ISSN: 2091-2331 (Print) 2091-234X (Online)

Journal of Nobel Medical College

Volume 14, Number 01, Issue 26, January-June 2025, 87-94

Original Article

Spectrum of Lower Gastrointestinal Disease on Colonoscopy and Histopathological Examination in a Tertiary Care Centre in Biratnagar

Pawan Parajuli [1*], Roshana Poudyal [2], Puru Koirala [3]

[1]Department of Gastroenterology, [2]Department of Microbiology, [3]Department of Pulmonology and Sleep Medicine, Birat Medical College Teaching Hospital, Biratnagar, Nepal

Article Received: 16th March, 2025; Accepted: 7th May, 2025; Published: 31st July, 2025

DOI: https://doi.org/10.3126/jonmc.v14i1.83340

Abstract

Background

Colonoscopy is a key diagnostic tool for assessing lower gastrointestinal disorders. Understanding its indications, disease patterns, and histopathological findings is crucial for improving patient care. This study aimed to investigate the common indications for colonoscopy, gastrointestinal disease patterns, and histopathological results. The primary objectives were to determine common colonoscopy indications, understand gastrointestinal disease patterns, and analyse histopathological findings.

Materials and Methods

This is a prospective, cross-sectional study conducted at Birat Medical College and Teaching Hospital, Biratnagar, over the period of three months. Patients under 15 years of age, with incomplete procedures, or lacking histopathology reports despite undergoing tissue sampling, pregnant women were excluded. Standardized bowel preparation with 4L polyethylene glycol was used. Data collected included demographics, clinical indications, colonoscopic findings, and biopsy results.

Results

A total of 341 patients (mean age 46.7 ± 15.7 years) were included. Common indications were blood-mixed stools (33.4%), altered bowel habits (27%), and abdominal pain (23.2%). Findings showed normal results in 45.2%, polyps in 16.1%, and inflammatory bowel disease (IBD) in 10%. Histopathological analysis revealed polyps (35%), IBD (20.4%), and malignancy (13.4%).

Conclusion

Colorectal cancer was most common in patients with per-rectal bleeding, while polyps were prevalent in those with altered bowel habits. Blood-mixed stools, altered bowel habits, and abdominal pain are the leading indications for colonoscopy. Polyps and IBD were most commonfindings, with malignancy notable in per-rectal bleeding cases.

.

Keywords: *Colon cancer, Colonoscopy, Gastrointestinal disorders, Inflammatory bowel disease*

***Corresponding Author:**
*Dr. Pawan Parajuli
Gastroenterologist
Email: pawanparajulee@gmail.com
ORCID: https://orcid.org/0009-0005-4032-6130

Citation
Parajuli P, Poudyal R, Koirala P, Spectrum of Lower Gastrointestinal Disease on Colonoscopy and Histopathological Examination in a Tertiary Care Centre in Biratnagar, JoNMC. **14:1 (2025) 87-94.** DOI: https://doi.org/10.3126/jonmc.v14i1.83340.

Introduction

An essential diagnostic tool for evaluation of colon and terminal ileum, colonoscopy allows for direct visualisation, identification of pathologies like inflammatory bowel disease, malignancy, polyps, haemorrhoids etc and obtaining tissue samples for histopathology when required. Screening colonoscopy can detect colorectal cancer at early stages thereby significantly reducing the cancer related mortality which is presently the second most common cancer globally [1-4]. In addition, colonoscopy aids in diagnosis of variety of other GI disorders like IBD which in turn is associated with colorectal cancer risk in longstanding cases, making surveillance and diagnosis even more critical for this patient population [5].

Indications for performing colonoscopy varies depending upon the disease prevalent in the area. Some studies depict abdominal pain, per rectal bleed and unexplained weight loss as the most common indication [6], whereas another study highlighted the increasing trend of colonoscopic referrals for screening purpose [7]. Colorectal polyps particularly adenomatous are considered precursor lesions to colorectal cancer, and their detection and removal during colonoscopy significantly reduces the risk of cancer development[8]. The prevalence of IBD is also increasing globally, and the importance of accurate diagnosis through colonoscopy and histopathology cannot be overstated [9].

