

# Frequency of Inflammatory Bowel Disease in Patients who Underwent Colonoscopy for Lower Gastrointestinal Bleeding

Inflammatory Bowel Disease in Undergoing Colonoscopy

Dilaram Khan<sup>1</sup>, Inayat Ullah<sup>2</sup>, Mohammad Sohail<sup>1</sup> and Aamir Ghaffoor<sup>1</sup>

## ABSTRACT

**Objective:** To determine the frequency of inflammatory bowel disease in patients undergoing colonoscopy for lower gastrointestinal (GI) bleeding.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Department of Gastrointestinal Diseases, Lady Reading Hospital Peshawar from 1<sup>st</sup> June 2023 till 30<sup>th</sup> November 2023.

**Methods:** One hundred and twenty-one patients were included in this study. Patients of both gender and age more than 18 years with lower GI bleeding were included while patients with hemodynamic instability, patient with past history of colonoscopy for bleeding per rectum and those not willing for study were excluded. Baseline demographic information's of patients were taken and baseline complete blood count and prothrombin time were done, informed consent was taken. Every patient was stabilized hemodynamically, bowel was prepare using 2 litres of Poly Ethylene Glycol given 8 hours before the procedure and patients were kept on liquid diet from 24 hours before the colonoscopy, conscious sedation with midazolam and nalbuphine given and colonoscopy was performed using a flexible colonoscope.

**Results:** Age ranged from 18 to 60 years with mean age of 41.958±6.83 years. Seventy-five (62%) patients were male and 46 (38%) were female. Pain in the abdomen was the most the frequently occurring complaint in addition to rectal bleeding which was present in 34 (28.9%) diarrhoea in 30(24.79%), fever in 10 (8.26%) and constipation in 4 (3.30%) patients. Inflammatory bowel disease was found in 14% of patients.

**Conclusion:** Lower GI bleeding represents a common problem, and inflammatory bowel disease is among the leading causes of Lower GI bleeding.

**Key Words:** Lower GI bleeding, Colonoscopy, Inflammatory bowel disease

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## INTRODUCTION

Inflammatory bowel disease (IBD) is an autoimmune disorder in which recurrent inflammatory bouts occur in gastrointestinal tract because of an abnormal immunological response to gut microflora.<sup>1</sup> IBD is of two types i.e. Ulcerative colitis and Crohn's disease. In ulcerative colitis diffuse inflammation of the colon mucosa occurs and most commonly affects the rectum

<sup>1</sup>. Department of Gastroenterology / Medicine<sup>2</sup>, MTI, Lady Reading Hospital, Peshawar.

Correspondence: Dr. Inayat Ullah Assistant Professor of Medicine Medical Teaching Institution Lady Reading Hospital, Peshawar.

Contact No: 03005963571

Email: drabadat78@yahoo.com

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which is called proctitis, but it may involve the sigmoid (procto-sigmoiditis), extends beyond the sigmoid (distal ulcerative colitis), or can involve the entire colon up to the cecum (pan-colitis).<sup>2</sup> Crohn's disease causes inflammation of all the layers of the Gastrointestinal tract (GIT) called trans-mural inflammation, can involve any part of the digestive tract, mainly affecting the last part of ileum and colon. Both types of IBD are classified by extent and location. Crohn's disease also is classified by phenotype- inflammatory, structuring, or penetrating.<sup>2,3</sup>

The diagnosis of IBD needs a combination of clinical history, physical findings, laboratory markers, imaging studies, and endoscopic findings and biopsies.<sup>4</sup> Changes in the blood include microcytic anemia, leukocytosis, and thrombocytosis, raised ESR and CRP.<sup>5</sup> Gastrointestinal bleeding is bleeding which occurs within the Gut from mouth to anus and is divided upper and lower GI bleeding on the basis of origin.<sup>6</sup> Bleeding which occurs proximal to the ligament of Treitz is called upper GI bleeds, and bleeding distal to this ligament are lower GI bleeds.<sup>7</sup>

This classification into these two is important as helps in the further assessment and ultimate treatment of the patient.<sup>7</sup> Hreinsson et al<sup>8</sup> have shown in a study that frequency of IBD was 13% in patients who underwent endoscopy for lower GI bleeding. In Pakistan, colonoscopy is done for diagnosis of lower GI bleeding but very limited studies are available in our local set up regarding lower GI bleeding. So, this study was designed to study the frequency of IBD in patients undergoing colonoscopy for lower GI bleeding in our local set up.

