

Longitudinal risk of advanced colorectal neoplasia in patients with diverticulosis: a cohort study of consecutive colonoscopies

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Abstract

Purpose

Diverticulosis is the most frequent anatomical abnormality encountered at colonoscopy and is assumed to impair mucosal inspection, raising the concern that neoplasia is missed at the index procedure and declares itself later. This has not previously been examined longitudinally.

Methods

Retrospective cohort of adults undergoing at least two colonoscopies at a single tertiary centre between 2007 and 2015, classified by documentation of colonic diverticula at the index procedure. Advanced neoplasia was defined as an adenoma ≥ 10 mm, an adenoma with a villous component or high-grade dysplasia, or adenocarcinoma. The primary outcome was advanced neoplasia at any follow-up colonoscopy. Multivariable logistic regression adjusted for age, sex, smoking, index findings, bowel preparation and number of procedures.

Results

Of 600 patients, 198 (33.0%) had diverticulosis. They were older (67.8 ± 8.7 vs 64.6 ± 10.9 years, $P < 0.001$), more often male and more often ever-smokers. Polyp detection at the index procedure was comparable (90.4% vs 92.5%, $P = 0.360$), as was bowel preparation quality. Advanced neoplasia was identified at follow-up in 43.7% versus 49.3% ($P = 0.197$), high-grade dysplasia or carcinoma in 8.6% versus 11.2% ($P = 0.333$) and colorectal cancer in 5.6% versus 3.7% ($P = 0.296$). Diverticulosis was not independently associated with advanced neoplasia (adjusted odds ratio 0.89, 95% confidence interval 0.61–1.29, $P = 0.538$).

Conclusion

Diverticulosis was not associated with a detectable increase in advanced neoplasia at follow-up, although the confidence interval does not exclude a modest increase. In this surveillance population the data do not support shortening intervals for diverticulosis alone.

Introduction

Colonic diverticulosis is the most common anatomical abnormality identified at colonoscopy. Its prevalence rises steeply with age and approaches 50% beyond the seventh decade in Western populations, and it is encountered increasingly often as populations age (Violi et al. 2018).

Extensive diverticular disease makes colonoscopy technically demanding. Multiple diverticular orifices, luminal narrowing, fixed angulation and segmental spasm, particularly in the sigmoid colon, impede insufflation and scope advancement and may compromise fold-by-fold inspection on withdrawal (Witte and Enns 2007). Endoscopists have therefore long suspected that flat or subtle lesions concealed behind haustral folds or within distorted segments are more likely to be missed in these patients, and that colorectal cancer screening and surveillance may consequently be less effective. Support for this concern comes from a Danish population-based cohort in which the relative risk of proximal post-colonoscopy colorectal cancer was elevated among patients with diverticular disease (Troelsen et al. 2024).

A competing explanation is biological rather than technical: diverticulosis and colorectal neoplasia share risk factors, and chronic low-grade mucosal inflammation within diverticular segments has been proposed to favour neoplastic transformation. Cross-sectional studies addressing this have produced conflicting results. Two meta-analyses reported an excess of adenomas among patients with diverticulosis, but only in symptomatic and not in screening populations (Jaruvongvanich et al. 2017; Lee et al. 2019). Individual series have variously reported a higher adenoma yield (Gohil et al. 2012; Muhammad et al. 2014; Kim et al. 2019; Tomaoglu 2020), a lower cancer rate alongside higher polyp detection (Abu Baker et al. 2019), no association at all (Hirata et al. 2008; Meurs-Szojda et al. 2008; Peery et al. 2015a; Morini et al. 2017), and even a reduced adenoma frequency within the specific colonic segments harbouring diverticula (Levine et al. 2017). The question remains active rather than settled: four further studies appeared between 2023 and 2025, among them a screening cohort of 6,154 individuals, and none demonstrated an association with advanced neoplasia (Ray 2023; Fedeli 2024; Völkerer et al. 2024; Altiner et al. 2025).

A single limitation unites this literature, from the earliest series to the most recent: every study cited above is cross-sectional, resting on the findings of one colonoscopy. A cross-sectional design cannot distinguish a genuine difference in neoplastic burden from a difference in detection, and it cannot test the missed-lesion hypothesis directly, because a missed lesion is by definition visible only at a subsequent examination. No study has yet followed the same patients across successive procedures. We therefore examined whether patients with diverticulosis at index colonoscopy accumulate more advanced neoplasia across consecutive follow-up colonoscopies.

Materials and methods

Study design and population

We conducted a retrospective cohort study of all adults aged 18 years or older who underwent at least two colonoscopies at a single tertiary referral centre between 2007 and 2015. Patients were assigned to the diverticulosis group (DG) or the non-diverticulosis group (NDG) according to documentation of colonic diverticula in the index colonoscopy report. The indication for colonoscopy was held in a free-text field that existed once per patient, applying to the index procedure only; no indication was recorded

for any subsequent colonoscopy. That field was populated in 183 of 600 records (30.5%). The proportion documented was similar in the two groups (28.3% vs 31.6%, $P = 0.408$). Among documented indications, rectal bleeding or iron-deficiency anaemia, previous colonic polyps and family history of colorectal cancer predominated, and elective screening was recorded in 5 patients.

Patients were excluded for inflammatory bowel disease, a polyposis syndrome, previous segmental or total colectomy, or unavailable records. Where a patient contributed overlapping records, only the first complete series was retained. The study is reported in accordance with the STROBE statement (von Elm et al. 2008).

Ethical approval

The study was approved by the institutional review board and conducted in accordance with the Declaration of Helsinki. Because the design was retrospective and the dataset de-identified, the requirement for individual informed consent was waived by the committee.

Definitions and outcomes

Diverticula and polyps were classified as proximal if located at or proximal to the splenic flexure and distal if located beyond it. Because a patient may harbour polyps in more than one segment, segmental figures are reported as the proportion of patients with at least one polyp in that segment and therefore do not sum to 100%. For each procedure the largest polyp diameter and the most advanced histological diagnosis were recorded.

Advanced neoplasia was defined conventionally as an adenoma measuring 10 mm or more, an adenoma with a villous component or high-grade dysplasia, or adenocarcinoma. Because the size criterion dominates this composite in a referral cohort, a stricter secondary definition restricted to high-grade dysplasia or adenocarcinoma was analysed in parallel, together with adenocarcinoma alone.

