Clinical Profile and Colonoscopic Findings in Patients Presented With Lower Gastrointestinal Bleeding

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Abstract:
Introduction: *The lower gastrointestinal bleeding (LGIB) is an important medical emergency which has significant morbidity and mortality. LGIB can be caused by a number of both neoplastic and non neoplastic lesions. For accurate diagnosis of various colorectal lesions, colonoscopy is the gold standard, simple, convenient and cost effective procedure. The present study was aimed to scrutinize the clinical profile and colonoscopic findings in patients presented with lower gastrointestinal bleeding in a tertiary care centre in western Nepal.*
Methods: *This is a hospital based prospective observational study conducted from 20th March 2019 to 19th September 2019 at Universal College of Medical Sciences- Teaching Hospital, Bhairahawa, Nepal. All the patients presented with LGIB during the study period were included. Study was cleared by institutional review committee of the hospital.*
Results: *The mean age of our patients (n=69) was 46.93 ±16.99 years. Males (76.81%, n=53) were outnumbered than females (23.19%, n=16). Majority of the patients were in the age group 51-60 years 26.1% (n=18). The most frequent lesional site was anal canal and rectum 59.42% (n=41) followed by sigmoid colon 18.84% (n=13) The most commonly diagnosed lesions on colonoscopic examination was growth seen in (14.49%; n=10).Among the biopsied patients the most frequent diagnosis observed on histopathological examination was nonspecific colitis 30% (n=9) .*
Conclusions: *The incidence of lower GI bleeding increased with increasing age with male predominance. The leading cause of lower GI bleeding was found to be mucosal growth, haemorrhoids and anal fissure. Anal canal and rectum were the two most common sites for the lesions*
Keywords: *Colonoscopy, Lower GI bleeding*

I. Introduction

Gastrointestinal (GI) bleeding is an alarming symptom and common medical emergency which is associated with significant morbidity and mortality. The annual hospital admission rate with GI bleeding in the United States and United Kingdom is estimated to be around 150 patients per 100000 populations with a mortality rate of 5%-10%.[1] Lower Gastrointestinal bleed (LGIB) is defined as bleeding that occurs from GI tract, distal to the ligament of Treitz.[2] LGIB may account for up to 20- 25% of all acute GI bleeding.[3] The etiology and the epidemiology of LGIB varies according to the environmental conditions depending upon the life style, dietary habits, prevalence of smoking, history of drug intake, age, longevity of the population etc. Colonoscopy is the investigations of choice in LGIB. It is the safe, convenient and cost effective outpatient procedure which can be used for both diagnostic and therapeutic purposes. This study was done to find out clinical profile and etiology of patients presenting with LGIB.

II. Material And Methods

It was a single centre hospital based, cross sectional observational study which was carried out at the endoscopy unit of the Universal College of Medical Sciences-Teaching Hospital (UCMS-TH), Bhairahawa, Rupandehi, Nepal from 20th March 2019 to 19th September 2019**.** Study was cleared by ethical review committee of the institute. All the patients with age >16 year scheduled for colonoscopy for LGIB during the study period were included in the study. Written informed consent was taken from all the patients.
Following patients were excluded from the study.
1. Patients aged less 16 years.
2. Patients with suspected upper source of GI bleeding and acute infectious diarrhoea

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3. Patients unfit for colonoscopy or who are hemodynamically unstable
4. Patients who refused to give written consent.

After enrolment in the study, as per pre-designed Proforma, detailed history including name, age, sex, ethnicity, occupation, presenting features of lower GI bleeding, significant relevant past history, drug history and other co morbidities were recorded. All the patient and accompanying persons were instructed to take the bowel preparatory regime as per the protocol. Liquid diet was advised to patient a day prior to procedure. In planned procedure, patient was advised to take low residue diet several days before the procedure. Adequate hydration was maintained by giving ORS solution in between the bowel preparation. Red liquid was avoided and clear liquid diet was allowed 2 hours before the procedure. Bowel cleansing agent was prescribed.

