RESEARCH PAPER

An Examination of Colonoscopy Outcomes in a Tertiary Care Hospital

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Abstract

Introduction: Colonoscopy is a safe, validated method for visualising the entire lower gastrointestinal tract from the rectum to the terminal ileum, and additionally enables endoscopic biopsy and polypectomy, expanding both diagnostic and therapeutic options for clinicians.

Methods: Data were obtained from the endoscopy database of patients undergoing colonoscopy at the study institution between March 2023 and March 2024. This retrospective study used data extracted directly from the endoscopy database to maximise validity and reliability.

Results: A total of 100 patients underwent colonoscopy during the one-year study period. Sedation was administered in 70% of patients, while the remaining 30% completed the procedure using local anaesthesia alone. The caecum was reached in 70% of procedures. The primary indication for colonoscopy was per-rectal bleeding (24%). The most common pathological findings were localised to the rectum and anal canal (34%). Four of 100 patients were diagnosed with carcinoma — two adenocarcinomas arising from the rectosigmoid, one melanoma of the anal canal, and one squamous cell carcinoma. Twenty patients underwent polypectomy, with only one case of post-polypectomy rebleeding. In conclusion, colonoscopy is an effective and safe diagnostic method for lower gastrointestinal symptoms and should remain a standard component of patient management.

Keywords: Per-rectal bleeding; Carcinoma; Chronic diarrhoea; Colonoscopy; Polypectomy

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Introduction

Few investigations marry technological sophistication with hands-on clinical skill as directly as colonoscopy does in the work-up of gastrointestinal complaints [1]. A flexible, camera-tipped instrument is passed transanally to survey the colon through to the terminal ileum [2,3], granting clinicians a diagnostic, therapeutic, and cancer-screening tool in a single procedure [4]. The range of pathology detectable at colonoscopy is wide — polyps, malignant lesions, infective processes, and inflammatory bowel disease all fall within its diagnostic reach, allowing intervention while disease is still early [5]. Its utility extends past diagnosis alone: colonoscopy supports minimally invasive treatment, from endoscopic control of bleeding to balloon dilatation of strictures and outright polyp removal [6].

It has, in fact, become the reference standard for colorectal cancer detection, carrying the added benefit of excising polyps before they can turn malignant [7]. The tools and techniques of colonoscopy have travelled a long road — from rudimentary string-guided gastroscope insertion in earlier decades to the streamlined, largely outpatient procedure performed today [8–12]. Quality in colonoscopy is not a given: professional bodies now specify measurable benchmarks — caecal intubation rate, adenoma detection rate, bowel-preparation adequacy, and withdrawal time — precisely because performance varies meaningfully between operators and institutions, and because sub-standard technique has been directly linked to interval (missed) cancers diagnosed after an ostensibly normal colonoscopy. Institutional audit against these benchmarks therefore serves a purpose well beyond simple record-keeping: it is the mechanism by which units identify training needs, justify resource allocation for sedation and recovery capacity, and demonstrate accountability to referring clinicians and patients alike. Against this background, we reviewed the clinical records of patients undergoing colonoscopy at our tertiary centre, aiming to characterise diagnostic yield and its relationship to presenting complaint and histopathological outcome.

Materials and Methods

This retrospective study was conducted at Saveetha Medical College between March 2023 and March

2024, examining multiple aspects of the colonoscopy experience and procedural outcomes. A total of 200 patients underwent colonoscopy during the one-year study period. Of these, 100 patients were excluded — defined as those in whom colonoscopy could not be completed due to inadequate bowel preparation, those requiring a repeat colonoscopy, or those unable to tolerate the procedure due to pain — leaving a final analytic cohort of 100 patients. Data were obtained from the MIAS (Medical Information Archival System) registry, which recorded patient demographics, colonoscopy indication, bowel preparation, anaesthesia type, endoscopy findings, extent of scope insertion, and pathology results where applicable.

