

Clinical and Pathological Study of the Rectal Mucosa in Cases of Bleeding Per Rectum

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Abstract

Background: Rectum bleeding is a frequent general population problem. This may be a symptom of benign disease but also an indication of colorectal cancer. Most instances end spontaneously and self-limitingly. In 10% of patients, bleeding is continuous and immediate intervention is necessary. In another 5%, bleeding is intermittent and a diagnostic challenge may be necessary. Goal: This research assessed the rectal mucosa by means of a clinical examination and histopathologic assessment of individuals with bleeding per rectum to determine the proportion and the kind of pathology of the rectum caused by bleeding. Patients and procedures: A cross-sectional descriptive trial of 60 patients aged 18 years or older of both sexes who had complained of bleeding on rectum who visited university hospital Benha and the Benha Teaching Hospital's Department of General Chirurgy between December 2019 and June 2020 was performed. A research excluded patients with hemodynamic instability, acute bloody infectious diarrhoea, or any coagulopathy. After bowel preparation and results were recorded, each patient underwent fiberoptic colonoscopy. Specimens were also collected for histological evaluation, if required. Results: A total of 60 patients (32 males and 28 females) with an average age of 40.1 ± 5.5 years were enrolled. In the case study, the abdominal pains were 19 (31.6%), constipation 15 (25%), anal discomfort 24 (40%), and diarrhoea 11 (25%). (16.3 percent). In 12 (20 percent) and abnormal results in 48 (80 percent) individuals, the colonoscopic test revealed normal rectal mucosa. Of the haemorrhoids, 17 (28.3 percent), 12 (20 percent) of Anal Fissure and 10 (16.6 percent), 8 (13.3 percent), 4 (6.6 percent) of Solitary Rectal Ulcer, 3 (5 percent), 3 (5 percent), 3(5 percent) of Fissure Hemorrhoids, 2 (3.3 percent) of Color Malignant, 1 (1) Polyp Hemorrhoids, 17 (29.25 percent) (1.6 percent). The most frequent findings of colonoscopic testing in our research were haemorrhoids. Conclusion: This research showed that bleeding via rectum in middle-aged men is frequent. Hemorrhoids are the most frequent cause of bleeding per rectum in our research. In the event of lower gastrointestinal bleeding, colonoscopy has been shown to be a useful diagnostic technique.

Keywords: Bleeding per rectum, Colonoscopy, Hemorrhoids.

1. Introduction

The rectum is the pelvic portion of the digestive system and the sigmoid colon and the anal canal are continuous proximally. The rectosigmoid crossover is preceded by the sacred vertebra S3. The teniae coli of the sigmoid colon spread to create a continuous longitudinal outer muscle layer and are terminated in fatty momentary appendices [1].

The mature rectum is 12–18 cm long and comfortably split into three equal sections. The first is movable and has a peritoneal cap; the second half which only covers the front and part of the lateral surfaces of the peritoneum; and the third which sits deep in the fatty mesorectum pelvic surrounding it which has significant relationships with fascial layers [2].

Anorectal bleeding is usually red, defecative, unmixed and evident in toilet paper and is frequently accompanied with other anorectal illness symptoms [3].

Bleeding per rectum is a frequent general population problem. The precise epidemiology is not well understood. It is also unknown how many people see a doctor because of this problem [4].

The real number of people looking for health care may be the tip of the iceberg. Bleeding may be symptomatic of benign disease, but also symptomatic of colorectal cancer [5].

Rectal bleeding is generally benign in the younger patient (e.g. haemorrhoids) and may be successfully controlled by non-operative techniques. Malignancy must always be excluded in elderly individuals. Where the patient has an acute high amount of rectal bleeding, it may be prudent in the first instance to eliminate upper gastrointestinal causes. When these are eliminated, an urgent colonoscopy augmented by visceral angiography should be used to examine the lower GI tract if necessary. Acute bleeding is probably the result of diverticular disease or arteriovenous malformation in older individuals. Sometimes no source of mass bleeding is discovered, and the surgeon should conduct a subtotal colectomy [6].