Despite the known benefits of colonoscopy, there is a lack of comprehensive data on the patterns of gastrointestinal disease and the indications for colonoscopy in specific populations. Understanding the common indications for colonoscopy, the patterns of disease involvement in the lower GI tract, and the histopathological findings associated with these conditions is crucial for optimizing patient care. This study, therefore, aims to investigate the common indications for colonoscopy, analyse the distribution of gastrointestinal diseases, and examine the histopathological results in patients undergoing colonoscopy at Birat Medical College and Teaching Hospital in Biratnagar.

Materials and Methods

This study is a quantitative, cross-sectional, prospective, observational study. The study was conducted over a three-month period at Birat Medical College and Teaching Hospital in Biratnagar with aim of investigating the common indications for colonoscopy, understanding the patterns of lower gastrointestinal tract involvement by various disease processes, and exploring the histopathological findings associated with lesions identified during colonoscopy. The study population comprised patients referred for colonoscopy at Birat Medical College and Teaching Hospital, a tertiary care centre located in Biratnagar. The sampling frame included all individuals who came to the hospital for colonoscopy and the sample unit for this study were individual patient who underwent colonoscopy.

We used the standard sample size formula for estimating a proportion:

$n = (Z^2 \times p \times (1 - p)) / e^2$

Given:

$Z = 1.96$ (for 95% confidence level)

$p = 0.80$ (prevalence = 80%)[12]

$e = 0.05$ (margin of error = 5%)

Placing the values

$n = (1.96^2 \times 0.80 \times (1 - 0.80)) / 0.05^2$

$n = (3.8416 \times 0.80 \times 0.20) / 0.0025$

$n = 0.614656 / 0.0025$

$n = 245.86 \approx 246$

But since we had higher number of patients undergoing colonoscopy during the specified period, we could enroll a total of 341 patients for our study.

Patients who underwent colonoscopy during the study period, irrespective of the reason for the procedure, were eligible for inclusion in the study. This inclusion criterion ensured that the study captured a wide range of indications for colonoscopy, including both diagnostic and screening procedures. The study excluded patients under the age of 15 years, those whose colonoscopy procedures were incomplete or failed to provide adequate visualization, and patients who underwent colonoscopy with tissue sampling but histopathological examination (HPE) results were unavailable. Pregnant women were also excluded for safety reasons, as colonoscopy is generally contraindicated during pregnancy.

The sampling technique used was nonprobability convenience sampling, meaning that all eligible patients who visited the centre and provided informed consent were included in the study from each patient or their guardian.

Bowel preparation is essential for ensuring clear visualization of the colon during the procedure. In this study, patients were required to undergo standardized bowel preparation using 4 liters of polyethylene glycol (PEG), which was adminis-

tered 8 hours before the colonoscopy. This preparation ensures that the colon is adequately cleansed of fecal matter, which is crucial for accurate diagnosis during the procedure. In addition to the PEG preparation, patients were instructed to follow a liquid diet 24 hours prior to the procedure to further reduce bowel contents and enhance the visibility of the colon.

The colonoscopy was performed using a Fujinon 3500 flexible colonoscope. Prior to the procedure, a per-rectal examination was carried out to assess for any palpable abnormalities such as haemorrhoids or masses. The procedure was carried out without sedation, as per the study protocol. During the colonoscopy, the endoscopist examined the entire colon, terminal ileum and rectum for abnormalities, such as polyps, tumors, haemorrhoids, inflammatory changes, and other structural issues.

When any abnormal findings were identified, biopsies were taken from the lesions for histopathological analysis. The findings from the colonoscopy, including the location, number, and appearance of polyps, tumors, and other lesions, were documented in detail for later analysis. All biopsies taken during the procedure were sent to the laboratory for histopathological examination (HPE) to determine the nature of the lesions whether benign (e.g., polyps) or malignant (e.g., carcinoma) and to assess any inflammatory conditions (e.g., ulcerative colitis).

Data was collected over a time stretch of three months duration. All eligible patients who underwent colonoscopy during this time were included in the study. Data were collected prospectively, capturing real-time details of the colonoscopy procedures and associated clinical findings. Ethical approval was obtained from the Institutional Review Board (IRB) of Birat Medical College. The expected sample size was based on the number of eligible patients who attended the centre for colonoscopy during the three-month study period. All data were entered into a structured database for analysis.