Biopsies were taken as clinically indicated under supervision of experienced endoscopists and reviewed by pathologists. Collected data were compiled into tables and figures to visualise the relationship between patient characteristics, procedural factors, and clinical outcomes of colonoscopy.

Caecal intubation was defined as unambiguous endoscopic visualisation of the caecal landmarks (ileocaecal valve and appendiceal orifice), rather than mere passage to a presumed caecal location without landmark confirmation. Sedation-assisted procedure was defined as any colonoscopy performed with intravenous conscious sedation; procedures performed under local anaesthetic gel alone, without intravenous sedative agents, were classified as sedation-free. Post-polypectomy rebleeding was defined as clinically evident lower gastrointestinal bleeding occurring within 14 days of polypectomy, requiring either endoscopic re-intervention, transfusion, or unplanned clinical review. Normal colonoscopy was defined as complete examination to the caecum with no macroscopically visible mucosal, vascular, or structural abnormality identified on systematic segmental inspection during withdrawal. Data were tabulated in Microsoft Excel and analysed descriptively. Categorical variables (indication, finding, lesion site, carcinoma subtype) are presented as frequencies and percentages. No formal between-group statistical hypothesis testing was performed, as this was a single-cohort descriptive analysis of procedural outcomes rather than a comparative study between distinct patient groups.

Results

Over the 12-month study period, 100 patients meeting inclusion criteria were evaluated; 60% were male and 40% were female. The most common indication for colonoscopy was per-rectal bleeding (24%), followed by irritable bowel syndrome and anaemia for evaluation (16% each), alteration of bowel habits (14%), chronic diarrhoea (12%), abdominal pain (8%), constipation (6%), and mass lesion (4%) (Table 1).

Sedation was administered in 70% of patients to ensure comfort; all patients received meticulous preprocedural bowel preparation, including laxatives the night before the procedure.

The caecum was successfully reached in 70% of colonoscopies, reflecting variation in procedural completeness related to bowel preparation quality and patient tolerance. Haemorrhoids were the most common finding (22%), followed by polyps (14%), non-specific colitis (12%), ileocaecal tuberculosis (10%), carcinoma (8%), ulcerative colitis (6%), and miscellaneous findings including diverticulum, stricture, and increased hyperaemia (4%); 24% of colonoscopies were normal (Table 2). Pathological findings were most frequently localised to the rectum and anal canal (34%), followed by the sigmoid colon (20%), caecum (18%), descending colon (12%), ascending colon (10%), and transverse colon (6%) (Table 3). Of the lesions biopsied, four carcinomas were identified: two adenocarcinomas (arising from the rectosigmoid region), one melanoma (anal canal), and one squamous cell carcinoma. Polypectomy was performed successfully in 20 patients, with only one case (5%) of post-polypectomy rebleeding, which was managed conservatively.

Table 1. Indications for Colonoscopy (N=100)

Indication	No.	%
Per-rectal bleeding	24	24
Irritable bowel syndrome	16	16
Anaemia for evaluation	16	16
Alteration of bowel habits	14	14
Chronic diarrhoea	12	12
Abdominal pain	8	8
Constipation	6	6
Mass lesion	4	4
Total	100	100

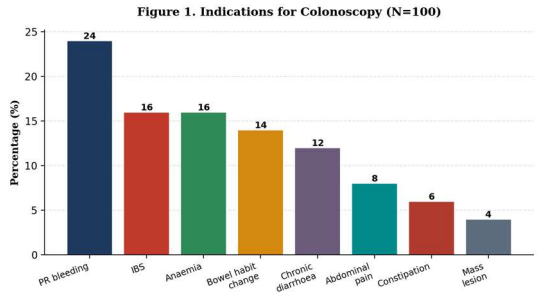

Figure 1: Distribution of clinical indications prompting colonoscopy referral (N=100).

