Role of sigmoidoscopy in the diagnosis of lower GIT bleeding

Papel de la sigmoidoscopia en el diagnóstico de hemorragia GIT baja

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Abstract

Background: Diseases of the lower gastrointestinal tract (GIT) are more common worldwide. Proper diagnosis prior to surgical or prolonged medical intervention is essential. Colonscopy and sigmoidoscopy are the main tools to reach this goal.

Aims: This article aims to assess the role of sigmoidoscopy in the identification of the etiology of lower GIT bleeding (with or without diarrhea) before GIT surgery or long-term medication. It compares the findings with proctoscopic examination combined with per-rectal examination and sigmoidoscopy that followed by elective colonoscopy. It is performed when no pathology is identified by the above two approaches.

Material and methods: This prospective descriptive study was carried out on patients attended the Gastrointestinal and Hepatology center at Azadi Teaching hospital/Kirkuk during the period from March 2011 to February 2014 (35 months). Six hundred cases presented with mild to moderate lower GIT bleeding with or without chronic diarrhea. The patients underwent examination by proctoscope and per-rectal examination followed by sigmoidoscopy. Then, extended to total colonoscopy and compare the sensitivity of each case.

Results: This study was carried out on 600 patients comprised of 389 (65%) males and 211 (35%) females between 10 and 80 years of age. The cases were divided into two groups according to the mode of presentation as follows: 1) A group of 318 patients presented with bleeding per-rectum (called as a 1st group); while the rest (i.e. 282 cases) are presented with chronic diarrhea with lower GIT bleeding (named as a 2nd group). The findings showed that the causes of bleeding according to sigmoidoscopy in the 1st group are as follows: 111 (35%) patients had hemorrhoid, 67 (21%) had polyps, 54 (17%) with tumor and proctitis in 38 (12%). Additionally, 16 (5%) had a solitary rectal ulcer, and other pathologies were found 32 patients (10%). On the other hand, in the 2nd group (chronic diarrhea with blood) hemorrhoid was seen in 60 (21%), colitis in 166 (59%), familiar adenomatous polyps found in 6 (2%) patients, 2 (0.7%) patients had the peutz-jeghers syndrome. Furthermore, other lesions were polyps with 7 (2.5%) patients, but 41 (17%) patients cannot detect the pathology. In the 1st group, the Sensitivity of sigmoidoscopy compared to proctoscopy was 91%, 66%, respectively. Finally, in both groups, the sigmoidoscopy sensitivity in compare with proctoscope was 87% and 59%, respectively; while the colonoscopy sensitivity was 100% and 99%, respectively.

Conclusion: Sigmoidoscopy is necessary for the diagnosis of lower GIT bleeding in spite of age group before any anal surgery. Furthermore, elective colonoscopy can diagnose more pathologies.

Keywords: Lower Gastrointestinal tract bleeding, sigmoidoscopy, proctoscopy, colonoscopy.

Introduction

Bleeding per rectum (alone or in combination with diarrhea) is commonly seen in different health setting ranging from primary health centers up to tertiary health institutions. Furthermore, in patients with major GI bleeding, the lower GI bleeding is found between 20% and 30% of them, and the annual incidence is calculated to be 0.03%. Moreover, it rises 200-fold for a decade of 20-80 years. Besides, at presentation, the mean age is found between 63 to 77 years[1].

Historically, GI bleeding is defined as bleeding that originates from a source distal to the ligament of Treitz. With inventing of deep enteroscopy, small-bowel sources can be considered in the group of midgut bleeding. Additionally, Lower Gastrointestinal Bleeding (LGIB) has been defined as bleeding from a source distal to the ileocecal valve[2].

In the literature, there are common causes of the lower GIT bleeding, which can be listed as follows[3,4]:

1. Ischemic colitis.
2. Hemorrhoid colorectal neoplasm inflammatory bowel disease.

3. Diverticular bleeding.
4. Angioectasia.
5. Non-steroidal anti-inflammatory drug.
6. Infective colitis.
7. Rectal varices.
8. Stercoral ulcer.
9. Radiation proctopathy.

Furthermore, there are several factors that should be focused on the patients that could be associated with the above-mentioned causes. For example, the blood mixed in the stool implies a more proximal source, while blood coating the stool suggests hemorrhoidal bleeding[5]. It is worth mentioning that inflammatory bowel disease is associated with tenesmus and bloody diarrhea. Furthermore, pain with defecation takes place with anal fissure and hemorrhoids, and change in weight loss and stool caliber concerns for colon cancer. Moreover, abdominal pain is associated with the following: inflammatory bowel disease, ischemic colitis or infectious colitis. Besides, painless bleeding is a feature of radiation proctitis, diverticular bleeding and diverticular bleeding arteriovenous malformation (AVM)[6,7].