Results

The total sample population in the study comprised 341 patients, with a mean age of 46.70 ± 15.66 years, ranging from 19 to 80 years. The gender distribution was 210 males and 131 females, indicating a higher prevalence of the studied conditions in males compared to females within the observed age range (Figure 1).

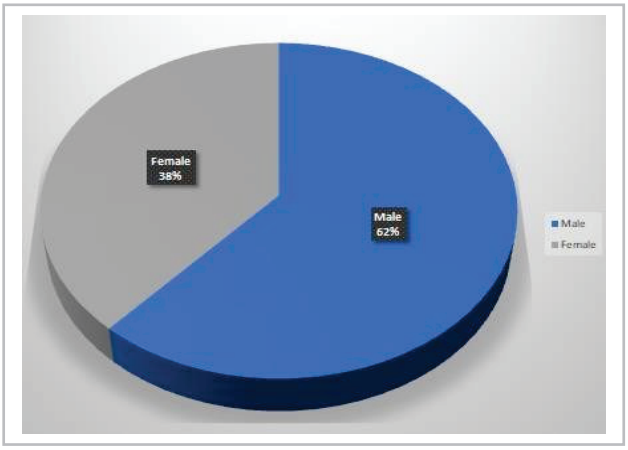

Figure 1: Sex distribution of the study participants (n=341)

Table 1 presents the indications for colonoscopy among a total of 341 patients. The most common indication was blood-mixed stools, which accounted for 33.4% of cases (n=114). Altered bowel habits or loose stools were reported in 27% of patients (n=92), followed by abdominal pain in 23.2% (n=79). Constipation was noted in 10% (n=34) of cases, while chronic diarrhoea was less frequent, affecting 2.6% (n=9) of patients. Iron deficiency anemia was the indication in 1.5% (n=5) of patients, and 0.6% (n=2) underwent colonoscopy as part of routine screening. Colonic wall thickening was identified in 1.8% (n=6) of cases. These findings highlight the varied clinical reasons for colonoscopy, with blood-mixed stool being the most prevalent indication.

Table 1: Indications of Colostomy among the study participants (n=341).

Indications of Colonoscopy	Number of Patients (n)	Percentage
Blood mixed stools	114	33.4%
Altered bowel habits/ Loose stools	92	27%
Pain abdomen	79	23.2%
Constipation	34	10%
Chronic diarrhea	9	2.6%
Iron deficiency anemia	5	1.5%
Screening	2	0.6%
Colonic wall thickening	6	1.8%
Total (n)	341	100%

Table 2 presents the findings from colonoscopies performed on patients, revealing a range of gastrointestinal conditions. The majority of patients (45.2%, n=154) had normal colonoscopy results. Colorectal polyps were found in 16.1% of patients (n=55), with a slightly higher frequency of polyps located in the colon (8.2%)

compared to the rectum (7.9%). Hemorrhoids were observed in 14.1% (n=48) of cases. Inflammatory bowel disease (IBD) was diagnosed in 10% (n=34) of patients, with proctitis and colitis representing 2.1% and 7.9%, respectively.
Colorectal malignancy, including both rectal (3.2%) and colon cancer (2.1%), was present in 5.3% of patients (n=18). Diverticular disease was identified in 4.7% (n=16), and nonspecific colitis was seen in 4.1% (n=14). Other conditions included ileitis (3.5%, n=12), a tubercular pattern (1.2%, n=4), and Crohn's disease (0.6%, n=2). A small number of patients (0.9%, n=3) had other unspecified findings. These results highlight the variety of colorectal conditions detected through colonoscopy, with the most common findings being normal results, followed by polyps, and haemorrhoids.

Table 2: Findings from colonoscopies performed among the study participants (n=341).