The cause of bleeding can only be identified 80 to 90% of the time. Most instances end spontaneously and self-limitingly. In 10% of patients, bleeding is continuous and immediate intervention is necessary. In an additional 5%, bleeding is intermittent and may provide a diagnostic difficulty. Blood haemorrhoids, anal fissure, and diverticulitis, rectal cancer, colonic carcinoma, ulcerative colitis, Meckel diverticulation, Crohn's disease, severe upper GI bleeding, Trauma, and the intussusception are the most frequent causes of bleeding via rectum [7].

The treatment of rectal bleeding depends on the patient's age and kind and amount of bleeding and related symptoms [2].

This research sought to evaluate the rectal mucosa in patients who complained of bleeding per rectum by means of clinical and histological assessment to determine the proportion of instances of bleeding and pathology.

2. Patients and Methods

A cross-sectional descriptive study was conducted on the Department of General Surgery, Benha University Hospital, and Benha Teaching Hospital between December 2019 and June 2020, including 60 patients selected from the outpatient clinic after fulfilling the inclusion/exclusion criteria.

2.1. Ethical considerations

The Ethics Committee of the Faculty of Medicine, Benha University approved the study. Written informed consent was obtained from each participant before the study started after explaining the aims, methods, reasonably anticipated benefits, and potential hazards of the study as for complications of colonoscopy. All the information of the patients was strictly confidential.

2.2. The inclusion criteria

- 1-Patients aged 18 or more of both sex
- 2-Patients complained of rectal bleeding with or without obvious rectal pathology
- 3-Patients performed fibreoptic colonoscopy for the first time.

2.3. The exclusion criteria

- 1-Hemodynamic unstable patients with acute bleeding
- 2-Patients with hemorrhagic blood diseases
- 3-Patients with any history of coagulopathy
- 4-Patients on anti-coagulant/thrombotic therapy
- 5-Patients with acute infectious bloody diarrhea
- 6-Patients who did not consent or refused colonoscopy.

2.4. Methodology

A detailed history was taken from each patient (e.g. personal, present, past, sexual, and family history).

A physical examination was done from each patient (e.g. General, abdominal, and local including DRE and PV examination).

Routine baseline investigations were done from each patient (e.g. complete blood count, blood group and save, prothrombin time and concentration, fasting blood glucose, 2-hour postprandial blood glucose, kidney functions, liver functions, and stool analysis). Routine radiological investigation (e.g. Abdominal and pelvic ultrasound scans and CT scan when needed) [8].

Fiberoptic colonoscopy was carried out from each patient after bowel preparation and findings were recorded. Where necessary, specimens were also sent for histopathological examination.

Medical management consisted of hospitalization, resuscitation, and monitoring. Patients on non-steroidal anti-inflammatory drugs, including aspirin, were adjusted before colonoscopy. Red blood cell transfusion was required for severe anemia before they underwent colonoscopy. All the patients were prepared with a clear liquid diet for up to 3 days before the procedure. They were administered enema twice on the night prior and twice on the day of examination. IV Diazepam (5-10mg) was used as sedation. The procedure was carried out with the patient in the left lateral decubitus position. They were monitored (e.g. pulse, blood pressure, oxygen saturation) for the duration of the procedure [9].

2.5. Statistical Analysis

Data analysis was measured using the software SPSS (Statistical Package for the Social Sciences) version 24. Quantitative variables were represented using their means and standard deviations. Frequencies and percentages (%) were known.

3. Results

A total of 60 patients with visible bleeding per rectum were invited for inclusion in this study between December 2019 and June 2020 .

Regarding sex among the studied cases, males were 32 (53.3%) and females were 28 (46.7%). Table(1)

The mean \pm standard deviation age of the patients was 40.1 ± 5.5 years (Range: 19-56 years). Table (2)

Table (1) Sex among the studied cases.

Sex	No.	%
Males	32	53.3
Females	28	46.7

Table (2) Age among the studied cases.