Bloody diarrhea is another public health concern, and it has a significant over-lap with bleeding per-rectum (as regard to etiology). It is well known that the spectrum of causes extends from simple travellers diarrhea to end-stage malignancy. Additionally, some cause more frequently in some age groups than others; for instance, colorectal cancer is the main disease in aged persons[3].

Blaming infectious agents or hemorrhoids are the usual clinical practice as the cause of the bleeding and treat or operate without sensational evidence to confirm the diagnosis. Eventually, no response to the intervention is achieved. Simple diagnostic measures, such as per-rectal examination and anoscope, might help to reach the diagnosis. However, the facts on the ground would genuinely question their accuracy due to the topography of the lesions[4]. Sigmoidoscopy, which is a pillar in the identification of lower GIT lesion, can play a crucial part in the management of bleeding per rectum and bloody diarrhea. Finally, it's less distressed to the patient regarding the preparation and the manoeuvre than colonoscope and would achieve more adherence.

Aim and Objectives

This article examines the validity of sigmoidoscope and per-rectal examination for the diagnosis of bleeding and diarrhea caused by significant intestinal pathologies. Additionally, it aims to get an idea about the etiology of bloody diarrhea in our community. There is an ongoing debate about whether sigmoidoscopy can replace colonoscopy. Initially, anoscopy and sigmoidoscopy are conducted and then extended to total colonoscopy. Finally, an assessment is carried out of the sensitivity of all groups.

Patients and methods

This study was carried out in the GIT center at Azady teaching hospital during the period from March 2011 to February 2014. Six hundred patients were included in the study who attended the outpatient clinics or who were admitted to the hospital. The patients were complaining from mild to moderate lower GIT bleeding with or without diarrhea (passing of loss stool more than three times a day). At the time of enrollment, all patients written consent and hospital committee medical history was taken. Additionally, clinical examination, including per-rectal examination, was performed. Routine laboratory tests were carried out. Then, proctoscopy was performed.

In this work, lower GIT bleeding was divided into two groups. In both groups, a careful history was taken to avoid the confusion that arises from being unable to discriminate between bleeding that is associated with diarrhea and passing blood with normal stool consistency and frequency. These groups are categorized as follows: A) the first group (referred as a 1st group) included those with bleeding per rectum and normal stool consistency; B) the second group (abbreviated as 2nd group) are those with chronic diarrhea with blood.

All patients underwent per rectal examination then gut preparation for colonoscopy with an oral PEG (polyethylene glycol solution) 6L in 2 separated doses in the day before the procedure. The procedure was carried out with conscious anesthesia, (midazolam 5 mg) to minimize the patient's discomfort. Additionally, sigmoidoscopy extends to colonoscopy was performed using Olympus® endoscope (Olympus, Japan) where the patient is in the left lateral (Sim's) position for convenience. The instrument was lubricated with xylocaine gel 2% and passed gently into the anal canal towards the patient's umbilicus. The examination was carried under direct vision with-out blind advancement with just sufficient air insufflated with a water jet to keep the colonic wall apart. Observations were made till ileocecal valve. Then, the Biopsy was taken in cases with a clinical indication for histopathology. It is worth mentioning that colonoscopy was considered in all patients. Colonscopy was performed as described before. Briefly, Olympus colonoscope was used after proper gut preparation and visualization was done until the ileocaecal valve. The Biopsy was judged by the gross lesion appearance.

Data analysis was carried out using SPSS software 22 (2015). The software was used to calculate the sensitivity of each of proctoscopy and sigmoidoscopy. Finally, colonoscopy was considered the gold standard technique.

Results

As mentioned earlier, 600 cases presenting with lower GIT bleeding with or without diarrhea were enrolled. The patients were comprised of 202 (35%) males and 398 (65%) females; the age was ranged from 10-80 years with a mean of 55 years. The patients were divided into two groups. The 1st group was composed of 318 cases with a presentation of bleeding per rectum alone. As listed in Table 1, the patients of this group consisted of (197, 62%) and (121, 38%) of males and females, respectively. The vast majority of the patients (85%) had a history of heamorrhiodectomy, 20% of them had the operation more than once. Also, in the 1st group, bleeding per rectum was the main symptom; however, there were other symptoms such as: tenesmus, altered bowel habit, abdominal distention and mass formation (see Table 2).

Table 1: Gender distribution in the first group.

Sex	Number	(%)
Male	197	62
Male	121	38
Total	318	100

Table 2: The mode of presentation of the first group.