Colonoscopy Findings	Frequency	Percentage (%)
Normal	154	45.2%
Colorectal Polyps	55	16.1%
Rectal	27	7.9%
Colon	28	8.2%
Haemorrhoids	48	14.1%
Inflammatory Bowel Disease	34	10%
Proctitis	7	2.1%
Colitis	27	7.9%
Colorectal malignancy	18	5.3%
Rectal	11	3.2%
Colon	7	2.1
Diverticula	16	4.7%
Non specific colitis	14	4.1%
Ileitis	12	3.5%
Tubercular pattern	4	1.2%
Crohn's disease	2	0.6%
Others	3	0.9%

The table 3 outlines the histopathological findings from 157 colorectal biopsies, with the most common result being colorectal polyps, which accounted for 35% of cases (n=55). Among these, adenomatous polyps were the most frequent (n=14 for rectal and n=11 for colon), followed by hyperplastic polyps (n=12 for rectal and n=18 for colon). Inflammatory bowel disease(IBD)/Ulcerative colitis was diagnosed in 20.4% of patients (n=32), with colitis being more prevalent (n=25) compared to proctitis (n=7). Malignancy was found in 13.4% (n=21) of cases, with rectal cancer (n=12) being more common than colon cancer (n=9). Non-specific colitis and normal colon biopsies each accounted for 9.5% (n=15), while ileitis was found in 7% (n=11) of cases. Other conditions included Crohn's disease and granulomatous disease, both at 1.9% (n=3), and inflammatory ulcers, which were identified in 1.3% (n=2). These findings highlight the diversity of histopathological conditions in the colorectal biopsies, with polyps and IBD being the most common diagnoses.

Table 3: Histopathological findings of the study participants (n=157).

Histopathological Findings	Frequency	Percentage (%)
Colorectal polyps	55	35%
Adenomatous rectal polyp	14	8.9%
Hyperplastic rectal polyp	12	7.6%
Adenomatous colon polyp	11	7%
Hyperplastic colon polyp	18	11.5%
Malignancy	21	13.4%
Rectal	12	7.6%
Colon	09	5.7%
Non specific colitis	15	9.5%
Normal colon biopsy	15	9.5%
Ileitis	11	7%
Crohn's disease	3	1.9%
Granulomatous disease	3	1.9%
Inflammatory ulcer	2	1.3%
Total	157	100%

Out of 34 patients who presented with constipation, 24 had normal colonoscopy. Of the remaining 10, colorectal polyps were seen in 6 patients and all of them were hyperplastic, diverticula were seen in 3, ileitis was seen in 2 patients, and 1 patient had haemorrhoids (Table 4). It was interesting to see that there were no patients with constipation who had malignancy as their aetiology.

Table 4: Colonoscopic findings of patients presenting with constipation.

Colonoscopy findings	Frequency	Percentage
Normal	24	70.6%
Colonic polyps	4	11.8%
Diverticula	3	8.8%
Rectal polyps	2	5.9%
Ileitis	2	5.9%
Haemorrhoids	1	2.9%

Of the 79 patients who presented with abdominal pain, 49(62%) had normal colonoscopy.
Inflammatory bowel disease (Ulcerative proctitis and colitis,) was seen in 4(5.1%) patients, 10(12.6%) patients had colorectal polyps of which only one was hyperplastic polyp. Colon carcinoma was seen in 3(3.8%) patients, ileitis was seen in 9(11.4%) patients of which it was

seen in isolation in 6 patients and 3 patients had ileitis in association with granulomatous disease (TB) of bowel (Table 5). Colonoscopic features suggestive of tuberculosis (TB) was seen in 3(3.8%) that was supported by histopathology reports (HPE). Haemorrhoids and diverticula were seen in one patient each. Appearance suggestive of nonspecific colitis was seen in 3 patients.

Table 5: Colonoscopic findings of patients presenting with abdominal pain.

Of all 114 patients with Per-rectal bleed,

Colonoscopy findings	Frequency	Percentage
Normal	49	62%
Colorectal polyps	10	12.6%
Ileitis	9	11.4%
Inflammatory bowel disease	4	5.1%
Proctitis	2	
Colitis	1	
Crohn's Disease	1	
Tuberculosis	3	3.8%
Colon cancer	3	3.8%

14(12.3%) patients had normal colonoscopy, 37 (32.4%) patients had haemorrhoids, ulcerative colitis was seen in 26(22.8%) patients whereas 5(4.4%) patients had ulcerative proctitis, colorectal polyps were seen in 18(15.8%) patients. Colorectal carcinoma was seen in 12(10.5%) patients. Nonspecific colitis was seen in 7(6.1%) patients. Ileitis and diverticula were seen in one (0.9%) patient each (Table 6).

