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Original Article

Colonoscopic and Histopathological Findings in Patients with Various Lower Gastrointestinal Symptoms: An Experience in Tertiary Care Centre of Pakistan

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ABSTRACT

Objective: To determine the frequency of various lower GI diseases and their associated colonoscopic findings and to emphasize the value of colonoscopy and biopsy in the diagnosis of lower GI pathologies.

Study Design: Prospective longitudinal study

Place and Duration of Study: Department of Gastroenterology, Pak Emirates Military Hospital, Rawalpindi, Pakistan, from Oct 2023 to May 2024.

Methodology: A total of 452 patients between the age of 19 - 67 who underwent colonoscopy were enrolled in the study. Their presenting complaints were documented and its correlation with colonoscopic findings was assessed. Histopathological results were also sought by contacting the participants via phone.

Results: The results revealed that chronic diarrhea and bleeding per rectum were the frequently encountered symptoms in our setup followed by anemia, weight loss and constipation. Male were affected more than female. Inflammatory bowel disease (IBD) came out to be a major cause in patients with chronic diarrhea and bleeding per rectum (50% and 42% respectively). Colonic growths were commonly seen in patients with anemia, weight loss and constipation; biopsy of which mostly showed adenocarcinoma.

Conclusion: Colonoscopy is helpful in establishing association between common GI symptoms and their colonoscopic findings and also play beneficial role in early diagnosis and timely management of major diseases of lower GI tract.

Keywords: Anemia, Bleeding per rectum, Chronic Diarrhea, Colonoscopy, Constipation, Inflammatory bowel disease, Weight loss.

How to Cite This Article: *Raja AF, Razzaq K, Siddiqi FA, Saleem U, Sohail M. Colonoscopic and Histopathological Findings in Patients with Various Lower Gastrointestinal Symptoms: An Experience in Tertiary Care Centre Of Pakistan. Pak Armed Forces Med J 2025; 76(Suppl-2): S454-S459. DOI: https://doi.org/10.51253/pafmj.v76iSUPPL-2.12606*

INTRODUCTION

During routine practice, patients with PR bleed, altered bowel habits i.e. chronic diarrhea and constipation, weight loss, chronic pain abdomen, and anemia are frequently encountered (1, 2). Early diagnosis is the key to effective management of the underlying pathologies (3). Sometimes the diagnosis can be challenging owing to the diverse nature of the disease. In these cases, apart from detailed history and clinical examination, colonoscopy plays a vital role in the early detection of various diseases.[4,5]. Biopsies obtained via colonoscopy are also of utmost importance and are considered the gold standard in the diagnosis of several lower GI diseases (6). In addition to diagnosis, colonoscopy also has therapeutic importance that includes polypectomy,

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Received: 27 Aug 2024; revision received: 09 Mar 2026; accepted: 11 Mar 2026

foreign body extraction, strictures dilatation, decompression of sigmoid volvulus, and hemostasis (APC for rectal ulcers).7,8. The study aimed to highlight the importance of colonoscopy as a way to gain insight into multiple lower GI diseases. It also analyzed a wide spectrum of colonoscopic findings observed in patients presenting with different lower GI symptoms along with their histopathological correlation which played a crucial role in diagnosis and effective management.

METHODOLOGY

The prospective longitudinal study was conducted at the Department of Gastroenterology, Pak Emirates Military Hospital, Rawalpindi, Pakistan, from October 2023 to May 2024.Non - probability convenient sampling technique was used. Study was approved by the ethical committee of PEMH Rawalpindi (letter no. A/28/ER/54/24). Informed consent was taken from the study participants and their confidentiality was maintained. A sample size of 452 was calculated using WHO sample calculator (confidence interval 95%). (Sample size was calculated using WHO sample size calculator (OpenEpi version 3.01) using single population proportion formula. As the study aimed to determine the frequency of various colonoscopic and histopathological findings in patients presenting with different lower GI symptoms, and there was no single predominant expected prevalence, therefore anticipated prevalence was taken as 50% to obtain maximum sample size. With 95% confidence level and 5% margin of error, the calculated sample size was 384. After adding 18% contingency to compensate for incomplete colonoscopies, exclusions and loss to follow-up, the final sample size was increased to 452.)