Mode	Number	(%)
Bleeding alone	204	64
Tenesmus	38	12
Mass	20	6
Altered bowel motion	56	17

As listed in **Table 3,** in the 1st group, the sigmoidoscopy findings revealed the following: 1) about one third (111, 35%) of the group have hemorrhoid; 2) polyps were seen in 67 patients (21%); 3) colorectal tumors were found in 54 (17%) cases; 4) proctitis, was diagnosed in 38 (12%) cases; 5) 16 (5%) patients had solitary rectal ulcer (SRU); and 6) 32 (7%) cases showed no pathology by sigmoidoscopy. Therefore, we proceeded to total colonoscopy. The lesions that were identified by colonoscopy were consisting polyps, angiodysplasia, tumor and patchy colitis in 14, 6, 5 and 7 cases, respectively. Furthermore, as summarized in **Table 3**, the sensitivity of colonoscopy, sigmoidoscopy and proctoscopy was 100%, 91% and 66%, respectively. The difference in the number of the identified lesion by colonoscopy compared to sigmoidoscopy was statistically significant (P-value < 0.005).

Finally, no complication was recorded in any of the above procedures.

Table 3: Sigmoidoscopy findings according to the age in the 1st group.

	Age								
Cause	-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Number (%)
Hemorroid	-	5	42	30	34	-	-	-	111 (35%)
Polyp	5	4	20	15	10	17	6	-	67 (24%)
Cancer	-	4	6	8	5	14	15	2	54 (17)
Proctitis	-	-	3	17	16	2	-	-	38 (12%)
SRU	1	6	9	-	-	-	-	-	16 (5%)
No visibl pathology	1	1	2	5	1	2	10	-	32 (7%)
Total									318

On the other hand, the 2nd group (282 cases) was also dominated by males where they were two folds of females (see **Table 5**).

Table 5: Gender distribution in the second group.

Sex	Number	(%)
Male	192	68
Male	90	32
Total	282	100

The mode of presentation of this group is listed in **Table 6**, chronic diarrhea with blood tenesmus is the most common associated symptom.

Table 6: The mode of presentation of the second group.

Mode	Number	(%)
Tenesmus	203	72
Urgency	105	37
Abdominal pain	74	26
Incontenance	45	20
Weight loss	30	10

Furthermore, the outcomes of this group (according to sigmoidoscopy) were as follows: 1) colitis in 166 patients; 2) hemorrhoid in 60 cases; 3) hyperplastic polyps, familiar adenomatous polyposis, peutz-jeghers syndrome, had 7, 6 and 2, respectively; and 4) no visible lesion in 41 cases as shown in **Table 4**.

Table 4: Colonoscopy, sigmoidoscopy and proctoscopy findings in the first group.

Lesion	Anoctoscope	Sigmoidoscopy	Colonoscopy
Hemorrhoid	111	111	111
Polyps	10	67	81
Tumor	7	54	59
Proctitis	15	38	38
SRU*	9	16	16
Colitis	0	0	7
Angiodysplasia	0	0	6
No visible lesion	166	32	0
Sensitivity	66%	91%	100%

Note: *solitary rectal ulcer, +P value <0.005 highly significant

Finally, the Sensitivity of sigmoidoscopy, the history with anoscope and colonoscopy was 87%, 59% and 99%, respectively and P-value (< 0.005) was highly significant (see **Table 8**).

Table 7: Sigmoidoscopy findings according to the age in the second group.

	Age									
Cause	-10	-20	-30	-40	-50	-60	-70	-80	< 80	Number
H/D	-	-	25	21	9	5	-	-		-
Colitis	-	19	54	43	27	20	11	-		-
FAP	1	1	3	1	-	-	-	-		-
Peutz-Jeghers syndrome	-	-	2	-	-	-	-	-		-
Miscellaneous	2	1	3	16	14	4	-	-		-
Total										282

Table 8: Colonoscopy, sigmoidoscopy and anascopy findings in the second group.

Lesion	Proctoscope	Sigmoidoscope	Colonoscope
Hemorrhoid	60	60	60
Colitis	20	166	197
FAB*	4	6	6
PTS	2	2	2
Polyp	2	7	10
Diverticula	0	0	4
Angoidysplasia	0	0	5
No visible lesion	195	41	1
Total	282	282	282
Sensitivity	59%	87%	99%

Note: *familial adenomatous polyposis, *peutz jegher syndrome, +P value <0.005 highly significant.

Discussion

Clinical management of colonic diseases has revolutionized by lower gastrointestinal endoscopy, which can produce a broad range of diagnostic indications[4]. These include evaluating lower GI symptoms, such as: 1) surveillance for colon cancer; 2) evaluating abnormal radiographic findings and screening; and 3) lower GI bleeding. Before GIT endoscopy, for the safe and efficient procedure, the following factors are essential to take into consideration: 1) patient instructions; 2) Patient evaluation; and 3) colonic preparation[5].