Bowel cleaning agent- Polyethyelene Glycol (PEG) was used during the study. Split dosing bowel preparation regimen was followed for bowel   preparation. Typically the standard dose of bowel preparation was split with a day before and the morning of the procedure. Two sachets of PEG (PEGLEC®, manufactured by Tablets India Limited) were given on the day before colonoscopy. On the day before the procedure patients were advised to dissolve 1 sachet of PEG with 2 litres of water. Patients were instructed to drink and finish the dissolved solution over period of 2-5 hours preferably at 6 pm to 9 pm. In addition, patients were instructed to take additional 2 litres of electrolyte solution prepared by mixing 2 sachet of Electrobion powder (® Merck Pharmaceuticals) with 2 litres of water to be consumed during the same time period to prevent dyselectrolytemia. On the day of procedure, the remaining one sachet of PEG was again dissolved in two litres of water. Patients were instructed to take the dissolved solution from 5am to 7am on the day of colonoscopy, at least 3 to 8 hours before the planned start of the colonoscopy procedure.

Patients were interviewed and examined by the investigator in endoscopy departments and questionnaires containing data about history and clinical examination were filled for each patient, before undergoing colonoscopy. Patients were informed of possible adverse events and written consent was taken. Then after patients were advised to lie on left lateral position on the examination couch and intravenous (IV) line was opened with 18 gauge cannula. Per rectal examination followed by proctoscopy examination was done. Any findings like anal fissure, haemorrhoids, mass and blood stained per gloves were recorded. Patients were counselled about the procedure and after their full consent, procedure was started. Moderate sedation was maintained by 2.5 to 5 mg intravenous midazolam.

Colonoscopy was performed by experienced endoscopist. The colonoscopy was done by means of colonoscope of FUJINON EVE® EPX-201H processor and FUJINON EC-250WL5 endocope following standard high level disinfection by 2.5% glutaraldehyde. Colonoscopic findings and abnormalities were noted. Biopsy was taken from the suspected lesions and the biopsy sample was transferred gently to a container with 10% neutral formalin using a non toothed forcep, properly labelled and sent to the Department of Pathology. Continuous monitoring of the patient was done during the procedure. After the procedure, patients were monitored for about one hour, until the effect of sedatives had subsided. Then they were allowed to leave to the wards or to return to their home, in case no complications had occurred. Any complication during the procedure such as bowel perforation, aspiration or any adverse event during and within 48 hours (through telephone) after the procedure was registered. All the data was collected and filled in the Proforma.

Statistical analysis

The compiled data from the Proforma was entered in the computer in the windows office version 10, excel spread sheet and transferred to SPSS version 20(SPSS Inc., Chicago, IL). Statistical analysis was done using SPSS for window software. Descriptive analysis was done as mean, percentage and standard deviation. The level of significance for all analytical tests was set at 0.05 where P value < 0.05 was considered to be statistically significant.

III.   Result

Total 69 subjects were analyzed systematically in this study. The mean age of study subjects was a 46.93±16.99 year with age ranging from minimum of 17 years to maximum of 78 years. Highest number of patients 26.1 % (n=18) were in the age group from 51-60 years. This was followed by age group of >60 years which constituted 21.74% (n=15) patients. The least common age group observed in present study was age group of ≤20 years which has constituted only 5.79% (n=4) patients. (Table 1)

Table 1: Baseline characteristics of the patients

Parameters	N (%)
Age (yrs)	
≤20	4 (5.79%)
21-30	14 (20.29%)
31-40	11 (15.94%)

41-50	7 (10.14%)
51-60	18 (26.1%)
>60	15 (21.74%)
Sex	
Male	53 (76.81%)
Female	16 (23.19%)
Male:Female	3.31: 1
Religion	
Hindu	57 (82.61%)
Muslim	8 (11.59%)
Buddhist	4 (5.8%)
Others	
Smoking	17 (24.64%)
Alcohol	16 (23.19)
Diabetes Mellitus	6 (8.7%)
Hypertension	12 (17.39%)
Vegetarian	10 (14.49%
Non vegetarian	59 (85.51%))