Inclusion Criteria: The participants were of either gender, age > 18 years and belonged to middle socioeconomic background. Patients with co-morbidities were also included in the study.

Exclusion Criteria: We excluded patients above 70 years of age, pregnant ladies and those who were hemodynamically unstable.

Colonoscopies were performed by different residents, fellows and consultant gastroenterologists. All the patients underwent bowel preparation according to departmental standard protocols. They were advised to take 30 polyethylene Glycol sachets in 3 litres of water starting from the evening before the procedure and were also instructed to take clear fluid diet a day prior to the procedure. Informed consent was taken and details of the procedure along with possible complications were also communicated to the patients. Sedation was done using IV midazolam and IV propofol and biopsy samples were taken in formalin solution. Record of the contact numbers of patients were kept to enquire about biopsy results.

Data was analysed by using statistical package for social sciences version 23 (SPSS vs 23). Quantitative variables with normal distribution were expressed as Mean±SD and qualitative variables were expressed as frequency and percentages.

RESULTS

A total of 452 patients with the mean age of 39.45 ± 4.57 ranging from 19 to 67 years participated in the study. 280 (61.9%) male and 172 (38.1%) female were part of the study and chronic diarrhea (30.9%) and bleeding per rectum (21.0%) were the commonest symptoms (Figure - 1). Out of the 140 (30.9%) patients who presented with diarrhea persisting for more than 3 months, 50.0% had biopsy proven Ulcerative Colitis, 26.6% had unremarkable study and 7.1% had crohn's disease (Figure - 2). 95 (21.0%) patients had a chief complaint of PR bleed from last 2-3 months. Among them 42.1 % had Ulcerative colitis, while 26.3% had internal hemorrhoids (Figure - 3). 40 (8.8%) patients presented with complaint of chronic constipation (all had constipation for more than 1 year). Their colonoscopy revealed unreamarkable study in 32.5% followed by malignancy in 25.1% (Table - I). 42(9.2%)

patients presented for evaluation of weight loss (most of them had loss of more than 10 kg in last 1 year). Colonoscopy revealed mass in 28.7% and biopsy of all the samples showed adenocarcinoma. 16.6% patients had intestinal Tuberculosis. A significant number of patients 54.7% revealed normal colonoscopy at the time of examination. 50 (11.1%) patients underwent colonoscopy as a part of routine workup for anaemia (Low MCV anaemia, Hb 10 or less) and most of them (40.0%) revealed malignancy (Adenocarcinoma). (Table – II). 35 (7.7%) patients showed up for screening colonoscopy, in which 20 (57.1%) were the post op cases of colorectal carcinoma in which 4 (20.0%) patients showed metachronous lesion , while rest of the cases were either normal or had mild inflammatory changes. 10 (28.0%) patients had a history of colorectal carcinoma in first degree relatives. Among them, only 1 showed colonic growth (adenocarcinoma on biopsy). 5 (14.0%) patients had polyps in upper GI endoscopy, among which only 1 patient revealed Familial Adenomatous Polyposis (FAP). 30 (6.6%) patients who underwent colonoscopy had evidence of GI bleed (FOBT-positive) but there was no visible GI bleed. They already had endoscopies/ colonoscopies in the past for the same reason. Results revealed normal colonoscopy in 14 (46.6%) patients, telangiectasia in 4 patients, submucosal bleeding vessel in 2 patients and diverticulosis in 10 patients (33%). Lastly, a few patients 20 (4.4%) had colonoscopies along with biopsy due to the finding of bowel thickening on the CECT Abdomen. Histopathology of 15 (75.0%) out of them was normal, while 5 patients showed low-grade dysplasia.