## METHODS

This cross-sectional study consisting of 121 patients was done in the Gastroenterology unit of MTI- Lady reading hospital, Peshawar from 1<sup>st</sup> June 2023 to 30<sup>th</sup> November 2023 using non-probability consecutive sampling technique. Approval was given by ethical committee of the hospital. Patients of both genders having age more than 18 years and complaining of lower GI bleeding were enrolled in this study while Patients with hemodynamic instability, and those not willing for the study were excluded. Baseline demographic information's of patients (age, gender and duration of complaints) were taken and baseline complete blood count and prothrombin time were done, and informed consent was taken from patients. Patients were hemodynamically stabilized, preparation of the bowel done using 2 litres of Poly Ethylene Glycol given 8 hours prior to the procedure and patients were kept on liquid for 24 hours before the colonoscopy whenever possible. Conscious sedation given with midazolam and nalbuphine and colonoscopy was performed. In case of acute emergency, only sigmoidoscopy was done after giving two enemas 30 minutes before the procedure. During the colonoscopy, the patient was laid on left lateral position and standard flexible colonoscope was used. Colonoscopy findings were noted, IBD was confirmed colonoscopically and minimum of four biopsy specimen were taken from each patient for histological confirmation. Data regarding inflammatory bowel disease was noted. Data was analyzed by using SPSS-23. Post stratification Chi square test was applied,  $p \leq 0.05$  was considered statistically significant.

## RESULTS

There were 75 (62%) males and 46 (38%) females with a male to female ratio of 1.60: and mean age was  $41.958 \pm 6.83$  years, the majority of the patients were in the age range of 40-60 (Table 1). In addition to bleeding per rectum, 34 (28.09%) patients were complaining of pain in abdomen, 30 (24.79%) diarrhea, 10 (8.26%) fever and 4 (3.30%) of constipation (Table 2). Inflammatory bowel disease was noted in 14% patients, where all of 17 (14) patients were having ulcerative colitis while none of them was diagnosed with Crohn's disease (Table 3). Stratification of

inflammatory bowel disease with respect to age, gender and duration of complaints are shown in Tables 4-5 respectively.

**Table No.1: Age wise distribution of patients (n=121)**

Age (Years)	No.	%
18-40	50	41
40-60	71	58
Above 60	-	-

**Table No.2: Other symptoms present along with rectal bleeding (n=121)**

Symptoms	No.	%
Pain abdomen	34	28.09
Diarrhea	30	24.79
Fever	10	8.26
Constipation	4	3.30

**Table No.3: Frequency of inflammatory bowel disease (n=121)**

Inflammatory bowel disease	No.	%
Yes	17	14.0
No	104	86.0

**Table No.4: Stratification of inflammatory bowel disease with respect to age**

Age (years)	Inflammatory bowel disease		P value
	Yes	No	
18-40	5 (11.9%)	37 (88.1%)	0.621
>40	12 (15.2%)	67 (84.8%)	

**Table No.5: Stratification of inflammatory bowel disease with respect to gender**

Gender	Inflammatory bowel disease		P value
	Yes	No	
Male	7 (9.3%)	68 (90.7%)	0.057
Female	10 (21.7%)	36 (78.3%)	

## DISCUSSION

Lower GI bleeding is a frequent cause of referrals to Gastroenterology Centers<sup>9</sup> all over the globe, and same is the clinical situations in our country and local set up as well. Male patients predominated in our study, 62% were male, and the rest were female. Our study results are comparable to the study done by Deeb et al<sup>10</sup> in Egypt, where 68.0% of the patients with lower GI bleed were male. Similarly, a study carried out in India by Bhadauria et al<sup>11</sup> showed a male to female ratio of 2.16:1 in patients who presented with lower gastrointestinal bleeding.

The mean age of patients in our study was  $41.958 \pm 6.83$  years. The same were the results of the study done by Mandhan et al<sup>12</sup> where majority of the patients were in the young age. In this study, abdominal pain was the commonest presenting complaint reported in 34 (28.09%), diarrhea in 30 (24.79%), fever 10(8.26%) and constipation in 4 (3.3%) patients. These results of our study were very same to a study done in the Egypt<sup>10</sup>

where pain in the abdomen and loose motions were commonest complaints. Similarly, a study done by Arvola et al<sup>13</sup> also noted that anemia, pain in the abdomen and diarrhea were the most common presentations in children who presented with Lower gastrointestinal bleeding. In a study done by an author loose motions, vomiting and pain in the abdomen were the most common symptoms among patients presenting with lower gastrointestinal bleeding. In a study done by Zahmatkeshan et al<sup>14</sup> in Iran showed that pyrexia, pain abdomen, and loose stools were the commonest presentations accompanying bloody stool. We found 64.2% of the cases were having anemia at the time of admission. These findings are compatible to another study where 61% of the cases with Lower GI bleeding had pallor.<sup>10</sup> Pallor has been noted to be a common finding among children having chronic blood loss.