There were 76.81% (n=53) male patients and 23.19% (n=16) female patients with male to female ratio of 3.31: 1. Majority of the patients were followers of Hinduism which constituted 82.61% (n=57) followed by Muslims 11.59% (n=8) and the least followers were of Buddhism 5.8% (n=4). (Table 1) History of bleeding per rectum was present in all the subjects. Most of the patients had various other symptoms associated with per rectal bleeding. The other symptoms during presentation were loose stool > constipation > abdominal pain > weight loss in 21, 20, 16, 5 patients respectively. Diabetes Mellitus was seen in 8.7 % (n=6) patients and hypertensive was seen in 17.39% (n=12) patients. History of alcohol consumption was present in 23.19% subjects (n=16) and smoking was noted in 24.64% (n=17) subjects. Majority of the patients were non vegetarian which constituted 85.51% (n=59) and the vegetarian were 14.49% (n=10).

General examination for presence and absence of pallor, icterus, cyanosis, clubbing, oedema and lymphadenopathy were done in the study subjects. Pallor was present in 37.68% (n=26) subjects. On local examination, PR examination was done. Common finding was haemorrhoids 15.94% (n=11), anal fissure 15.94% (n=11), mass felt 8.7% (n= 6) patients and gloves stained with blood in 7.25% (n=5). In rest of 36 (52. 17%) subjects, PR examination was found to be normal. All the study patients were investigated for haemoglobin level and subcategorized into anaemic and non anaemic patients. The presence of anaemia was noted in 62.32 % (n=43) patients and remaining 37.68% (n =26) patients had normal haemoglobin.

All 69 patients underwent colonoscopic evaluation to find out structural lesions in lower GI tract for diagnostic as well as therapeutic purpose. Colonoscopy aids to find out the site, characteristics and nature of lesion with or without colonoscopy directed biopsy. The most frequent lesional site was anal canal and rectum (n=41) of the total lesion site. It was then followed by sigmoid colon (n=13) and then by descending colon and ascending colon. (Table 2)

Table 2: Distribution of the site of lesions

Site of Lesion	Frequency N (%)
Anal canal and Rectum	41(59.42%)
Sigmoid Colon	13(18.84%)
Descending Colon	6(8.7%)
Splenic Flexure	1(1.45%)
Transverse Colon	1(1.45%)
Hepatic Flexure	0
Ascending Colon	3(4.35%)
Ileum	1(1.45%)

Colonoscopic impression Colonoscopy was abnormal in 72.46% subjects (n=50) whereas normal colonoscopic finding was seen in 27.54% (n==19) subjects. Among abnormal colonoscopy mucosal growth was found in 14.49% (n==10) subjects whereas other lesions were detected in 80% (n=40) subjects. The common colonoscopic findings were growth (n=10, 14.49%), followed by haemorrhoids (n=9, 13.04%), anal fissure (n =9, 13.04%), erosive colitis (n=6, 8.7%), polyp (n=6, 8.7%), proctitis (n=3, 4.35%), Diverticulum (n=2, 2.9%), ulcerative colitis (n=2, 2.9%), fistula in ano (n=1, 1.45%), rectosigmoiditis, (n=1, 1.45%) and rectal prolapsed (n=1, 1.45%).(Figure 2).
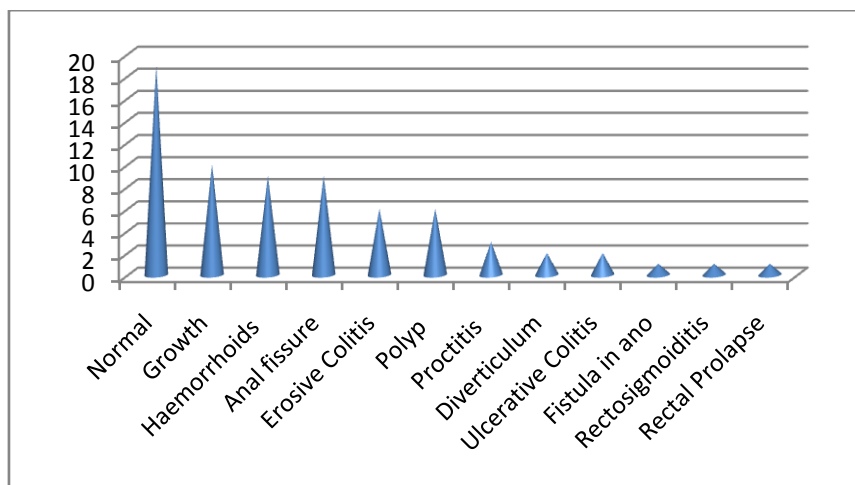
Figure 1: Colonoscopic diagnosis