Table 6: Colonoscopic findings of patients presenting with per-rectal bleeding.

Of patients presenting with loose stools normal

Colonoscopic Findings	Frequency	Percentage
Haemorrhoids	37	32.4%
Inflammatory Bowel Disease	31	27.2%
Ulcerative colitis	26	22.8%
Ulcerative proctitis	05	4.4%
Colorectal polyps	18	15.8%
Normal	14	12.3%
Colorectal carcinoma	12	10.5%
Non-specific colitis	7	6.1%
Ileitis	1	0.9%
Diverticula	1	0.9%

colonoscopic finding was seen in 60 (65.2%) patients. Colorectal polyps were seen in 14 (15.2%) patients, diverticula were seen in 9 (9.8%) patients, haemorrhoids was seen in 6(6.5%) patients. Ileitis was seen in 2(2.2%) patients and non-specific colitis and rectal carcinoma was seen in one (1.1%) patient each (Table 7).

Table 7: Colonoscopic findings of patient presenting with loose stool.

Discussion

Colonoscopic Findings	Frequency	Percentage
Normal	60	65.2%
Colorectal polyps	14	15.2%
Diverticula	9	9.8%
Haemorrhoids	6	6.5%
Ileitis	2	2.2%
Rectal carcinoma	1	1.1%
Non-specific colitis	1	1.1%
Others	2	2.2%

Colonoscopy a critical diagnostic and screening tool for a wide variety of lower gastrointestinal (GI) disorderswas first used by William Wolff and Hiromi Shinya to probe the full length of colon using a tube with electronic sensors [10]. It allows direct visualization of the colon and rectum, enabling the detection of conditions such as colorectal cancer (CRC), inflammatory bowel disease (IBD), colorectal polyps, and haemorrhoids. The role of colonoscopy in both the detection and prevention of colorectal cancer is particularly significant, as CRC is one of the leading causes of cancer-related deaths worldwide. American College of Gastroenterology recommends colonoscopy every 10 years, beginning at 50 years of age for screening of colorectal polyp and carcinoma (7). Patients should be offered an alternative CRC prevention test like flexible sigmoidoscopy or a computed tomography (CT) colonography or a cancer detection test (fecal immunochemical test, FIT) when patients refuse colonoscopy [11]. The findings of this study underscore the central role of colonoscopy in identifying these common GI conditions and highlight the importance of histopathological examination in guiding treatment decisions.

Patients undergoing colonoscopy were predominantly males with ratio of approximately 1.6:1 and the mean age of patients was 46.7 +/_ 1.66 which is similar to studies done by Shrestha et al and Chaudhary et al [12,13]. The reason behind males outnumbering females could be due to social factors and stigma, lack of education, sense of discomfort on part of females to get their private parts probed or scoped and sense of discomfort and embarrassment discussing the ailments with family members and doctors/physicians about the anorectal pathologies.

The most common indications for colonoscopy were blood-mixed stools (33.4%) i.e per rectal bleed, altered bowel habits or loose stools (27%), and abdominal pain (23.2%). These findings are

consistent with other studies where abdominal pain, rectal bleeding, and changes in bowel habits were frequently cited as reasons for colonoscopy referral. According to a study by Smith et al., abdominal pain and rectal bleeding together accounted for the majority of colonoscopy referrals, as these symptoms are often associated with underlying pathological conditions, including colorectal cancer [1]. The prevalence of blood-mixed stools as a leading indication for colonoscopy highlights the importance of early detection, as rectal bleeding can be an early symptom of malignancy, particularly in patients over 50 years of age or those with a family history of colorectal cancer. Studies done by Raghuveer MNet al found that rectal bleeding, chronic diarrhoea and chronic abdominal pain to be the commonest reason for undergoing colonoscopy and similar was the finding in the study conducted by Dinesh et al in India [14,15,16]. However, in study done by Shrestha et al chronic diarrhoea and chronic abdominal pain were the commonest indications. Similar was the finding in the study done by Bhattarai S where chronic diarrhoea was the most common indication [17].