There are several diagnostic procedures that can be used to detect the cause of bleeding per rectum, such as: anoscope, flexible sigmoidoscopy, colonoscopy. Each of these procedures has its own advantages and limitations. Most colonic pathologies causing lower GIT bleeding are within the reach of a 75cm of the distal colon[7]. It is well known that patient pain and anxiety can be reduced by using conscious sedation; however, it needs to be monitored by automated measurements of vital signs and pulse oximetry. A professional colonoscopist can perform a colonoscopy in 90% or more patients. Usually, the procedure can be summarized as follows:

1. Manoeuvres are used to maintain the colonic lumen in view.
2. Straighten the colonoscope.
3. Avoid looping during colonic intubation.

Male to female ratio in our study (2:1), which is higher than that reported from USA (1.21:1), nevertheless, it is very close to the studies of Mehdi (1.9:1)[9] and Sial (2.08:1) 18, and Saudi (2.24:1) reports[9]. The reason for this disparity is due to cultural and religious traditions where the women in our community remain under reported.

Turning now to our findings, hemorrhoid was the most common causes of lower GIT bleeding for the 1st group, that of normal or hard stool, by occurring in approximately more than 30% as an isolated cause in addition to 5% sharing with other pathologies. Colonic polyps or cancer, colitis and anorectal disorders each account for approximately 20% of cases. It is worth mentioning that the etiology different in a western country, where the diverticulosis is the most common causes due to of low fiber diet[10]. Colorectal carcinoma has been considered as the disease of the western world, where it is the second commonest cause of death from malignancy[10,5,6]. However, in our region, this is no more a rare disease and may reflect the change in the lifestyle, including westernization of food. For example, in Pakistan, studies of Khalilullah et al (1992) 15, Mehdi et al16[8,10,11].

On the other hand, in the 2nd group, colitis is the most common cause of chronic diarrhea with blood occurred approximately in more than 60% in addition to 10% diagnosed by colonoscopy. hemorrhoid in patient with diarrhea with the absence of other cause of bleeding was 21% can be explained by motility disorder associated with an increase in intrarectal pressure. In this study, the hemorrhoid is the commonest causes of bleeding followed by polyps and cancer. Colonoscope identified more cases of polyp and cancer.

Unfortunately, most of the anorectal conditions are inappropriately attributed to hemorrhoid depending on history without appropriate endoscopy, which leads to unnecessary anorectal surgeries and much empirical medical treatment. It is important to note here that the endoscopic evaluation for colorectal cancer must be carried out according to the clinical situation, such as: patient age, previous evaluation, symptoms and family history. Furthermore, internal hemorrhoids are best viewed by anoscopy or if flexible endoscopy is being performed on retroflexion[12]. Accordingly, all the patients must experience the same careful history taking, physical examination and laboratory testing described earlier for the general approach. Specifically, the history should focus on identifying the sources of lower GT bleeding and whether it is associated with diarrhea or not. Hemorrhoidal bleed can be suggested by repeating the onset of bright red blood that drips from the anus. Additionally, chronic diarrhea with blood can suggest colitis[13].

After bowel preparation, all cases should undergo an initial evaluation with colonoscopy. Even though, in the patients, anoscopy in actively internal hemorrhoid or other anorectal disorder (e.g., fissure, fistula and proctitis) are suspected and must get treatment immediately. However, colonoscopy at least electively is required to assess the colon's remainder. Obviously, the duration of hospitalization can be reduced by an early performance of colonoscopy. Additionally, there will be minimizing the cost of care for patients with lower GIB[14]. Flexible sigmoidoscopy may be performed because it has less distress to the patient and can be useful for cases suspected of having ulcerative colitis, solitary rectal ulcer radiation proctitis and ischemic colitis. It is well known that rectal bleeding is a frequent symptom and conditions. For example, haemorrhoids are a common finding at an anorectal examination. However, the presence of haemorrhoids is the cause of this symptom. Their presence should not reassure a doctor for absenting more sinister diagnosis. Instead, such a diagnosis should be sought and excluded .i.e anal surgery must be avoided without at least sigmoidoscopy[15]. Therefore, flexible sigmoidoscopy seems to be a crucial initial investigation for bright red rectal bleeding in cases (>40 years) even if haemorrhoid was diagnosed by history and anoscopy[16].

Conclusions

At any age group, sigmoidoscopy has indicated in any patient with lower GIT bleeding or chronic diarrhea with blood followed by elective colonoscopy after proper preparation with conscious sedation. The reason of this preparation was to avoid unnecessary and unplanned anorectal surgery or unnecessary empirical medication. Nevertheless, on the base that, the complication rate of total colonoscopy is so negligible, especially with an increase in right-sided colonic pathology including tumer. Furthermore, this study revealed that a colonoscopy is a golden procedure in the diagnosis of colonic pathology and in a colonic screening program.

Conflict of interest

The authors have no financial, consultative, institutional, and other relationships that might lead to bias or conflict of interest. Therefore,we declare that we have no conflict of interest.

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Ethical Approve

This study was conducted with approval from the research ethics committee at the College of Medicine, University of Kirkuk, Iraq.

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