The primary outcome was advanced neoplasia detected at any follow-up colonoscopy. Secondary outcomes were advanced neoplasia at each individual follow-up procedure, polyp detection rate, polyp number, largest polyp size, polyp histology and polyp location. Bowel preparation was graded by the reporting endoscopist on the three-point ordinal scale in routine use throughout the study period (good, fair, poor); the Boston Bowel Preparation Scale was not in use at this centre during these years.

Statistical analysis

Continuous variables are summarised as mean $\pm$ standard deviation or as median with interquartile range and were compared using the independent-samples t-test or the Mann-Whitney U test according to distribution, assessed by the Kolmogorov-Smirnov test. Categorical variables were compared using the Pearson chi-squared test, or Fisher's exact test where any expected cell count was below five.

Independent predictors of advanced neoplasia during follow-up were identified by multivariable logistic regression. Covariates were specified a priori on clinical grounds and comprised diverticulosis, age, sex,

ever-smoking, advanced neoplasia at the index procedure, number of polyps at the index procedure, poor bowel preparation at the index procedure and the number of colonoscopies performed. Results are presented as odds ratios with 95% confidence intervals. Largest polyp diameter was deliberately not entered as a covariate because it is a component of the composite outcome; the index advanced-neoplasia term captures this information without circularity. The number of colonoscopies was included as an ascertainment term rather than as a hypothesised risk factor. The outcome was ascertained across a variable number of procedures, and a patient examined more often has correspondingly more opportunities for a lesion to be detected; omitting this term would allow differences in surveillance intensity to be attributed to the exposure. Its coefficient should therefore not be interpreted causally. Because conditioning on a variable measured after baseline can itself introduce bias, the model was additionally fitted without this term, and with total observed follow-up substituted for it.

Two sensitivity analyses addressed the possibility that the groups had been referred for different reasons. The first repeated the primary analysis in the subgroup with no advanced neoplasia at the index procedure, which removes any baseline imbalance in lesion burden at source. The second repeated the multivariable model in the subgroup with a documented indication, entering indication category as an additional covariate. A two-sided P value below 0.05 was considered statistically significant. No adjustment was made for multiple comparisons, and secondary analyses should therefore be regarded as exploratory. Values identified as physically implausible during data cleaning (19 polyp diameters of 100 mm or greater, and four records in which the polyp-count field contained the local code denoting innumerable polyps) were treated as missing for the corresponding analyses. Analyses were performed in SPSS version 27 (IBM Corp., Armonk, NY, USA).

Results

Cohort and baseline characteristics

Of 682 patients assessed for eligibility, 600 met the inclusion criteria and were analysed: 198 (33.0%) in the DG and 402 (67.0%) in the NDG (Fig. 1). Patients in the DG were older (67.8 ± 8.7 vs 64.6 ± 10.9 years, $P < 0.001$), more often male (68.2% vs 58.2%, $P = 0.018$) and more often current (15.2% vs 6.7%) or ever (27.8% vs 15.9%, $P < 0.001$) smokers. Antihypertensive therapy (77.3% vs 63.7%, $P < 0.001$) and chronic analgesic use (17.7% vs 2.0%, $P < 0.001$) were more frequent in the DG, whereas ischaemic heart disease was more frequent in the NDG (16.2% vs 9.1%, $P = 0.018$). Other comorbidities and medications did not differ (Table 1).

Diverticula were confined to the sigmoid or left colon in 140 patients (70.7%), were pancolonic in 34 (17.2%), involved the left colon together with an additional segment in 4 (2.0%) and were isolated to the right colon in 1 (0.5%); the segment was not specified in 19 (9.6%). Patients underwent a median of 3 colonoscopies in both groups. The median interval between consecutive procedures was 3 years and did not differ between groups at any transition ($P = 0.450$ and $P = 0.236$ for the first and second intervals

respectively). Total observed follow-up, from the index procedure to the last recorded colonoscopy, was also similar (median 4 years, interquartile range 3-8, vs 5 years, interquartile range 3-8; $P=0.276$).

Index colonoscopy

Polyp detection at the index procedure was high in absolute terms in both groups and did not differ between them (90.4% vs 92.5%, $P=0.360$), as was the proportion of examinations rated as having good bowel preparation (54.3% vs 57.7%, $P=0.431$) or poor preparation (7.1% vs 5.0%, $P=0.290$). The polyp burden, however, differed. Patients in the NDG had larger lesions (median 10 mm, interquartile range 5-15, vs 7 mm, interquartile range 4-10; $P<0.001$), were more likely to harbour a polyp of 10 mm or more (50.8% vs 37.1%, $P=0.003$), and more often met criteria for advanced neoplasia (61.9% vs 52.8%, $P=0.032$) and for high-grade dysplasia or carcinoma (19.7% vs 10.7%, $P=0.006$). The rate of adenocarcinoma alone did not differ (8.7% vs 6.1%, $P=0.263$). The proportion of patients with at least one proximal polyp (39.9% vs 39.5%, $P=0.934$) and at least one distal polyp (57.9% vs 53.8%, $P=0.366$) was similar (Table 2).

The indication for the index procedure was documented in 183 patients (30.5%), similarly often in the two groups (28.3% vs 31.6%, $P=0.408$). Among those documented, the overall distribution of indications did not differ significantly ($P=0.120$), but previous colonic polyps were recorded more than twice as often in the NDG (34.6% vs 16.1%, $P=0.011$).

Advanced neoplasia during follow-up

Advanced neoplasia was detected at some point during follow-up in 86 of 198 patients with diverticulosis (43.7%) and 198 of 402 without (49.3%; $P=0.197$). High-grade dysplasia or carcinoma occurred in 8.6% versus 11.2% ($P=0.333$) and colorectal cancer in 5.6% versus 3.7% ($P=0.296$).

The same pattern held at each individual procedure. Advanced neoplasia was identified in 29.9% of the DG versus 36.3% of the NDG at the second colonoscopy ($P=0.123$), 31.8% versus 23.2% at the third ($P=0.060$) and 26.4% versus 23.4% at the fourth ($P=0.659$). Corresponding rates of high-grade dysplasia or carcinoma were 5.1% versus 6.7%, 5.3% versus 3.9% and 5.7% versus 5.1%, none of which differed significantly (Table 3). Confidence intervals for the two groups overlapped substantially at every round (Fig. 2). Polyp detection rates and bowel preparation quality remained comparable at every round.