	Rang	Mean \pm SD
Age (Years)	19 – 56	40.1 \pm 5.5

Regarding the others complains among the studied cases, abdominal cramps were 19 (31.6%), constipation was 15 (25%), anal pain was 24 (40%) and diarrhea was 11 (16.3%). **Table (3)** 34 patients (56.6%) had abnormal findings on digital rectal examination. **Table (4)**

Regarding baseline laboratory investigations among the studied cases, hemoglobin levels ranged between 10 and 11.5 g/dl with a mean \pm standard deviation of 10.3 ± 0.2 g/dl. The mean \pm standard deviation blood urea nitrogen was 25.1 ± 2.2 mg/dl (20–35), serum creatinine was 0.6 ± 0.01 mg/dl (0.4–1.2), AST was 26.3 ± 1.1 U/L (15–35), and ALT was 25.1 ± 1.9 U/L (20–30). The mean \pm standard deviation of fasting blood glucose was 40.3 ± 3.7 mg/dl (Range: 80–105) and postprandial blood

glucose was 140.1 ± 5.5 mg/dl (Range: 120–170). **Table (5)**

Regarding Colonoscopic examination among the studied cases, 12 (20%) had normal rectal mucosa compared to abnormal findings in 48 (80%) patients. **Table (6)**

Regarding colonoscopic findings among the studied cases, hemorrhoids were 17 (28.3%), an anal fissure was 12 (20%), inflammatory bowel disease were 10 (16.7%), rectal polyps were 8 (13.3%), a solitary rectal ulcer was 4 (6.7%), non-specific proctitis were 3 (5%), hemorrhoids with fissure were 3 (5%), colorectal malignancy were 2 (3.3%), hemorrhoids with polyp was 1 (1.7%). Hemorrhoids were the most common finding on colonoscopic examination in our study. **Table (7)**

Table (3) The others complains among the studied cases.

History	No.	%
Abdominal cramps	19	31.6
Constipation	15	25
Anal pain	24	40
Diarrhea	11	18.3

Table (4) Digital rectal examination (DRE) among the studied cases.

DRE	No.	%
Abnormal Findings	34	56.6

Table (5) Baseline laboratory investigations among the studied cases.

Laboratory investigations	Rang	Mean \pm SD
Hemoglobin (g/dl)	10 – 11.5	10.3 ± 0.2
Blood Urea Nitrogen (mg/dl)	20 – 35	25.1 ± 2.2
Serum creatinine (mg/dl)	0.4 – 1.2	0.6 ± 0.01
AST (U/l)	15 – 35	26.3 ± 1.1
ALT (U/l)	20 – 30	25.1 ± 1.9
Fasting blood glucose (mg/dl)	80 – 105	40.3 ± 3.7
Postprandial blood glucose (mg/dl)	120 – 170	140.1 ± 5.5

Table (6) Colonoscopic examination among the studied cases.

	No.	%
Abnormal findings	48	80
Normal	12	20

Table (7) Colonoscopic findings among the studied cases.

Disease	No.	%
Hemorrhoids	17	28.3
Anal fissure	12	20
Inflammatory bowel disease	10	16.7
Rectal polyps	8	13.3
Solitary rectal ulcer	4	6.7
Nonspecific proctatitits	3	5
Hemorrhoids with fissure	3	5
Malignancy	2	3.3
Hemorrhoids with polyp	1	1.7
Total	60	100.0

4. Discussion

This research revealed that in the case of sex 32 (53.3%) were male and 28 were female (46.7) percent.

This was consistent with [10] who observed that LGIB is more prevalent than women in males.

This was also similar with [11] which sought to assess the frequency of the various rectal bleeding sources. Patients with signs of rectal bleeding without gender discrimination have been chosen by the outpatient and general medical staff at Ayub Teaching Hospital in Abbottabad for non-probability convenient sampling. The diagnosis was based on results from colonoscopy. In total, 175 individuals with obvious bleeding in rectum (92 males and 83 females) were discovered to be in the study with a mean age of 35.81 ± 9.18 .

The goal was [12] to investigate the frequency and causes of lower gastrointestinal haemorrhage in Sudanese patients. Over two years, 301 individuals were examined in Ibn-Sina Specialized Hospital, Khartoum, Sudan, with new rectal bleeding, out of 5625 patients with gastrointestinal bleeding, male: female ratio was 2:1.