Out of 69 patients included in the study, colonoscopic biopsy was performed in 43.48% (n=30) cases. Histopathology reports in these cases were recorded. Among biopsied lesions, neoplastic lesions were seen in 9 (30%) cases and non neoplastic lesions were seen in 21 (70%) cases. Among non neoplastic lesions non specific colitis was the most common diagnosis in histopathology comprising 30% (n=9) cases, followed by focal active colitis in 20% (n=6) cases, Inflammatory polyp in 10% (n=3) cases and lymphocytic colitis in 10% (n=3) cases. Among the neoplastic lesions, high grade dysplasia was most common diagnosis (n=4, 13.33%) followed by adenocarcinoma (n=3, 10%) and low grade dysplasia (n=2, 6.67%). (Table 3)

Table 3: Histopathological findings

Category	HPE	Frequency (%)
Neoplastic (n=9, 30%)	High grade dysplasia	4 (13.33%)
	Adenocarcinoma	3 (10%)
	Low grade dysplasia	2 (6.67%)
Non Neoplastic (n=21, 70%)	Non specific colitis	9 (30%)
	Focal active colitis	6 (20%)
	Inflammatory polyp	3 (10%)
	Lymphocytic colitis	3 (10%)

Among subjects with malignancy (n=9) the mean age was 57.22 years. There were 5 males and 4 females. Majority of patients, 44% (n=4) were in the age group > 60 years followed by 33% (n=3) in age group of 51-60 years. It was observed that 56% (n=5) of the cases were smokers and 89% (n=8) were non-vegetarian. Rectum was commonest site for malignancy (n=5, 56%) followed by sigmoid colon (n=3, 33%) and Descending colon (n=1, 11%). On colonoscopic appearance, regarding gross morphology, most common type was ulceroinfiltrative type consisting of 56 % (n=5) of total cases of malignancy followed by polypoidal growth 22% (n=2), annular exophytic growth 11% (n=1) and cauliflower type 11% (n=1).

IV. Discussion

Lower gastrointestinal bleeding is a common problem faced in gastroenterology practice worldwide which is associated with significant morbidity and mortality. The clinical profile and colonoscopic findings and histopathological diagnosis were studied and correlated with histopathology report whenever available. The mean age of the study patient was 46.93 years with age ranging from minimum of 17 years to maximum of 78 years. Similar results were observed in other study from Nepal where the mean age was of 45.23 years.[4] Likewise in a study conducted by Bafandeh Y et al. the mean age was 47.10 years.[5] This shows the similar involvement of age group as compared to our study and thus shows that overall colorectal symptoms are most frequently seen in their fifth or sixth decade of life. In the present study, LGIB was more common among males as 76.81% of the patients were males and male to female ratio was 3.31: 1. Male predominance in the LGIB has been seen in many other studies.[6, 7]

In our study, the incidence of lower GI bleeding increased with increasing age. Incidence was lowest 5.79% (n=4) in the age group of ≤20 years. Highest number of patients 26.1 % (n=18) were in the age group from 51-60 years. One of the reason for the increased incidence of lower GI bleeding with increasing age could be as a result of the gastrointestinal diseases specific to the increasing age like haemorrhoids, ulcerative colitis and colorectal carcinoma.[8, 9] The other reasons are due to increased prevalence of comorbid conditions such as

cardiovascular diseases, renal diseases and diabetes mellitus in old age , as well as increased use of drugs like anticoagulants and NSAIDs by the elderly people, which increase the risk of LGIB.[10]