Scattered histological differences were observed. At the second colonoscopy, tubulovillous adenoma with low-grade dysplasia (15.1% vs 27.4%, $P=0.003$) and high-grade dysplasia (1.3% vs 5.7%, $P=0.028$) were less frequent in the DG and hyperplastic polyps more frequent (15.1% vs 8.0%, $P=0.017$); at the third, tubular adenoma with low-grade dysplasia was less frequent (45.6% vs 63.8%, $P=0.004$). These differences were inconsistent in direction and not sustained at the fourth procedure.

Multivariable analysis

The multivariable model was built to test whether diverticulosis predicted advanced neoplasia during follow-up once the unequal baseline characteristics of the two groups had been accounted for. It did not. The adjusted odds ratio for diverticulosis was 0.89 (95% confidence interval 0.61-1.29, $P=0.538$), essentially unchanged from the unadjusted comparison. Only two variables were independently associated with the outcome. The stronger by a wide margin was the number of colonoscopies a patient underwent, each additional procedure raising the odds of advanced neoplasia being found (odds ratio 1.80, 95% confidence interval 1.52-2.12, $P<0.001$); the second was age (odds ratio 1.02 per year, 95% confidence interval 1.00-1.04, $P=0.038$). Sex, smoking, the polyp burden at the index procedure and poor bowel preparation were not significant (Table 4). Repeating the model with the outcome restricted to high-grade dysplasia or carcinoma led to the same conclusion for diverticulosis (odds ratio 0.85, 95% confidence interval 0.45-1.59, $P=0.602$); in that model the independent predictors were age (odds ratio 1.04, $P=0.006$), male sex (odds ratio 1.92, $P=0.038$) and, again, the number of colonoscopies (odds ratio 1.56, $P<0.001$).

Sensitivity analyses

Restricting the cohort to the 246 patients with no advanced neoplasia at the index procedure, which removes the baseline imbalance in lesion burden entirely, advanced neoplasia during follow-up occurred in 39.8% of the DG and 45.1% of the NDG ($P=0.415$), with an adjusted odds ratio for diverticulosis of 0.96 (95% confidence interval 0.54-1.70, $P=0.889$). Repeating the multivariable model in the 182 patients with a documented indication, with indication category entered as a covariate, gave an adjusted odds ratio of 0.98 (95% confidence interval 0.46-2.07, $P=0.953$). Because the number of colonoscopies is an ascertainment term, the primary model was also fitted without it, giving an adjusted odds ratio for diverticulosis of 0.82 (95% confidence interval 0.57-1.17, $P=0.278$), and with total observed follow-up substituted for it, giving 0.84 (95% confidence interval 0.59-1.22, $P=0.361$). The estimate for diverticulosis therefore did not depend on how ascertainment was handled.

Discussion

Across 600 patients followed over multiple consecutive colonoscopies, the presence of diverticulosis at the index procedure was not associated with a greater burden of advanced neoplasia at any subsequent examination. The point estimate was, if anything, marginally below unity. Our data therefore fail to demonstrate an excess of advanced neoplasia in patients with diverticulosis, but they do not establish equivalence: the upper bound of the confidence interval, 1.29, remains compatible with a relative increase of approximately 30%, and the absolute risk difference of -6.1 percentage points carries a 95% confidence interval from -14.6 to +2.4 percentage points. What the data make unlikely is a large excess of the magnitude that would justify intensifying surveillance; a small increase cannot be excluded. The result was unchanged when advanced neoplasia was restricted to high-grade dysplasia or carcinoma, and when colorectal cancer alone was considered.

To our knowledge this is the first study to address the question longitudinally. That distinction matters, because the clinical anxiety about diverticulosis is fundamentally an anxiety about missed lesions, and a missed lesion is by construction invisible at the examination that missed it. A cross-sectional comparison, however large, cannot separate a true difference in neoplastic burden from a difference in detection; a longitudinal design can, because lesions overlooked at one procedure should surface, larger and more advanced, at the next. We did not observe that signal.

Two supporting observations argue in the same direction. First, polyp detection at the index procedure was essentially identical between groups (90.4% vs 92.5%). Second, bowel preparation quality was comparable throughout, which does not support the widely held assumption that altered colonic motility in diverticular disease systematically degrades preparation. Where mucosal exposure and detection are equivalent at baseline, the mechanistic premise of the missed-lesion hypothesis is weakened.

The absolute polyp detection rate deserves comment. At above 90% in both groups it is far higher than the 25% minimum adenoma detection rate set as a performance standard for lower gastrointestinal endoscopy (Kaminski et al. 2017), and higher than would be expected in any screening population. This reflects how the cohort was assembled rather than unusual endoscopic performance. Eligibility required at least two colonoscopies, which conditions the cohort on having had a reason to return, most commonly post-polypectomy surveillance; where the indication was documented, elective screening accounted for only 5 of 183 procedures, although the incompleteness of that field means it can corroborate rather than establish the point. The polyp detection rate as reported here also counts every polyp, including diminutive and hyperplastic lesions, and is therefore not interchangeable with the adenoma detection rate. The practical implication is that the absolute rates in this cohort describe a surveillance-enriched referral population and should not be transported to a screening setting. The internal comparison is unaffected: both groups were drawn from the same referral stream under the same eligibility rule and were examined by the same endoscopy team, so the enrichment applies equally to each.

It follows that these findings describe a surveillance population and should not be extrapolated to screening. Eligibility required at least two colonoscopies, polyp detection exceeded 90% in both groups, and post-polypectomy follow-up was the commonest documented indication, so these patients were already under active endoscopic care and carried a high baseline burden of neoplasia. Two features of such a cohort work in opposite directions: prior neoplasia raises the absolute rate of advanced neoplasia at follow-up in both groups, which improves precision, while the shared surveillance pathway narrows the difference in endoscopic exposure between them, which may attenuate any true effect. Whether diverticulosis affects the yield of a first screening colonoscopy in an average-risk population is a different question, which our design cannot address and which the recent screening cohorts speak to more directly.