Interestingly, 45.2% of the patients in our study had normal colonoscopic findings. This suggests that many patients referred for colonoscopy with symptoms like blood-mixed stools or abdominal pain may not have significant pathology. This is consistent with the findings of Gralnek et al., who observed that a significant portion of colonoscopies result in normal findings, particularly in younger patients or those with nonspecific symptoms [3]. While normal colonoscopic results are reassuring, they also emphasize the importance of considering other diagnostic methods and maintaining a high index of suspicion for conditions that may not be immediately apparent on colonoscopy.

The study also revealed a wide spectrum of gastrointestinal conditions detected during colonoscopy, colorectal polyps (16.1%) and inflammatory bowel disease (IBD) (10%) being the commonest finding in our study. However in studies conducted by Shrestha et al and Chaudhari et al colitis of unspecified aetiology and ulcerative colitis were the commonest findings. Similarly study by Bhattarai S showed nonspecific colitis (22.5%) and ulcerative colitis (18.75%) were the most common findings. Our study showed a higher prevalence of colitis than proctitis each contributing to 2.1% and 7.9% respectively.

Colorectal polyps were the most common finding in our study following normal evaluation reflecting the fact that polyp detection rate was comparatively higher in our study compared to similar study done in the past. Our study showed an almost equal distribution of colonic and rectal polyps 8.2% and 7.9% respectively similar to study by Shrestha et al who found an equal distribution of polyps in rectum and colon. There was slight predominance of hyperplastic polyps (19%) compared to adenomatous polyps (16%) which is similar to study by Makaju et al in Dhulikhel, Nepal where rectal polyp with non-malignant potential were the most common findings among polyps [18]. Colorectal polyps, particularly adenomatous polyps, are known precursor lesions for colorectal cancer, detection and removal during colonoscopy is one of the most effective strategies for CRC prevention. In our study, adenomatous polyps were observed in 16% of patients, in line with findings from other studies where adenomatous polyps are frequently identified in colonoscopy screenings. Johnson et al. have shown that adenomatous polyps are present in 10-20% of patients undergoing colonoscopy, with larger polyps posing a greater risk for malignant transformation [8].

In addition to polyps, IBD was diagnosed in 10% of patients, with the majority of cases being ulcerative colitis. This finding is consistent with other studies, which have documented a higher prevalence of ulcerative colitis compared to Crohn's disease in colonoscopy populations [9]. There were 2.1% and 7.9% of cases of proctitis and colitis respectively which is consistent with the study done by Sood et al who proved that colitis was far more common than proctitis in his study [17]. However, in a study done by Bhattarai S Proctosigmoiditis was commoner than colitis. The presence of IBD highlights the importance of early diagnosis and management of these chronic conditions, as early intervention can help control symptoms and reduce long-term complications, particularly in patients with extensive or refractory disease.

The histopathological examination of biopsy samples collected during colonoscopy revealed a predominance of colorectal polyps (35%), IBD (20.4%), and malignancy (13.4%). The detection of malignancy, though less frequent, underscores the crucial role of colonoscopy in early cancer detection. Colorectal cancer is the second most common cancer worldwide, and early-stage detection through colonoscopy significantly improves survival rates [2]. Rectal cancer was more common than colon cancer in our cohort, which is consistent with global data

showing that rectal cancer often presents earlier and is more aggressive than colon cancer [7]. consistent with the study by Dinesh et al which states that rectosigmoid cancer was more common than colon cancer.

The finding of colorectal polyps during colonoscopy is of particular importance because these lesions are precursors to cancer and timely removal has been shown to significantly decrease the risk of developing colorectal cancer a surgery is the standard treatment choice for stages 0–II CRC, stage III CRC requires surgery and adjuvant chemotherapy, and stage IV and recurrent CRC require emphasized byHossain, M.S et al [2]. This reinforces the importance of regular screening colonoscopies, especially in individuals with a family history of colorectal cancer, or those at higher risk due to factors such as age or a history of polyps. In this study, the finding of polyps in 16.1% of patients further supports the importance of colonoscopy as a preventive measure.

The presence of IBD, particularly ulcerative colitis, in 10% of patients highlights the ongoing burden of inflammatory bowel diseases, which is known to increase the risk of colorectal cancer. This finding is consistent with global trends showing a rise in IBD prevalence, particularly in countries with previously low rates of these conditions [6]. The detection of IBD during colonoscopy aided by histopathology, allows for early initiation of treatment, which can help manage disease activity and reduce the long-term risks of complications, including cancer.

