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Yield of Colonoscopy in Patients with Lower Gastrointestial Bleeding in a Tertiary Care Setup

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Abstract: ***Introduction: Lower gastrointestinal bleeding (LGIB) means bleeding distal to the ligament of Treitz and presents as rectal bleeding. Rectal bleeding occurs in 20% of the population annually according to Medline literature search and mortality is around 11% overall and up to 21% for the acute massive category. In the present study, we thus aimed to evaluate the role of colonoscopy as a diagnostic and a management tool in the evaluation of patients with per rectal bleeding. Methodology & Results: A tertiary care centre based prospective observational study was carried out for two years. Patient of both sexes from outdoor as well as an indoor basis with age group between 18-75 years in which active bleeding or lesions with endoscopic evidence of recent haemorrhage were considered positive. The quantitative data is represented as their mean ± SD. The significance threshold of p-value was taken as <0.05. Out of 60 colonoscopies, 43 were males and 17 females. The study showed time duration of PR bleeding was less than six months in 41.7% subjects, male predominance in 71.7% to 28.3% females; mean age of the cases with per rectal bleeding was 42.44 years. The most common observation made on colonoscopy was left-sided colitis (20%). Out of 31 such (53.4%), 28 were Ulcerative colitis. The intervention was free of complications in 96.7% of cases. Significant therapeutic interventions were performed in 3 additional patients, polypectomy, relief of obstruction, and removal of foreign body. The Diagnostic yield of colonoscopy was 85%. Discussion & Conclusion: Colonoscopy is a very safe procedure and has a high diagnostic yield. So it should be considered as the investigation of choice in patients presenting with bleeding per rectum after local anorectal pathologies have been excluded by per rectal examination and proctoscopy. Therapeutic capability with colonoscopic intervention to control per rectal bleeding is especially appealing which prevents many patients from the pain of undergoing extensive surgeries.***

Keywords: Colonoscopy; Lower GI Bleeding; Diagnostic Yield; Hematochezia; Neoplasia

Abbreviations

LGIB: Lower gastrointestinal Bleeding
UGIB: Upper Gastrointestinal Bleeding
GIT: Gastrointestinal Tract
NSAID: Non-Steroidal Anti-Inflammatory Drug
CT: Computed Tomography

1. Introduction

Lower gastrointestinal bleeding (LGIB) means bleeding from sites distal to the ligament of Treitz and presents as rectal bleeding [1]. This rectal bleeding may be overt or occult, and overt bleeding can be acute, massive or chronic. Rectal bleeding occurs in 20% of the population annually according to Medline literature search [2]. Mortality for LGIB is around 11% overall and up to 21% for the acute massive category [1,3]. It is usually suspected when patients complain of hematochezia. This is different from the clinical presentation of upper GI bleeding, which includes hematemesis and melena. However, about 11% of cases of upper gastrointestinal bleed (UGIB) may present as hematochezia [4]. LGIB warrants an urgent evaluation in all cases and proctosigmoidoscopy followed by colonoscopy is the examination of choice for diagnosis and treatment [1]. It is also the most accurate method of imaging the lower gastrointestinal tract [5]. The causes of LGIB may be grouped into several categories: anatomic (diverticulosis); vascular (angiodysplasia, ischemic); inflammatory (infectious, idiopathic, radiation-induced); and neoplastic.

Studies done in the western population have shown that most frequent causes of lower GI bleed are diverticulosis and polyps followed by neoplasia, inflammatory bowel disease (IBD), non-specific proctitis, ischemic colitis, angiodysplasia and infectious colitis [6,7]. However, studies conducted in India have demonstrated that there were differences in frequencies of aetiologies in their population compared to Western one [3].

Colonoscopy involves usage of a long, flexible, narrow tube with a light and tiny camera on one end called a colonoscope or scope. It can show irritated and swollen tissue, ulcers, polyps, cancer, areas of inflammation, bleeding and tissue samples can be collected (biopsy), and abnormal growths can be taken out. It can be used to screen for any precancerous growths in the colon or rectum (polyps). Apart from treatment of haemorrhoids, colonoscopy is beneficial in Foreign Body removal from lower GIT, stricture dilatation, endoscopic polypectomy and stenting for palliation of malignant obstruction. The overall morbidity rate was 0.4% with bleeding (0.2%) and perforation (0.1%) being the most frequent associated complications and no colonoscopy-related mortality [8].

In the present study, we thus aimed to evaluate the role of colonoscopy as a diagnostic and a management tool in the evaluation of patients with per rectal bleeding with a similar account on colonoscopy versus other investigatory parameters and procedures in the diagnosis of per rectal bleeding.