Our findings sit comfortably with the recent literature. Peery et al found no association between colonic diverticula and adenomas or advanced adenomas in a prospective screening cohort (Peery et al. 2015b);

the Dutch series of 4,241 colonoscopies reached the same conclusion (Meurs-Szojda et al. 2008); and a large multicentre Italian screening study published in 2025 likewise found none (Fedeli 2024). They are harder to reconcile with the Danish registry finding of increased proximal post-colonoscopy colorectal cancer in diverticular disease (Troelsen et al. 2024). Several explanations are plausible. Registry analyses capture a population-level association in which diverticular disease may act as a marker for shared risk factors rather than a causal impediment to detection; their exposure is coded diverticular disease, weighted towards symptomatic and complicated presentations, whereas ours was endoscopically documented diverticulosis, most of it incidental. Our patients were also, by design, individuals who returned for further colonoscopy and so remained under active endoscopic care. A parallel literature on acute diverticulitis points in the same direction: although colonoscopy after an episode is recommended to exclude neoplasia, pooled prevalence data (Meyer et al. 2019) and a large national endoscopy registry analysis (Redd et al. 2024) indicate that the yield of colorectal cancer is low except in complicated disease.

This last point warrants emphasis rather than concealment. Patients without diverticulosis in our cohort carried a substantially heavier neoplastic burden at the index procedure: larger polyps, more lesions of 10 mm or greater, and more high-grade dysplasia. This is unlikely to be a biological finding and is better explained by referral patterns to a tertiary unit, where patients without diverticula are disproportionately referred for the resection of large or complex lesions. It has two consequences. The two groups were not exchangeable at baseline, which is precisely why the multivariable model adjusts for index advanced neoplasia; and the absence of an excess of advanced neoplasia in the diverticulosis group cannot be read as evidence that diverticulosis is protective. We would caution explicitly against that inference, which the present design cannot support. Two sensitivity analyses address the imbalance directly. Confining the analysis to patients with no advanced neoplasia at the index procedure removes it at source and leaves the result unchanged (adjusted odds ratio 0.96, 95% confidence interval 0.54-1.70); adjusting for the documented indication where it was recorded does likewise (adjusted odds ratio 0.98, 95% confidence interval 0.46-2.07). The null result is therefore unlikely to be an artefact of the two groups having been referred for different reasons.

The dominant predictor in both models was the number of colonoscopies performed, an association better understood as ascertainment than as risk: patients examined more often accrue more opportunities for a lesion to be found. This variable is best regarded as a necessary adjustment for ascertainment rather than a clinical finding, and its magnitude relative to every other covariate is a reminder of how strongly surveillance intensity shapes apparent neoplasia rates in observational endoscopic datasets. Because adjusting for a post-baseline variable can introduce bias of its own, we repeated the model without it and with follow-up duration in its place; the estimate for diverticulosis was essentially unchanged in both, so the conclusion does not rest on this choice.

The principal strength of this study is its design. Following each patient across successive procedures allowed the missed-lesion hypothesis to be tested directly rather than inferred from a single snapshot,

and confining the cohort to one unit meant that technique, reporting conventions and pathology assessment were consistent throughout.

The most important limitation concerns the indication for colonoscopy. It was documented in only 30.5% of records, and the field applied to the index procedure alone: no indication was recorded for any follow-up colonoscopy, so the reason each patient returned can be inferred only indirectly. The proportion missing was similar in the two groups, which argues against differential recording, but it cannot establish that the undocumented indications were distributed alike. Where the indication was recorded, post-polypectomy follow-up was more than twice as frequent in the group without diverticulosis, and this is the most plausible explanation for the heavier lesion burden that group carried at the index procedure. Because confounding of this kind inflates neoplasia in the comparator, it could in principle conceal a modest excess in the diverticulosis group rather than manufacture the null we observed. The two sensitivity analyses argue against that reading, since neither restricting the cohort to patients free of advanced neoplasia at index nor adjusting for documented indication moved the estimate, but neither substitutes for complete indication data, and residual confounding cannot be excluded. What can be said is that the two groups were followed comparably: intervals between procedures and total observed follow-up did not differ, so any difference in referral intent did not translate into a difference in surveillance intensity.

Other limitations should also be borne in mind. The study is retrospective and single-centre, which constrains generalisability, although the same feature delivers a uniform patient pathway and endoscopy team across the whole cohort. Body mass index was documented in fewer than 2% of records and could not be modelled, and endoscopist-level quality indicators, specifically adenoma detection rate and withdrawal time, were not captured during the study period; all procedures were nonetheless performed within a single high-volume unit by a stable team, which limits between-operator variation even though it does not substitute for measured indicators. Bowel preparation was graded on the three-point scale then in local use rather than the Boston Bowel Preparation Scale; this is less granular, but it was applied consistently by the same reporting team to both groups, and the comparison between groups is therefore preserved. Procedure dates in the diverticulosis group were often recorded to the year alone; intervals and total follow-up were therefore derived from the difference in calendar year, applied identically to both groups, which is sufficient to detect differences on the scale that would alter clinical practice. Histology was captured as a single most-advanced diagnosis per procedure rather than lesion by lesion; this prevents segment-level analysis of whether polyps arising within diverticula-bearing bowel differ from those arising elsewhere, as Levine et al have suggested (Levine et al. 2017), and that question remains open. No formal sample-size calculation was performed a priori, although with 283 events the primary model was comfortably specified; precision for the rarest outcomes is inevitably lower. Finally, no correction was applied for multiple comparisons, and the scattered histological differences between rounds were inconsistent in direction and are best read as hypothesis-generating.

Within these constraints the clinical message is straightforward. Diverticulosis complicates the mechanics of colonoscopy, and that difficulty is real, but in patients who remain within an established

surveillance programme we found no detectable increase in the subsequent yield of advanced neoplasia. For such patients, post-polypectomy surveillance intervals (Gupta et al. 2020; Hassan et al. 2020) should be determined by index polyp characteristics, as current guidelines specify, and we found no evidence justifying a shorter interval solely because diverticula are present. Whether the same holds at a first screening colonoscopy is a separate question that these data cannot answer. Prospective studies with lesion-level data, segment-specific analysis and standardised quality metrics will be needed to close the remaining gap between these findings and the registry data on post-colonoscopy colorectal cancer.