The smaller percentage of patients with Crohn's disease and tuberculosis in our study is in harmony with the rarity of these disease. Crohn's disease and tuberculosis are always a competing diagnosis in an appropriate clinical setting, and the confirmatory diagnosis is based on clinical judgement, endoscopic, radiological and histopathological findings. Given the fact that Crohn's disease is being increasingly recognized in Asia, Nepal being no exception and the fact that tuberculosis is still a major health problem in Nepal, and the two entities have overlapping clinical presentation, the identification and distinction between these two clinical entities is a major clinical and diagnostic challenge in part of clinicians, pathologists and radiologists.

The findings of this study have important clinical implications. The high prevalence of colorectal polyps, especially adenomatous polyps, emphasizes the need for routine screening in high-risk populations which can significantly reduce the incidence of colorectal cancer by detecting and removing polyps before they progress to cancer. Similarly, the detection of IBD highlights the importance of early diagnosis and ongoing management of these chronic conditions. Finally, the detection of malignancy in 13.4% of patients underscores the role of colonoscopy in the early detection of colorectal cancer, allowing for better treatment outcomes and improved survival rates.

Despite the valuable insights provided by this study, there are several limitations. The study was conducted at a single tertiary care centre, and the sample size was relatively small, which may affect the generalizability of the results. Additionally, the cross-sectional nature of the study limits our ability to assess the long-term outcomes of the patients included. Future studies with larger, multi-centre cohorts are needed to validate these findings and explore potential regional differences in the patterns of GI disease.

Hence, colonoscopy remains an essential diagnostic and preventive tool for a wide range of lower gastrointestinal disorders. This study highlights the prevalence of colorectal polyps, IBD, and malignancy in a population referred for colonoscopy. By identifying the most common indications and histopathological findings, this study underscores the importance of colonoscopy for early detection, surveillance, and management of GI diseases. Regular screening, particularly for individuals at high risk of colorectal cancer, is crucial for improving patient outcomes and reducing the burden of colorectal cancer globally.

Conclusion

This study underscores the pivotal role of colonoscopy in diagnosing and managing a wide range of lower gastrointestinal disorders. The most common indications for colonoscopy in our cohort were blood-mixed stools, altered bowel habits, and abdominal pain, with colorectal polyps and inflammatory bowel disease (IBD) being the most prevalent findings. The histopathological examination revealed a significant presence of adenomatous polyps, which are known precursors to colorectal cancer, as well as cases of IBD and malignancy, reinforcing the importance of early detection through colonoscopy. The findings highlight the critical role of colonoscopy not only for cancer prevention but also for the timely diagnosis and management of chronic conditions like IBD. These results emphasize the need for regular screening, particularly in high-risk populations, to reduce the burden of colorectal cancer and

improve long-term patient outcomes. Ultimately, colonoscopy remains an essential tool in the early detection, prevention, and management of lower gastrointestinal diseases, contributing significantly to patient care and survival.

Acknowledgement

We extend our gratitude to all the study participants for their co-operation and support.

Conflict of Interest : The authors declare no conflicts of interest.

References

[1] Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA: a Cancer Journal for Clinicians. 68:6 (2018) 394-424. DOI: 10.3322/caac.21492.PMID: 30207593.

[2] Hossain MdS, Karuniawati H, Jairoun AA, Urbi Z, Ooi DJ, John A, et al. Colorectal Cancer: A Review of Carcinogenesis, Global Epidemiology, Current Challenges, Risk Factors, Preventive and Treatment Strategies. Cancers. 14:7 (2022)1732. DOI: 10.3390/cancers14071732.PMID: 35406504.

[3] Zauber AG, Winawer SJ, O'Brien MJ, Lansdorp-Vogelaar I, van Ballegooijen M, Hankey BF, et al. Colonoscopic Polypectomy and Long-Term Prevention of Colorectal-Cancer Deaths. New England Journal of Medicine. 366:8 (2012)687-96. DOI: 10.1056/NEJMoa1100370.PMID: 22356322.