Table–I: Colonoscopic findings in Patients with Constipation (n=40)

Colonoscopic Findings	n (%)
Normal	13(32.5)
Mass	10(25.1)
Diverticulosis	7(17.5)
Internal Haemorrhoids	10(25.1)

Table–II: Colonoscopic findings in patients with Anemia (n=50)

Colonoscopic Findings	n(%)
Normal	8(16.1)
Mass	20(40.0)
Telangiectasia	4(8.0)
Anal fissures	3(6.0)
Internal Haemorrhoids	12(24.1)
Erythematous mucosa and complete/partial loss of vascular pattern	(6.1)

DISCUSSION

Our study included most of the symptoms that we come across frequently in our setup. It focused on common manifestations of many lower GI pathologies as well as in diagnosing numerous GI infections/ malignancies. The results revealed that chronic diarrhea and bleeding per rectum were the frequently encountered symptoms in our setup followed by anemia, weight loss and constipation. Male were affected more than female. Inflammatory bowel disease (IBD) came out to be a major cause in patients with chronic diarrhea and bleeding per rectum (50% and 42% respectively). Colonic growths were commonly seen in patients with anemia, weight loss and constipation; biopsy of which mostly showed adenocarcinoma.

Early diagnosis of various lower GI diseases can be burdensome. Colonoscopy helps in the identification of multiple colonic lesions (including neoplasia) associated with different GI symptoms.[9] Colonoscopy is an excellent tool that allows visualization of the entire colonic mucosa and helps in identification of clinically significant lower GI pathologies. Recent advances in colonoscopy have further improved its quality which will help in timely diagnosis and effective management of the large number of colonic diseases.[10]

A study conducted by Khudhur et al, consisting of 91 patients who presented with PR bleed at Rizgary Teaching Hospital, Erbil, Iraq showed that the majority of patients i.e. 45.49% had internal

hemorrhoids on colonoscopy which was also consistent with our study results i.e. 26.3%. However, our study also revealed that a vast number of participants i.e. 42.1% had Inflammatory Bowel Disease (IBD - with UC being more prevalent) on colonoscopy proven via histopathology. This finding was contrary to the above-mentioned study, which showed that only 6% of patients with PR bleed had ulcerative colitis at the time of examination .[11]

The results of our study were in line with a study conducted by BR Malla et al, at Kathmandu University Hospital, Kavre, Nepal which consisted of 129 patients with the chief complaint of PR bleed among which 27.9% had internal hemorrhoids on colonoscopy while 15.5% had colorectal carcinoma but in our setup, only 8.4% of the patients revealed colonic mass (adenocarcinoma).[12] The results of our study were also in line with another study conducted at LRH, Peshawar which revealed that internal hemorrhoids were one of the commonest cause of PR bleed.[13]

Our study revealed that 50% of the patients presenting with chronic diarrhea (persisting for more than 3 months) had Ulcerative colitis on colonoscopic biopsy. These results coincided with another study conducted by IA Khan et al, in which all the patients with UC had presenting complaint of chronic diarrhea (bloody diarrhea).[14]

A study conducted by J Zeng et al consisting of 109 patients concluded that 67.4% of the patients who presented with weight loss had intestinal tuberculosis on colonoscopic biopsy while in our study, only 16.6% among 42 patients who had a weight loss of more than 10 kg in last year had intestinal TB while majority of the patients i.e. 54.7% had normal colonoscopy followed by colorectal growth (28.5%).[15]

Senkaya et al in their study highlighted that only 8.3% of the patients who underwent colonoscopy for evaluation of anemia had colorectal malignancy but, in our study, a wide range of patients i.e. 40% revealed colonic masses. However, they attributed internal hemorrhoids (77.3%) to be the commonest causative factor of anemia and this finding was common in our study as well .[16]