Declarations

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Competing interests The authors have no relevant financial or non-financial interests to disclose.

Ethics approval This retrospective study involving human participants was in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and its later amendments. The study was approved by the Institutional Review Board of Meir Medical Center (approval number 0208-18-MMC).

Consent to participate The Institutional Review Board waived the requirement for individual informed consent in view of the retrospective design and the use of a de-identified dataset.

Consent to publish Not applicable. The manuscript contains no individually identifiable data or images.

Data availability The datasets generated and analysed during the current study are not publicly available because they contain information that could compromise the privacy of individual patients, but are available from the corresponding author on reasonable request.

Author contributions Fabiana Benjaminov conceived the study, and study design was developed by Fabiana Benjaminov and Mayan Eitan. Data collection and statistical analysis were performed by Mayan Eitan. The first draft of the manuscript was written by Mayan Eitan. Fabiana Benjaminov and Yehuda Ringel critically revised the manuscript for important intellectual content. All authors commented on previous versions, and all authors read and approved the final manuscript.

Declaration of Generative AI Use: Generative AI tools (large language models) were used to assist with language editing, document formatting, and the design of the graphical abstract. No scientific data,

analyses, results, or their interpretation were generated by AI. All content was reviewed, verified, and approved by the authors, who take full responsibility for the integrity and accuracy of the manuscript.

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Tables

Figures

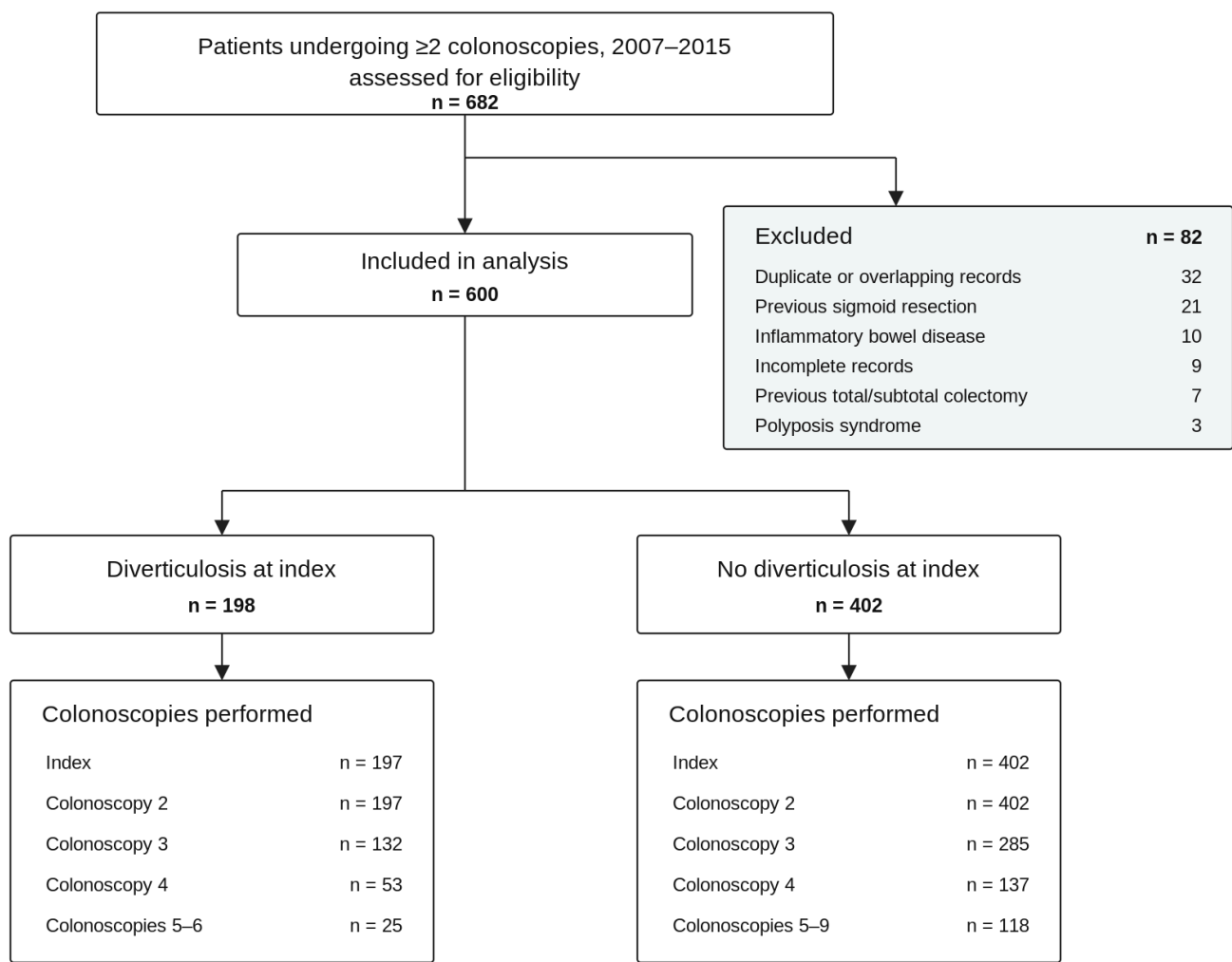


Figure 1

Study flow. Patients were assessed for eligibility if they underwent at least two colonoscopies at the study centre between 2007 and 2015, and were grouped according to documentation of colonic diverticula at the index procedure