In Nepal, various risk factors like smoking and alcohol consumption that are more common in male population might have some role in the contribution of lower GI bleeding and other factors may be due to stressful life styles among males as compared to females. The similar result was found in other study done at University College Hospital, Ibadan, Nigeria.[11] The male predominance observed in the present study and other studies can be explained by the fact that males often suffer from chronic constipation due to low fibre diet, low intake of liquids especially water and fruit juices and ignorance of fresh vegetable usage, intake of tobacco and other abuses that affect the formation and synthesis of gastric juices and enzymes and retain faecal wastages in the colon thus enhancing bleeding from the large intestines.[12] This study also showed that the lower GI bleeding was more common in those patients who were Hindu by religion (85.2%). This could thus be explained as the study was done in Terai region of Nepal where majority follow Hinduism. As well as the dietary habits i.e. non vegetarian could have been proposed for higher incidence of lower GI bleeding in Hindu people as compared to followers of Muslim and Buddhists. In the present study along with bleeding per rectum, loose stool (n=21), constipation (n=20), pain abdomen (n=16) and weight loss (n=5) were the other common symptoms found in our patients. This finding was consistent with the study done by Adelstein B et al.[13] In another study from India the commonest clinical symptom was hematochezia (80%), followed by constipation (76%), loss of weight (56%) and blood mixed with stools (50%).[14]

The common diagnosis in our study were mass, haemorrhoids and anal fissure. The diagnostic yield for rectal mass on PR examination remained same on colonoscopic evaluation and provisionally considered as neoplastic growth on colonoscopy. Thus a mass found on digital rectal examination was significant predictors of malignancy and should be considered in priority for colonoscopy as well as biopsy. So colonoscopy is sensitive in detecting the missing pathologies, their precise location and to evaluate the extent of malignant lesion. The etiology of lower GI bleeding shows marked geographic variation. In the Western Europe and the United States, diverticulosis remains the most common cause of lower GI bleeding.[15,16] In contrary to the western population, in our present study, the maximum patients had colonoscopic abnormalities. This is similar to the findings of Akere A et al.[11] and Olokoba. A et al. [17] Also similar study conducted in UK, found haemorrhoids as the commonest aetiology of lower GI bleeding.[18] Majority of our patients with the diagnosis of haemorrhoids were less than 60 years of age. This truly implies that hemorrhoid is a disease of the young people.

Colonoscopy aids to find out the site, characteristics and nature of lesion with or without colonoscopic directed biopsy. Most of the lesions were located in anal canal and rectum then in sigmoid colon. This is similar to the study done by Joukar F et al. where site of involvement was anal canal (43.8 %) and recto sigmoid (26%).[19] According to this study, on colonoscopic appearance of lesions and histological examination, non neoplastic lesions comprised of 59.420% (n=41) of all the diagnosed cases and neoplastic lesions comprised of 13.04 %(n= 9). Similar findings was observed in a study of Rajbhandari et al. in which non neoplastic lesions comprised of 73.9%.[20] However a study by Teague et al. found neoplastic lesions as the common finding than the non-neoplastic lesions.[21]

The most common non neoplastic lesion on histopathological examination was non specific colitis 30%(n=9) followed by focal active colitis 20 %(n=6). A study by Bashir and Nadeem et al. observed non specific chronic colitis as a frequent histological finding of colorectal disease.[22] Malignancies were more common in males as compared to females in this study with the mean age of presentation of 57.22 years. Similar data was reported in study done by Albasri A et al. and Rajbhandari M et al.[23, 21] The male predominance can be attributable to smoking, alcoholism and stressful lifestyles.[24, 25] The most common site of involvement was rectum then sigmoid colon which were similar findings with other studies. Similar to present study, Kansakar et al. also found rectum as the common site for malignancy.[26] Colonoscopy is a simple quicker and outpatient procedure that aids in the diagnosis of the patients presented with LGIB.

V. Conclusion
The incidence of LGIB is highest in patients in their sixth decade of life with male predominance. The leading causes of lower GI bleeding were found to be mucosal growth, haemorrhoids and anal fissure. Anal canal and rectum were the two most common sites for the lesions. Bleeding per rectum, altered bowel habit and weight loss were the commonest symptoms. Colonoscopy detected abnormality in 73% cases. Neoplastic lesions accounted only one fifth of all detected lesions. Colonoscopy is sensitive in detecting the etiology of LGIB and also aids in the treatment of the lesions.

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