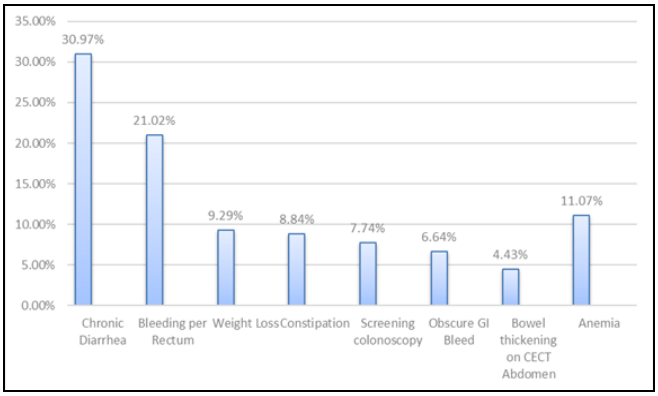
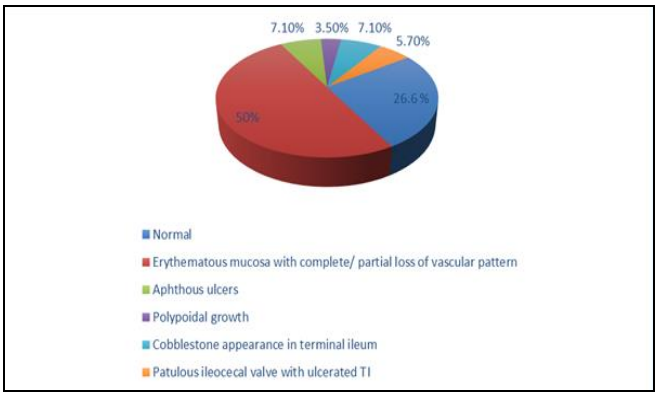
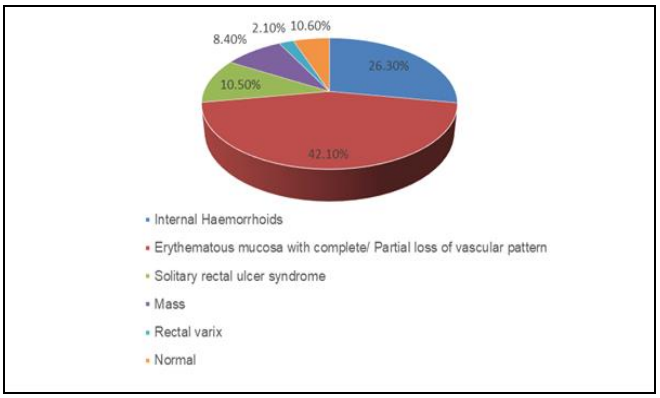


Figure-1: Presenting Complaints (n=452)



Figure–2: Colonoscopic Findings of Patients with Chronic Diarrhea (n=140)



Figure–3: Colonoscopic findings of Patients with Per Rectum Bleed (n=95)

M Ploug et al also reported a significant relationship between iron deficiency anemia and

colorectal carcinoma i.e. 64% of the participants with colonic malignancies had anemia and these results were also concurrent with our study.[17]

K Staller et al studied an association between chronic constipation and colorectal carcinoma and documented a direct relationship between the two. This fact was in accordance with our study results which noted that 25% of patients with chronic constipation had colonic growth on colonoscopy.[18]

RW Klapheke et al published a study that proved colonoscopy as a useful tool in regard to the establishment of aetiologies related to obscure GI bleed. They documented angiodysplasia and diverticulosis to be common findings among patients with positive faecal occult blood test but no visible bleed and this outcome resembled our study results as well.[19]

LIMITATIONS OF STUDY

The study excluded pediatric population as including them may have explored another dimension of the study.

CONCLUSION

Colonoscopy is an efficient diagnostic tool in evaluation of lower GI diseases. It explored the association between common GI symptoms and their colonoscopic findings and also proved beneficial in early diagnosis and timely management of major diseases of lower GI tract.

Conflict of Interest: None.

Funding Source: None.

Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

AFR & KR: Data acquisition, data analysis, critical review, approval of the final version to be published.

FAS & US: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

MS: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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