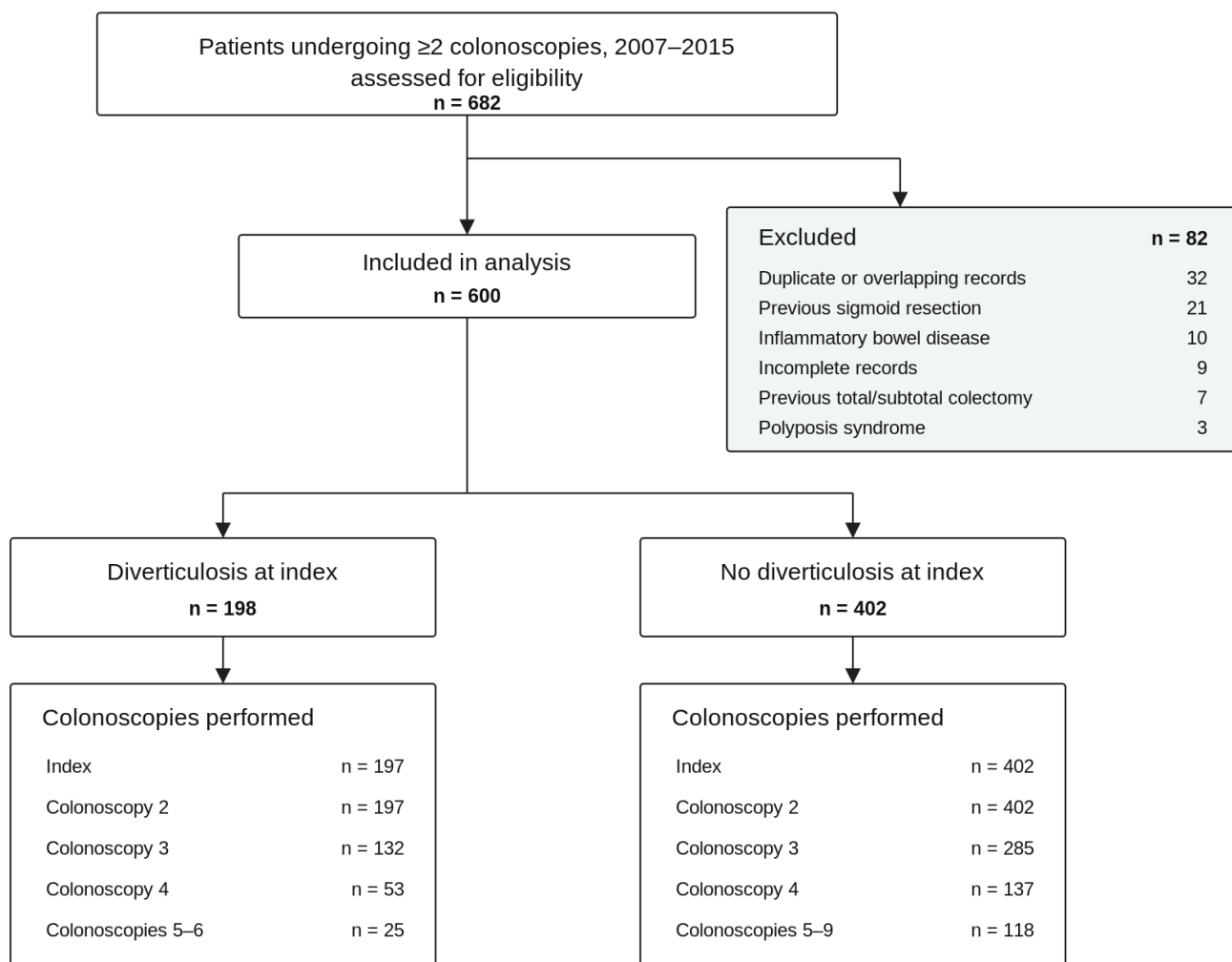


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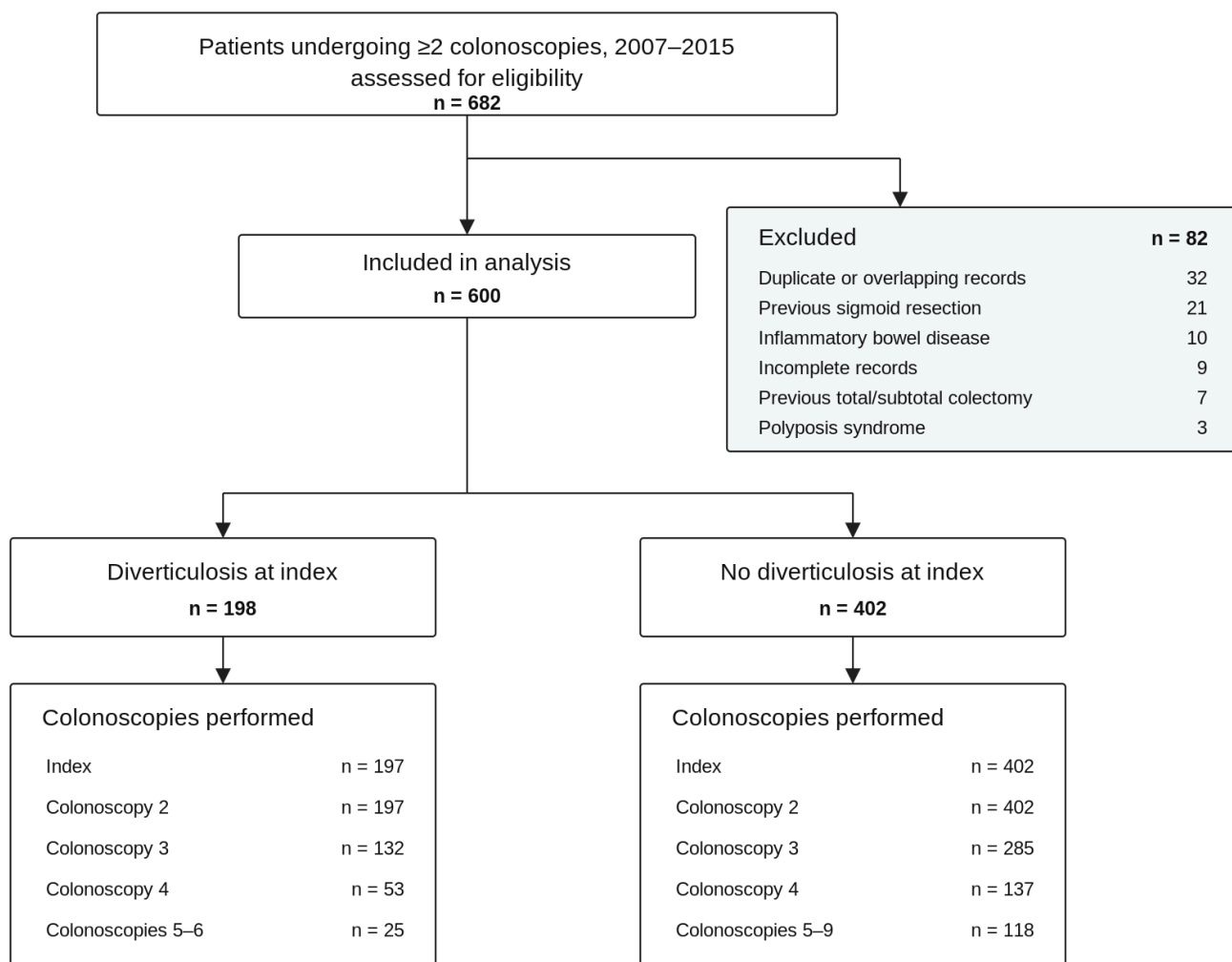