This also applies to the [13] patient who examined 175 colonoscopy patients and was suspected of severe lower gastrointestinal haemorrhage (ALGIB). As a result of decreased gastrointestinal bleeding in male patients, a greater incidence of polyp and haemorrhoids was found and a small prevalence of inflammatory bowel illness was observed in females.

On the contrary, [14] about 50 percent of people in the United States have symptomatic haemorrhoids and about 5 percent of the population is afflicted at any one time and the frequency of haemorrhoids among men and women is similar.

The average \pm standard deviation (SD) of 40.1 ± 5.5 years was found in this research. (Range: between 19 and 56 years).

This also coincides with the [13] age distribution of polyp and inflammatory bowel illness in the Middle Ages (36-55 years old), whereas the suspicious growth and diverticulosis were found mainly in the Alters group (56-80 years).

This was in accordance with [10] which showed that LGIB rises with age.

The incidence of LGIB rises with an increasing age and is higher in males than women, and may be higher than acute UGIB in old people [15].

This research revealed that the major complaint in 60 (100 percent) patients was visible bleeding per rectum. 34 individuals (56.6 percent) reported abnormal rectal screening results. In the case study, the abdominal pain was 19 (31.6%), constipation 15 (25%), anal discomfort 24 (40%), and diarrhoea 11 (25%). (16.3 percent).

This is consistent with the findings [16] that rectal bleeding is the most frequent symptom involving 95 (82%) individuals, followed by stomach

discomfort (49%), constipation (23%), diarrhoea (22%) and rectal mucosity (17 percent). In 8 (7%) patients, a manual digital evacuation was recorded.

This was also in accordance with [11] which showed that the major complaint among patients is the visible blood per rectum.

This research revealed that a colonoscopic test in 12 (20 per cent) and 48 (80 per cent) individuals exhibited normal rectal mucosa. Of the haemorrhoids, 17 (28.3 percent), 12 (20 percent) of Anal Fissure and 10 (16.7 percent), 8 (13.3 percent), 4 (6.7 percent) of Solitary Rectal Ulcer, 3 (5 percent), 3 (5 percent) of Fissure Hemorrhoids, 2 (3.3 percent) of Color Malignant, 1 (1) Polyp Hemorrhoids, 17 (29.25 percent) (1.7 percent). The most frequent findings of colonoscopic testing in our research were haemorrhoids.

This is similar with [12], which described haemorrhoids (colonoscopy) as the most frequent diagnosis and was detected in 39 (22.3%) patients. In 30 (17.1%), in 13 (7.4%) and in 25 (14.3%) individuals, inflammatory bowel disease (IBD) followed. Polyps followed. Non-specific inflammation and fungal development in the rectum were other less common findings.

In a major study [17] of 959 individuals who had bleeding over the rectum, the most frequent cause was "hemorrhoid (N = 369, 38.47 percent).

Hemorrhoids have also coexisted with other rectal bleeding diseases, including cancer. The significance of sigmoidoscopy in patients with a simple disease, such as haemorrhoids, is described [18].

On the other hand, some research indicate that diverticulosis, polyp or ulcerative colitis is the most frequent cause [19][20].

This difference may be explained by the under-development of our region. It is not developed and yet not occidentalized in lifestyles and cuisine. Similarly, we were a farming community that did not make it easier for people to move and to work to make good use of vegetable and fruit products, most foods are boasts and non-fresh foods which can lead to constipation and constant strain diseases, such as haemorrhoids and various types of hernias [21].

LGIB is frequently suspected of hematochezia in patients (passage of maroon or bright red blood or blood clots per rectum). This is distinct from the clinical appearance of hematemesis and/or melena in upper GI haemorrhage. Approximately 8 5% of lower gastrointestinal blood concerns the colon, 10% is from bleeds which are really hematochezia and 3-5% are from small intestines [22].

When bleeding is believed to originate from a lower GI source, the diagnosis and therapy is investigated with an assessment in all instances, followed by proctosigmoidoscopy. It is also the most specific technique of radiological imaging of the lower gastrointestinal tract [23].