2. Aims & Objectives

- To study the role of colonoscopy as a diagnostic tool in the evaluation of patients with per rectal bleeding
- To investigate the role of colonoscopy in the assessment and management of patients with per rectal bleeding
- To study a comparative account of colonoscopy versus other investigatory parameters and procedures in the diagnosis of per rectal bleeding
- To investigate the role of colonoscopy as a diagnostic intervention in acute lower GI bleed

3. Material and Methods

A hospital-based prospective observational study involving patients presenting with lower GI bleeding with colonoscopy indications at Department of Surgery, Tertiary Care Centre Hospital. The study was carried out from Nov 2015 - Oct 2017 and the sample size was 60 cases.

Inclusion Criteria:

1) Patient of both sexes from outdoor as well as the indoor basis of a tertiary care Centre hospital with age group between 18-75 years of age with positive indications for colonoscopy.
2) Patients presenting with per rectal bleeding and in whom alternative methods have failed to diagnose or specify the cause of per rectal bleeding.
3) Patients who are cooperative and have given written informed consent for the procedure.
4) Patient in whom colonoscopy is indicated as a treatment modality in the management of lower GI bleed.
5) Patient presenting with both acute and chronic onset lower GI bleed.

Exclusion Criteria:

1) All patients presenting on indoor and outdoor basis with age group less than 18 years of age or greater than 75 years of age.
2) Patients presenting with hollow viscus perforation.
3) Patients presenting with toxic megacolon.
4) Patients who refuse to consent for the procedure or is unable to co-operate or cannot be adequately sedated
5) Patients presenting with fulminant colitis.

Written informed consent was taken from all patients before bringing them in the study. A detailed history of lower GI bleeding, general examination and relevant investigation were done for all patients. All patients were then subjected to colonoscopy examination. Before a colonoscopy, proper history was elicited to rule out if the patient is on any medicines, has an allergy to any drugs, bleeding tendency or underwent X-ray testing using barium and pregnancy. The patient was advised to stop taking aspirin products or iron supplements 7 to 14 days before the test.

Colon preparation:

One to two days before a colonoscopy, the patient was asked to stop eating solid foods and drink only clear fluids. He was given four tablets of Dulcolax and two tablets of Gassex a day before colonoscopy followed by administration of PEGLEG powder in two litres of water in two hours. The night before colonoscopy an IV line was secured with two bottles of crystalloids infused overnight to avoid getting the patient dehydrated and have an electrolyte imbalance. The patient is kept nil by mouth for 6-8 hours before the procedure. If required, the patient was sedated, and an injectable painkiller was given to the patient.

The patient is informed about the procedure. Next, a thin, flexible Colonoscope is inserted into the patient's anus and negotiated slowly through the rectum and into the colon. Air was used to inflate the colon to examine the lining of the colon through the scope or on a computer screen attached to the scope.

After the test, the patient is advised to drink a lot of fluid after the test to replace the fluids patient has lost during the colon preparation.

In cases of therapeutic interventions, patients were advised to avoid aspirin and Nonsteroidal anti-inflammatory drugs (NSAIDs) for 7 to 14 days. Patients were instructed to report back in case of rectal bleeding, abdominal pain, fever, dizziness, and vomiting. The report of histopathology specimen was then corroborated with the colonoscopic findings to measure its diagnostic yield. The quantitative data was represented as their mean ± SD. Categorical and nominal data was expressed in percentage. The significance threshold of p-value was taken as <0.05. SPSS software version 21 carried out all analysis.

4. Discussion & Results

Lower GI bleed, though less common than upper GI bleed, is a frequently encountered problem in general medical practice. Although most cases of rectal bleeding are due to self-limiting local anorectal conditions, it may also be the only sign of colorectal neoplasia[9]. Most of these pathologies were diagnosed by routine investigations, per rectal examination and proctoscopy. However, there are still cases where no etiological cause can be established. A hospital-based observational study was conducted at Department of Surgery of a tertiary care hospital. The aim was to study the role of colonoscopy as a diagnostic and therapeutic tool in the evaluation of patients with per rectal bleeding. A total of 60 cases of per rectal bleeding, in whom alternative methods have failed to diagnose or specify the cause of per rectal bleeding were included in the study. All patient with undergoing colonoscopy under proper sterile and aseptic conditions and findings were recorded and analysed.

The mean age of the cases with per rectal bleeding was 42.44 years with almost half of the subjects were between 21-40 years of age. Our results are also in concordance with Manzoor et al. and Zia et al. where the mean age of presentation was 38 and 41.04 years respectively[10,11]. While on the other hand, western studies showed that lower gastrointestinal bleeding was more common in older generation as Jensen et al.[4] and Chaudhary et al.[12]found that mean ages of patients in their studies were 64.5years and 75 years respectively. This difference in age is probably due to the difference in etiologies prevalent in the two parts of the world.Male predominance was seen in the study cases with 71.7% males to 28.3% females. Similarly, Fernandez et al. [7] found 59% and 55% males to 41% and 45% of women in their studies respectively. On the other hand, Manzoor et al.[10] found that lower gastrointestinal bleeding was more common in women (45% of patients were males and 55% females). Sanchez et al. found that male to female ratio was 1:1.15. Most of the subjects had a complaint of per rectal bleeding since less than six months (41.7%) while only 10% had this for over two years. Associated charges given by cases were abdominal pain (65%) followed by diarrhoea (43.3%) and constipation (21.7%). Weight loss was seen in 21.7% of the cases.