[4] Zauber AG. The Impact of Screening on Colorectal Cancer Mortality and Incidence: Has It Really Made a Difference? Digestive Diseases and Sciences.60:3 (2015 Mar)681-91.DOI: 10.1007/s10620-015-3600-5. PMID: 25740556.

[5] Manninen P, Karvonen AL, Huhtala H, Aitola P, Hyöty M, Nieminen I, et al. The risk of colorectal cancer in patients with inflammatory bowel diseases in Finland: A follow-up of 20years. Journal of Crohn's and Colitis. 7:11 (2013 Dec 1)551-7. DOI: 10.1056/NEJMoa1100370.PMID: 22356322.

[6] Singal AG, Gupta S, Lee J, Halm EA, Rutter CM, Corley D, et al. Importance of Determining Indication for Colonoscopy: Implications for Practice and Policy. Clinical Gastroenterology and Hepatology. 12:12 (2014 Dec) 1958-1963. DOI: 10.1016/j.cgh.2014.09.028. PMID: 25606584.

[7] White PM, Sahu M, Poles MA, Francois F. Colorectal cancer screening of high-risk populations: A national survey of physicians. BMC Research Notes. 5:1 (2012 Jan 24) DOI: https://doi.org/10.1186/1756-0500-5-64. PMID: 22272666.

[8] Haenszel W, Correa P. Cancer of the colon and rectum and adenomatous polyps: A review of epidemiologic findings. Cancer. 28:1 (1971 Jul)14-24. DOI: 10.1002/ 1097-0142(197107)28:1<14::aid-cncr2820280105> 3.0.co;2-i.PMID: 5110624.

[9] Kaplan GG, Ng SC. Understanding and Preventing the Global Increase of Inflammatory Bowel Disease. Gastroenterology. 152:2 (2017Jan)313-321. DOI: 10.1053/j.gastro.2016.10.020.PMID: 27793607.

[10] Wolff WI. Colonoscopy: history and development. The American journal of gastroenterology. 84:9 (1989 Sep)1017-25.PMID: 2672788

[11] Rex DK, Johnson DA, Anderson JC, Schoenfeld PS, Burke CA, Inadomi JM; American College of Gastroenterology. American College of Gastroenterology guidelines for colorectal cancer screening 2009 [corrected]. American Journal of Gastroenterology.104:3(2009 Mar)739-50. DOI: 10.1038/ajg.2009.104. PMID: 19240699

[12] Shrestha R, Rajbhandari A, Chhetri G, Regmi RS, Chaudhary P. Clinical Profiles and Endoscopic Findings of Patients Undergoing Colonoscopy in Nobel Medical College. J Nobel Med Coll.8:1(2019 Jun14)3-7. DOI: https://doi.org/10.3126/jonmc.v8i1.24446

[13] Chaudhary S, Chaudhary P, Jaiswal N, Chaurasia R. Colonoscopy: A Two Year Experience from Western Nepal. Journal of Universal College of Medical Sciences. 1:3 (2013 Sep28) 28-32. DOI: https://doi.org/10.3126/jucms.v1i3.8761

[14] Raghuveer MN, Shetty H, Madhusudhan K. Colonoscopy: an inquiry into indications, findings, and their correlation at a tertiary care hospital. Int Surg J. 6:9 (2019 Sep)3174-81DOI: http://dx.doi.org/10.18203/2349-2902.isj20194047

[15] Dinesh H, Shashidhar H, Prasad V. An Analysis of Colonoscopy Findings in a Tertiary Care Hospital. International Journal of Scientific Study. 3:7 (2015 Oct) 212-216. DOI: 10.17354/ijss/2015/479

[16] Bhattarai S, Acharya RR. Clinical Profile and Endoscopic Findings in Patients undergoing Colonoscopy at a Tertiary Care Centre of Central Nepal. Journal of College of Medical Sciences-Nepal. 16:2 (2020 Jun 30)66-70. DOI: 10.3126/jcmsn.v16i2.28660

[17] Makaju R, Amatya M, Sharma S, Dhakal R, Bhandari S, Shrestha S et al. Clinico Pathological Correlation of Colorectal Diseases by Colonoscopy and Biopsy. Kathmandu Univ Med J.15:58 (2017) 173-78. PMID: 34547852