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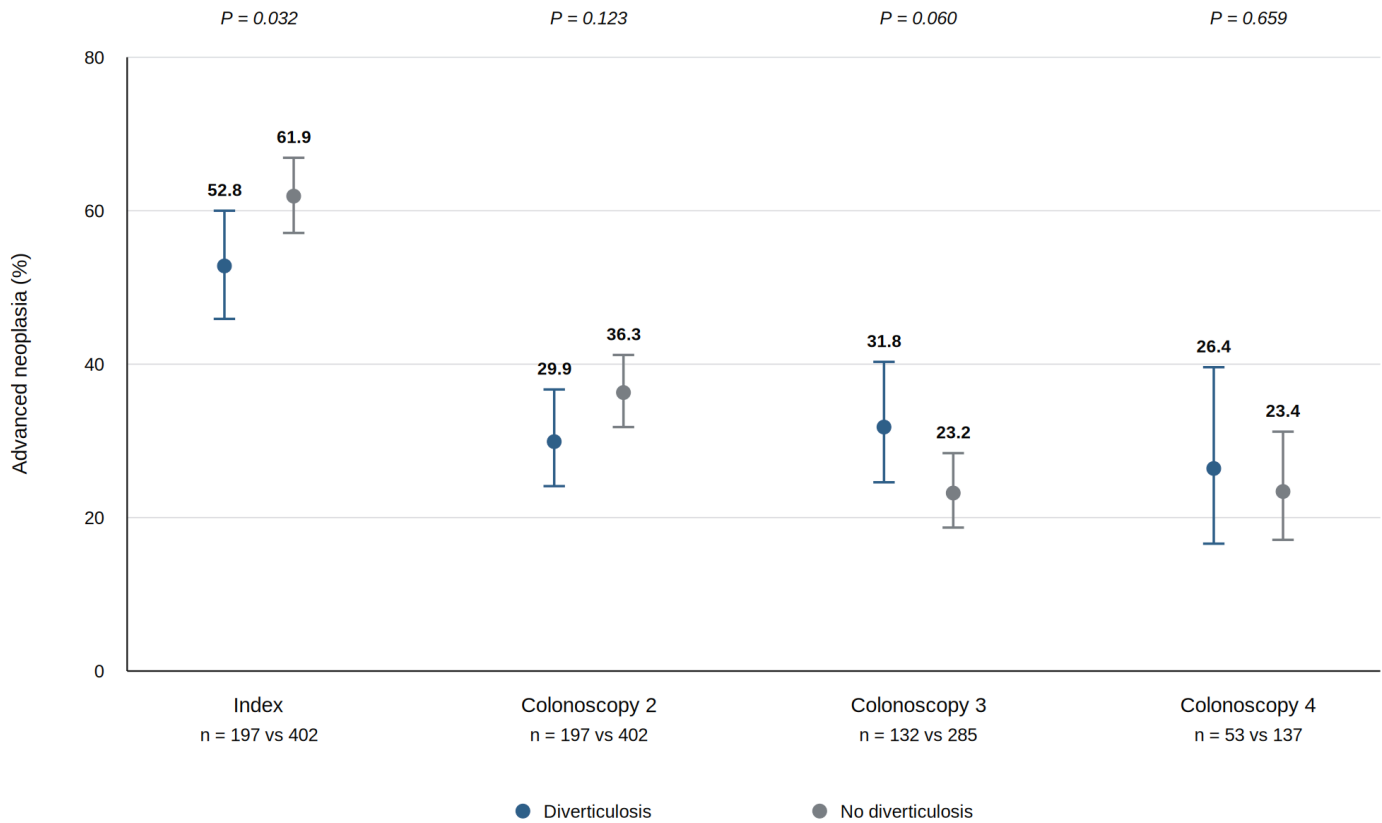


Figure 2

Rate of advanced neoplasia at each colonoscopy in patients with and without diverticulosis. Points show the proportion of patients in whom advanced neoplasia was identified; bars are 95% Wilson confidence intervals. Advanced neoplasia is defined as an adenoma ≥ 10 mm, an adenoma with a villous component or high-grade dysplasia, or adenocarcinoma. Denominators comprise the patients who underwent each procedure. No comparison at any follow-up round reached statistical significance