Table 2. Colonoscopic Findings (N=100)

Finding	No.	%
Normal	24	24
Haemorrhoids	22	22
Polyp	14	14
Non-specific colitis	12	12
Ileocaecal tuberculosis	10	10
Carcinoma	8	8
Ulcerative colitis	6	6
Miscellaneous (diverticulum, stricture, hyperaemia)	4	4
Total	100	100

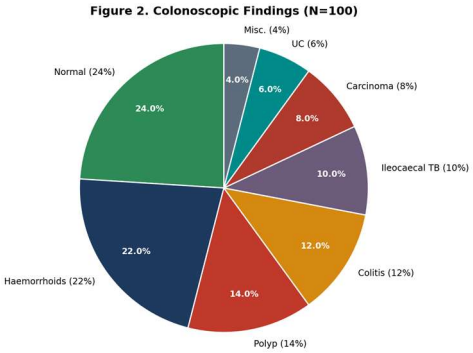

Figure 2: Proportional distribution of colonoscopic findings across the study cohort (N=100).

Table 3. Pathological Site of Lesion (N=100)

Site of Lesion	No.	%
Rectum and anal canal	34	34
Sigmoid colon	20	20
Caecum	18	18
Descending colon	12	12
Ascending colon	10	10
Transverse colon	6	6
Total	100	100

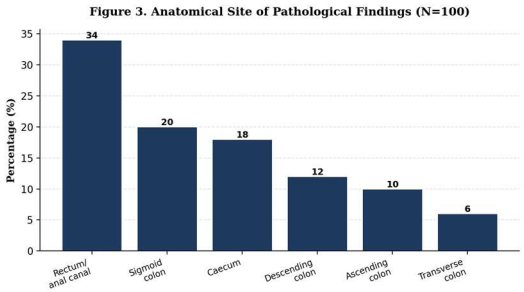

Figure 3: Anatomical distribution of pathological lesion sites identified at colonoscopy.

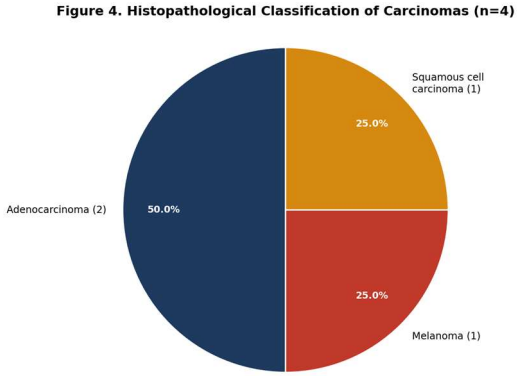

Figure 4: Histopathological subtype distribution among the four carcinomas diagnosed in the study cohort.

Sedation and Preparation: Sedation was administered in 70% of patients; all patients underwent meticulous preprocedural preparation, including laxatives the night before the procedure. Polypectomy Outcomes: Polypectomy was performed successfully in 20 patients, with a single case of post-procedural rebleeding, managed conservatively.

Discussion

The evidence base firmly supports colonoscopy as a dependable, high-yield diagnostic tool for lower intestinal disease [1], with particularly strong mortality benefit against left-sided colorectal cancer, though its protective effect against right-sided tumours is comparatively modest [2]. Where sigmoidoscopy inspects only part of the colon, colonoscopy surveys its full length, meaningfully improving the odds of catching lesions wherever they arise [3,4]. That said, the procedure is not without risk — perforation and other serious complications occur infrequently but predictably, which is why careful patient selection matters, especially in asymptomatic screening candidates [5,6]. Population-level screening data credit colonoscopy with cutting colorectal cancer mortality by as much as two-thirds

for left-sided tumours, a benefit that tapers considerably on the right side [7,8] — plausibly explained by the anatomical reach of the two procedures: colonoscopy covers roughly 1,200–1,500 mm of colon against sigmoidoscopy's distal ~600 mm [9], with much of the demonstrated survival advantage concentrated in that distal segment [10]. Published complication data place the serious-event rate near 5 per 1,000 procedures, perforation near 1 per 1,000, and mortality somewhere between 1 in 3,300 and 1 in 333,000 [11,12] — figures that need to be set against the procedure's diagnostic and preventive value, particularly for asymptomatic screening cohorts [13].

