of São Paulo (HCFMRP-USP) (CAAE 94262925.8.0000.5440; Opinion No. 8.027.384).

Given the retrospective design, based exclusively on medical record review, with no direct patient contact and no study-related interventions, and considering the implementation of strict confidentiality safeguards, the Research Ethics Committee granted a waiver of informed consent.

All data were anonymized prior to analysis and handled in accordance with institutional regulations and the Brazilian General Data Protection Law (LGPD – Law No. 13.709/2018).