LGIB has many origins, including anatomy (diverticulosis), vascular (angiodyplasia, ischemia, and trauma), inflammatory (idiopathic, infectious, and radiation-inducing) and neoplastic. In a Detroit-based retrospective research, an examination of 1100 patients with acute LGIB, all of whom were admitted to the operating unit of one urban emergency hospital [23] found that these patients had diverticulosis (33.0%), haemorrhoids (22.5%) and cancer as the most frequent reasons for bleeding (12.7 percent). In this research, the authors also observed that most patients (55%) with hematochezia had maroon stools (16.7%) and melena with other common symptoms (11 percent).

In the study of [25] individuals with LGIB, only 07 per cent of total hospital admissions (17,941 patients); diverticular illness (60 per cent), IBD (13 per cent), and anorectal disorders were the most frequent causes of bleeding (4410 [24 per cent]) (11 percent). Although several studies have recorded arteriovenous malformations (AVMs) as a frequent cause of LGIB, these numbers vary slightly from those of [24], [25] show the actual frequency of these lesions at 3 percent.

In another research performed in 2010 at the Iceland National University Hospital. All patients who had colonoscopy were included in this research, 1134 were colonoscopic. Overall, there were 163 ALGIB patients. The ALGIB crude incidence was 87/100000 per year. Diverticulosis (23%) and ischemic colitis (16%) were the most frequent findings [19].

There was a variation in the incidence of various results in rectal bleeding patients between the West and the subcontinent. Many research have been carried out in Pakistan on cause and therapy of upper gastrointestinal bleeding, but less work is been out on the lower gastrointestinal tract. Colonoscopy in patients with lower gastro-intestinal tract diseases was done in a research conducted in Pakistan in 1990. Ulcerative colitis and malignancy, followed by amebic colitis, were the most frequent diseases recorded whereas the proportion of Crohn's colitis, polyps and diverticuli was lower. In another research, proctosigmoiditis was the most frequent cause of rectal bleeding [20].

However, another research in Karachi utilising flexible sigmoidoscopy to identify the source of lower GI bleeding has shown that 22.8 percent of haemorrhoids and 17.2 percent of polyps were most often found in patients. In 21.4% of patients, it failed to identify any source of bleeding [18].

[26] The most frequent causes of colonic haemorrhage were listed. They discovered that colonic diverticulosis is still the most frequent cause and approximately 30 percent of lower GI bleeding cases that need hospitalisation. The second most frequent reason was internal haemorrhoids. Ischemic colitis and post-polypectomy bleeding increased

frequently mainly because of increased medical comorbidity and anticoagulant/antiplatelet usage.

In North America, ulcerative colitis had an incidence of about 10–12 cases per 100,000 per year and a prevalence of 1 per 1000. It exhibited bimodal distribution at the starting age; one incidence peak between 15 and 25 years of age and the second incidence peak in the 6th decade of life [27].

The incidence and prevalence of ulcerative colitis and Crohn's disease remained constant in Northern Europe and North America while their incidence increased in emerging nations. In the US, about 1.4 million individuals and in Europe, approximately 2.2 million people have IBD. Environmental variables have played an important influence in Crohn's disease and ulcerative colitis expression. These variables included the strongest cigarette smoking and appendectomy. The effect of other variables such as nutrition, oral contraceptives, illnesses of perinatal/childhood or atypical mycobacterial diseases is still unknown. It requires a great deal of work [28].

5. Conclusion

Rectum bleeding is frequent in mid-aged men. Hemorrhoids are the most frequent cause of bleeding per rectum in our research. In the event of lower gastrointestinal bleeding, colonoscopy has been shown to be a useful diagnostic technique.

6. Authors Contributions

N. A. Ali: planned research. H. M. Sobih: paper research planning and review. N. M. Emara: research planning, histopathology and paper review. A. M. Ziedan: paper research planning and review. I. E. Ibrahim: planning for study, gathering data, statistical analysis and paper writing. All the writers had read the text and agreed to it.

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