The most common finding on colonoscopy was left-sided colitis (20%) followed by pancolitis (11.7%), proctitis

(11.7%), procto-sigmoiditis (8.3%), colonic diverticula (6.7%), polyp (5%) and solitary rectal ulcer (5%). A cancerous growth was seen in 15% of cases. No abnormality on colonoscopy was seen in 9 (15%) cases (Table 1).

On histopathology, most common abnormality observed was ulcerative colitis (46.7%) followed by colorectal carcinoma (15%). Other findings were non-specific colitis (5%), colonic diverticula (6.7%), polyp (5%), and solitary rectal ulcer (5%) (Table 2). Colonoscopy showed good agreement with the final histopathology diagnosis concerning all the etiologies of per rectal bleeding. The most common observation made on colonoscopy was left-sided colitis (20%), pancolitis (11.7%), proctitis (11.7%) and procto-sigmoiditis (8.3%). Out of 31 such (53.4%), 28 were confirmed as Ulcerative colitis on histopathological diagnosis while remaining three was diagnosed as non-specific colitis (Table 3).

Most of the studies on lower GI bleed indicate that haemorrhoids are a common cause of lower GI bleeding not only in our region but also in the west [10,11,13,14].

Zia et al. [11] showed ulcerative colitis being the commonest followed by malignancy, amoebic colitis, polyps, Angiodysplasia and diverticular disease. A Spanish study by Fernandez et al. [7] observed inflammatory bowel disease in only 9.4 % cases. Zuckerman et al.[7] found diverticulosis being the most frequent cause in the USA, followed by carcinoma/ polyp and then colitis/ulcers. Next common cause we observed was growth found in 15% cases. Manzoor et al.[10] found 8%, Zia et al.[11]found 10% cases and Bhatti et al.[13] found 11.1% of cases of malignant growth. These figures indicate that colorectal cancer is also increasing in the eastern countries approaching western digits. This is perhaps due to increased intake of western-style diet. Our study showed that ulcerative colitis and malignancies are the leading colonic pathologies responsible for lower GI bleeding. A necessary implication of finding abundant cases of ulcerative colitis and colorectal carcinoma is the identification of patients having increased risk of carcinoma. Since patients with inflammatory bowel disease (IBD) are at increased chances for development of colorectal carcinoma (CRC), it is possible that most cases of CRC may have produced in the pretext of ulcerative colitis. Hence an essential suggestion of this study is that patients with ulcerative colitis should be monitored cautiously for the development of CRC. In tis context, surveillance colonoscopy has a significant role. A reasonable approach is to start surveillance colonoscopy after eight years of developing pan-colitis and 15 years of left-sided colitis. It should then be repeated after every one or two years. Multiple biopsies should be taken, and early dysplastic changes should be identified so that carcinoma can be diagnosed early and necessary remedial measures can be made.

Out of the 60 cases observed, no pathology was found on colonoscopy in 15% giving a diagnostic yield of colonoscopy in the present study as 85%. In the study by Zia et al.[11]he observed abnormal findings in 82% of cases. Chaudhry et al.[12] reported that the source of bleeding could be correctly identified in 95% of cases. Jensen et al.[4] and Cheung et al.[15]found the diagnostic yield as 74% and 79.5% respectively. In 15% of cases in this study, the exact cause of rectal bleeding remained unidentified even after visualising the whole colon till caecum. Clinical evidence of obscure gastrointestinal haemorrhage ranges from 5–20% in different studies.[11,16,17] A lesion higher up in the small intestine or stomach may have caused it, and other specialised techniques should be employed for a definite diagnosis. Colonoscopic polypectomy was done in all the 3 cases with polyps. No complications were encountered during the procedure in 96.7% of cases. Sayeed M et al.[18] in their study observed 29 instances of polyps out of 332 cases (0.8%) of lower GI bleeding. Polypectomy was performed in 22 of these cases. A similar role of colonoscopy as a therapeutic tool in polypectomy was seen in other studies too.[7,11]

Colonoscopic perforation occurred in one case (1.7%) while bleeding from polypectomy site occurred in 1 of the three instances managed by colonoscopic polypectomy. Zia et al.[11] in their study on 105 cases of lower GI bleeding observed no complications. However, the incidence of complications mainly perforation, in international literature is about 0.5%.[5]

Thus to summarise, colonoscopy is a very safe procedure and has high diagnostic yield. So, it should be considered as the investigation of choice in patients presenting with bleeding per rectum after local anorectal pathologies have been excluded by per rectal examination and proctoscopy. Colonoscopy also has a therapeutic value, which prevents many patients from the pain of undergoing extensive surgeries.