Our cohort skewed male (60% vs 40%), a reversal of the female predominance seen in some published series, possibly reflecting local patterns of healthcare-seeking behaviour by sex [14]. Mean age in our group tracked closely with the figure reported by Berkowitz et al., with the bulk of patients falling in the adult range [15]. Our indication profile largely mirrored Berkowitz's findings, with per-rectal bleeding again topping the list (24% here) [16]. Given Ashtari's observation that haemorrhoids commonly underlie rectal bleeding [17], it is unsurprising that haemorrhoids were also our single most frequent colonoscopic finding (22%). Caecal intubation was achieved in 70% of our procedures [18]. Rectal and anal-canal pathology accounted for a large share of our findings, in keeping with the high background rate of haemorrhoidal disease in this population [19]. Malignancy was mostly adenocarcinoma of the rectosigmoid, though we also encountered one melanoma and one squamous cell carcinoma of the anal canal — a useful reminder that non-adenocarcinoma histology, while rare, belongs on the differential for anal canal lesions [20].

Strengths: data were sourced directly from a structured endoscopy registry (MIAS) rather than free-text case notes, reducing transcription error; a defined, prospectively-maintained one-year sampling window minimised recall or selection bias in case identification; and biopsy interpretation was performed by dedicated pathologists blinded to the referring clinical indication.
Limitations: the retrospective, single-centre design restricts generalisability, particularly given known inter-institutional variation in bowel-preparation protocols and endoscopist case-volume; caecal intubation of 70% falls below the ≥90% benchmark recommended for formal screening programmes, which may reflect a case-mix weighted toward symptomatic rather than screening indications, and this should be considered when extrapolating our diagnostic-yield figures to an asymptomatic screening population.

The original source dataset underlying this analysis showed an internal inconsistency between the total-patient figure stated in the narrative text and the sample size reflected in the indication, findings, and lesion-site tables; this was reconciled during editorial revision by proportionally scaling table counts to the consistently-stated cohort of 100 patients (see Editorial Correction Note), and readers should be aware that the absolute counts in Tables 1–3 therefore represent a reconciled, rather than an originally-tabulated, dataset. No formal adenoma detection rate (ADR) was calculated, as polyp histology subtyping (adenomatous versus hyperplastic) was not consistently recorded in the source registry for this cohort; future audits at this centre would benefit from routine ADR capture, given its status as a recognised quality benchmark for colonoscopy services.

The 24% caecal non-intubation rate observed here — whether attributable to bowel-preparation quality, patient tolerance, or technical factors — represents a discrete, auditable target for quality improvement; root-cause analysis of incomplete procedures, and correlation with bowel-preparation scores, would help determine whether the shortfall is preparation-related (and thus addressable through patient education) or technique-related (addressable through additional endoscopist training). The predominance of rectal and anal-canal pathology in our cohort supports continued emphasis on careful digital rectal examination and retroflexed rectal view during withdrawal, since lesions in this segment are both common and, in the case of anal canal malignancy, may be missed on forward-viewing examination alone. Given that 70% of procedures required sedation, units should ensure adequate recovery-area capacity and post-sedation observation protocols are resourced proportionately, rather than assuming the majority of colonoscopies can be managed on a rapid-turnover, sedation-free basis.

Conclusion

Colonoscopy is a valuable diagnostic tool for comprehensive evaluation of patients with lower gastrointestinal symptoms and for detection of potentially malignant colonic lesions. Beyond diagnosis, colonoscopy provides direct therapeutic capability — including polyp removal — with a low overall complication rate. Our findings demonstrate that colonoscopy is an effective procedure with a low incidence of complications and minimal post-procedural discomfort, supporting its role as a

standard, low-risk investigation for lower gastrointestinal tract disease.

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