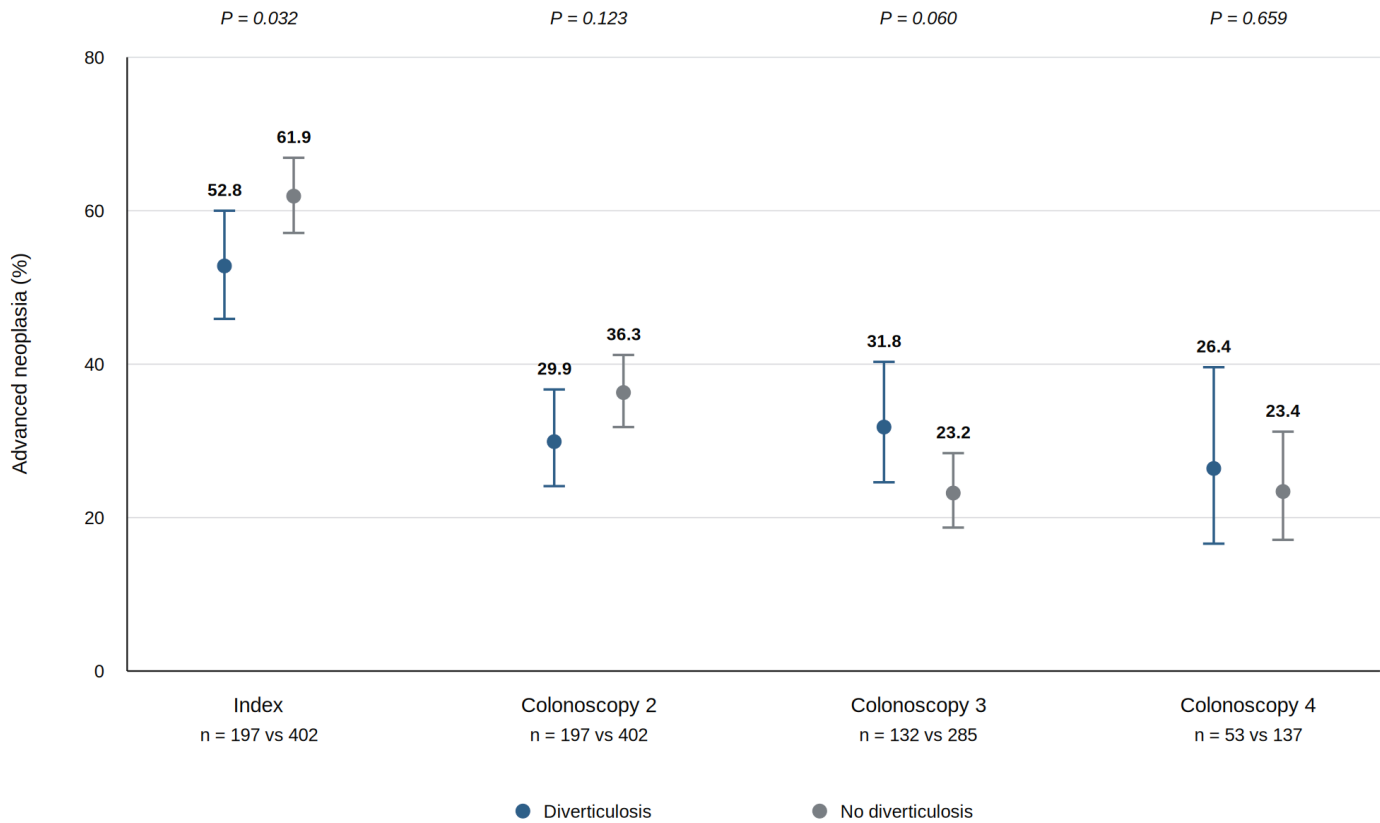


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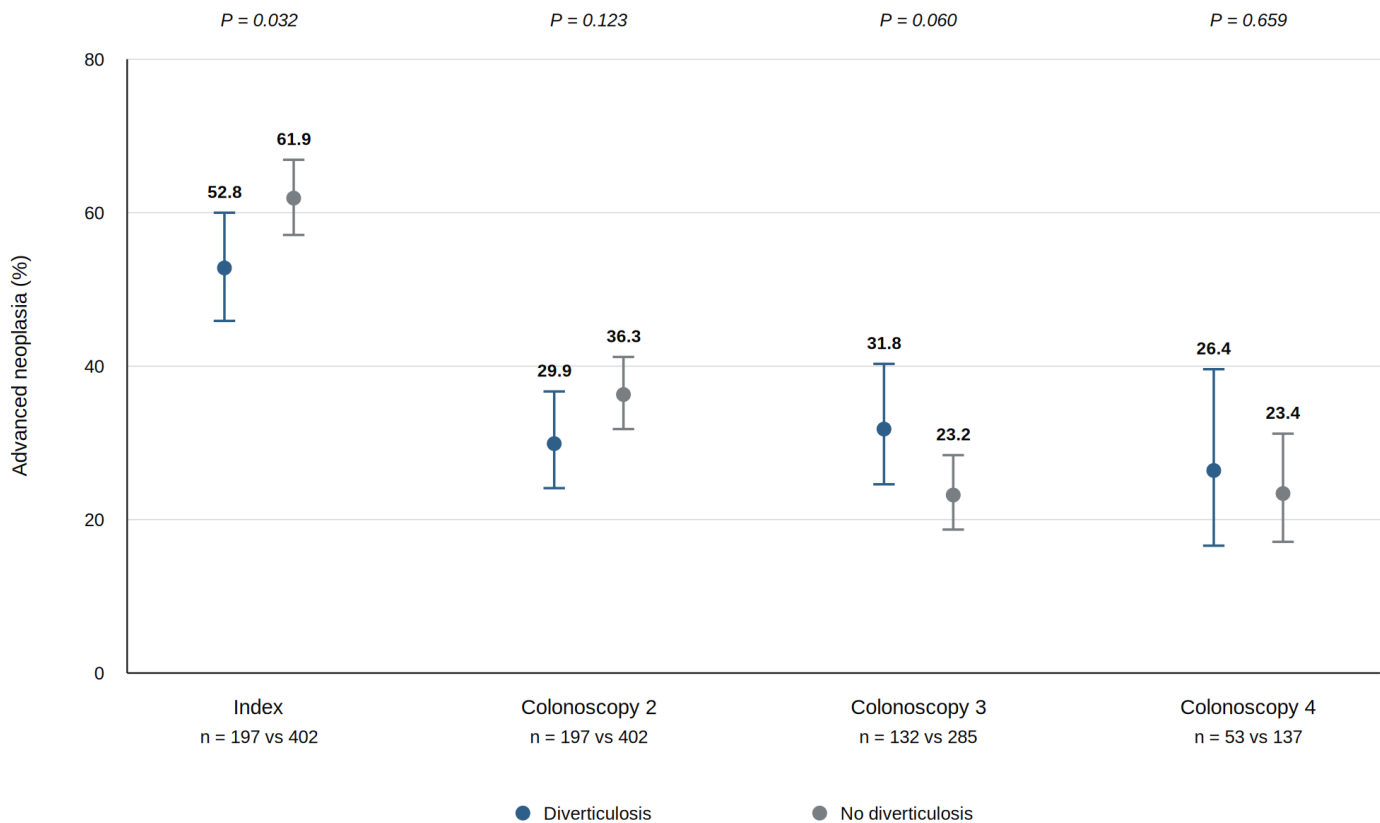


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