5. Conclusion

Colonoscopy has a very high diagnostic yield and should be considered as the investigation of choice in patients presenting with bleeding per rectum after local anorectal pathologies have been excluded by per rectal examination and proctoscopy. Common colorectal pathologies prevalent in our population include ulcerative colitis, colorectal carcinoma and nonspecific colitis, while diverticulosis, Crohn's disease and polyps are found less frequently. Furthermore, bleeding per rectum afflicts relatively younger patients in our country as compared to statistics in the west.

Thus the present study contributes additional knowledge and reassurance of the efficacy and safety of colonoscopy in outpatient's settings.

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Table 1: Distribution of subjects based on Colonoscopy Findings

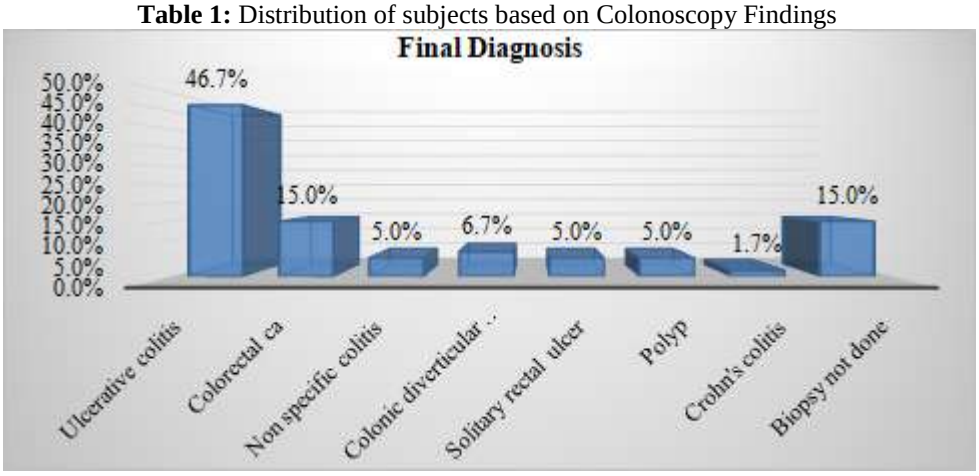

Table 2: Distribution of subjects based on Final Histopathology Diagnosis

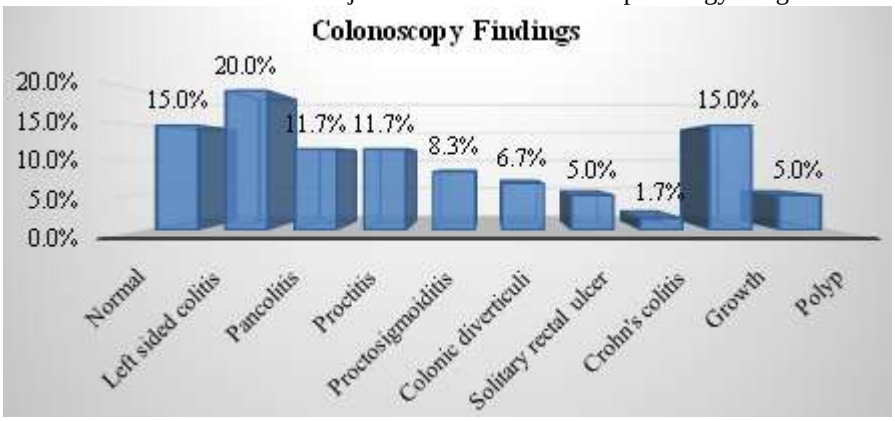

Table 3: Comparison of Colonoscopy findings and Histopathology results

Colonoscopy findings	Histopathological Diagnosis								Total
	UC	Colorectal Cancer	Non specific colitis	Colonic diverticular disease	Solitary rectal ulcer	Polyp	Crohn's	Biopsy not done	
Normal	0	0	0	0	0	0	0	9	9
Left sided colitis	9	0	3	0	0	0	0	0	12
Pancolitis	7	0	0	0	0	0	0	0	7
Proctitis	7	0	0	0	0	0	0	0	7
Proctosigmoiditis	5	0	0	0	0	0	0	0	5
Colonic diverticulitis	0	0	0	4	0	0	0	0	4
Solitary rectal ulcer	0	0	0	0	3	0	0	0	3
Crohn's colitis	0	0	0	0	0	0	1	0	1
Growth	0	9	0	0	0	0	0	0	9
Polyp	0	0	0	0	0	3	0	0	3
Total	28	9	3	4	3	3	1	9	60