In this study, colonoscopy findings were suggestive of inflammatory bowel disease in 14% of patients. The same were the results in the study done by Hreinsson et al<sup>8</sup> which showed that frequency of inflammatory bowel disease was 13% in patients who did endoscopic examination of the colon for lower GI bleeding. In a study from Egypt<sup>10</sup> same findings were noted with polyp being the commonest colonoscopy finding present in 44% whereas results from another study by Clarke et al<sup>9</sup> showed that polyps were present only in 10% of the patients. Greater frequencies of polyps (75%) on colonoscopic examination among patients having Lower GI bleeding was shown by Mandhan.<sup>12</sup> Another author noted that polyps were present in 53% while studies from many other regions of the globe identified polyps to be the most common cause among children with Lower GI bleeding. Deeb et al<sup>10</sup> in Egypt also showed that juvenile polyps to be the most frequently occurring finding which were hamartomatous and responsible for upto 90% of all kinds of polyps noted among children.<sup>15</sup> The diagnosis of inflammatory bowel disease depends mainly on the combination of clinical presentations, laboratory markers, radiological studies, colonoscopy, and histopathological examination. However, sometimes the colonoscopic findings are non-specific and usually occur because of some other etiologies. In addition to differentiate between the two types of IBD and for knowing the extent of the disease, other etiologies of colon inflammation needs to be ruled out. This is of special importance as the treatment for ulcerative colitis or Crohn's disease may worsen other conditions, particularly colonic infection. Infectious agents causing colonic inflammations are very similar inflammatory bowel disease on colonoscopy. Common infections agents like Clostridium difficile (CD) and Escherichia coli (E coli) must be win now out before colonoscopy. Yersinia spp. Can cause abdominal pain in the lower quadrant and pyrexia, where imaging is showing ileitis and is usually similar to acute inflammation of the appendix. Salmonella, Actinomyces, and E. coli infections can cause enteritis and particularly ileitis which are similar to IBD presentations.<sup>16</sup> Intestinal TB

can also cause ulcer, and stricture formation in the terminal ileum and ileocecal valve.

Cytomegalovirus (CMV) can cause ulcerations of the GI tract where ulcers are usually "punched-out" in appearance but biopsies are necessary to differentiate between the two. However, many individuals with inflammatory bowel disease will have CMV infection at the same time, so colonoscopy inspection is mandatory to rule out concomitant Cytomegalovirus infection which is causing bowel inflammation, but sometimes it can be very challenging to establish whether Cytomegalovirus is just a passerby or an active participant in inflammation in these patients.<sup>17</sup>

Though it is very rare but vasculitis can also cause bowel inflammation, especially the small Gut. SLE, polyarthritis nodosa, Henoch-Schönlein purpura (HSP), and Behçet's disease may all cause colonic inflammation just like IBD. The gastrointestinal tract is affected by Polyarteritis nodosa in up to 65% of patients and can cause symptoms of bowel ischemia.<sup>18</sup> Behçet's disease usually cause ulcers in the small and large intestines with normal intervening mucosa and these are usually confused with Crohn disease. However, the ulcerations in Behçet's disease are usually less in number, are larger, deeper, and rounder as compared to those which occur in IBD.<sup>19</sup>

Ischemia can cause erythema, edema, erosion and ulcerations which are similar to those of inflammatory disease. Ischemic colitis usually cause dusky necrotic colitis which occur in segments, having a demarcation between diseased and normal colon and usually affect the left colon. A detailed history and accuracy of symptoms can differentiate between IBD and ischemic colitis.<sup>20,21</sup> diverticulosis causing segmental colitis is also very difficult to differentiate from inflammatory bowel disease. Segmental colitis of diverticulosis most commonly affects the left sided colon, especially the sigmoid colon. While rectum and the rest of the colon are spared most of the time. Edema, erythema, erosions, and ulcers, often with sparing of the diverticular orifices are the main endoscopic findings.<sup>22</sup> Since the colonoscopic and biopsy features overlap with the inflammatory bowel disease, the diagnosis is usually challenging, but Segmental colitis associated diverticulosis is mainly found in old age patients.<sup>23</sup> similarly NSAIDs can cause bowel inflammation and proper history and examination is needed to differentiate it from IBD.

## CONCLUSION

Lower GI bleeding is a common problem with a vast differential diagnosis. Inflammatory bowel disease is among the leading causes of Lower GI bleeding. So thorough history, physical exam, and utilization of endoscopic and radiographic adjunct are crucial in identification of the etiology of the bleeding. Endoscopic examination of the colon is a beneficial and safe procedure in patients who present with lower GI bleeding.

**Author's Contribution:**

Concept & Design of Study: Dilaram Khan  
 Drafting: Inayat Ullah,  
 Mohammad Sohail  
 Data Analysis: Mohammad Sohail,  
 Aamir Ghaffoor  
 Revisiting Critically: Dilaram Khan, Inayat  
 Ullah  
 Final Approval of version: Dilaram Khan

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