

## ORIGINAL RESEARCH

# Lower gastrointestinal bleeding at a referral hospital in Kigali, Rwanda: Clinical, colonoscopic, and pathologic profiles

I. Sibomana<sup>1</sup>, I.D. Karenzi<sup>1</sup>, I. Niyongombwa<sup>1</sup>, V. Dusabejamba<sup>1,2</sup>, A. Kiswezi<sup>1</sup>

1. Department of Surgery, College of Medicine and Health Sciences, University of Rwanda, Kigali, Rwanda

2. Department of Internal Medicine, College of Medicine and Health Sciences, University of Rwanda, Kigali, Rwanda

Correspondence: Dr Ahmed Kiswezi ([ahmedkiswezi@yahoo.com](mailto:ahmedkiswezi@yahoo.com))

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## Abstract

### Background

In this study, lower gastrointestinal bleeding was defined as bleeding from gastrointestinal tract beyond the ligament of Treitz. It usually presents with hematochezia and melena depending on the site of bleeding. Most of the bleeding stops spontaneously, and colonoscopy remains the investigation of choice. Diverticulosis and angiodysplasia are the leading causes of bleeding in western countries and occur more commonly in the older population, but little is known about the epidemiology of lower gastrointestinal bleeding in Africa. The main objective of this study was to determine the epidemiological profile of lower gastrointestinal bleeding at one of the referral hospitals in Rwanda.

### Methods

This cross-sectional observation study was conducted at Kigali university teaching hospital (CHUK). All patients who consulted the hospital with complaints of bleeding per rectum, and those referred for colonoscopy examination from District hospitals due to rectal bleeding, were cumulatively recruited into the study after providing informed consent, during the study period. Basic demographic data, clinical, colonoscopic and pathologic findings were collected and analyzed using Microsoft Excel. Ethical approval for the study was obtained from the University of Rwanda College of Medicine and Health Sciences' Institutional review board and Hospital ethical committee.

### Results

This study recruited 134 patient aged between 14 to 80 years with a median age of 47 years. Male to female ratio was 1.5:1. Most of the patients presented with subtle lower gastrointestinal bleeding; only 2 patients presented with massive bleeding. Hematochezia was the initial complaint in 81% of the patients; other complaints were melena and unexplained weight loss and anaemia in elderly people. Haemorrhoids, colorectal polyps and tumours were the leading causes of lower gastrointestinal bleeding identified in this study.

### Conclusions

Lower gastrointestinal bleeding at CHUK was found in a relatively young and middle-aged population. Patients with massive bleeding requiring emergency evaluation were rare. The most common causes were haemorrhoids and colorectal tumours, suggesting the need for colonoscopy and biopsy in all patients presenting with the condition.

**Keywords:** lower gastrointestinal bleeding, colonoscopy, Rwanda

## Introduction

Lower gastrointestinal bleeding (LGIB) in this study was defined as bleeding from gastrointestinal tract (GIT) beyond the ligament of Treitz.<sup>1,2</sup> Because of limited facilities in diagnosis of bleeding from small intestine, some authors define LGIB as blood loss from the colon and/or anorectum.<sup>1,3</sup> It

usually presents as hematochezia (bright red blood or clots stools) or melena especially for slow gastrointestinal (GI) bleeding.<sup>4</sup> Most cases stop spontaneously allowing non urgent evaluation.<sup>1,2</sup>

The annual incidences in US and Japan vary between 20-36/100,000 populations,<sup>1,4,5</sup> and it occurs more com-

**Table 1.** Symptoms of patients who consulted for LGIB at CHUK

Main complaint(s)	n	%
Hematochezia	109	81.3
Unexplained weight loss	10	6.7
Anemia and weight loss in elderly	8	5.9
Melena	7	5.2
Total	134	100

monly in men than in women.<sup>1</sup> The incidence increases with advancing age with a mean age of 72 years, reflecting an increasing prevalence of diverticulitis and angiodysplasia which are the common causes of LGIB in adults<sup>1,6,7</sup> while anal fissures, allergic colitis and enteric colitis are the common causes in children.<sup>2</sup>

10-15% of patients presenting with LGIB have upper GI source, especially for hemodynamically unstable patients.<sup>1,3</sup> Mortality ranges from 2 to 4%<sup>1</sup> and increases with age and presence of comorbidities.<sup>3,4</sup> Colonoscopy remains the investigation of choice for evaluating the source of LGIB and has the advantage of being both diagnostic and a therapeutic tool<sup>1</sup>. Lower GI bleeding, however, causes diagnostic and therapeutic challenges in resource- limited settings especially when it is massive causing hemodynamic instability.

There is a paucity of studies done in Africa concerning lower GI bleeding. In a study done in Nigeria for patients who had colonoscopy procedure, change in bowel habits and LGIB were the common indications in 79%. The colonoscopy findings were hemorrhoids in 20.6% of patients, colorectal cancer in 15.6%, benign polyps in 10.3% and diverticular disease in 9.4 %<sup>8</sup>. This is the first study done in Rwanda concerning LGIB. This is probably because it is not among the priority diseases yet it may underlie a serious pathology. Rare cases with massive bleeding have a poor prognosis because of limited resources (colonoscopy specialists, interventional radiologists, long distance of referral). This study aimed to determine the profile of lower GI bleeding at a referral hospital in Rwanda.

## Methods

This observational prospective study was conducted at one of the referral hospitals of Rwanda (CHUK), between July 2017 and March 2018. The patients who consulted the surgical and internal medicine clinics with complaints of rectal bleeding, and those referred from other hospitals for colonoscopy due to rectal bleeding or other symptoms of LGIB, were included in this study cumulatively, after signing an informed consent. A few of our participants were patients from the emergency department presenting with rectal bleeding. We reviewed all the patients and decided on who needed colonoscopy or not, depending on our clinical findings. 80 of the study participants underwent colonoscopy. Of those, only 46 had had biopsy. During colonoscopy, the success rate of reaching the caecum was not documented by the

**Table 2.** Common clinical diagnoses of patients in this study

Clinical diagnosis	n	%
Normal exam	43	32.1
Colorectal tumor	40	30
Hemorrhoids	28	20.8
Colitides	9	6.7
Perianal tumor	7	5.3
Anal fissure	6	4.4
Rectal prolapse	1	0.7
Total	134	100

colonoscopist. The demographic data, clinical presentation and colonoscopy findings were recorded of the participants were documented. Those from whom biopsies were taken, their results were followed-up in the pathology laboratory. Data were collected in a period of 9 months starting from July 2017. Statistical tests were used to calculate the incidence. This study was conducted after obtaining the ethical approval from the University of Rwanda, College of Medical and Health Sciences Institutional Review Board, and the Hospital Ethical Committee. This study was not funded and there is no conflict of interest.

## Results

The study enrolled 134 patients whose age range between 14 to 80 years with a median age of 47 years.

In our study population, 52 were female and 82 were male with M: F ratio 1.5: 1.

77 of our study patients consulted at CHUK internal medicine and surgical outpatient clinics, 5 were in the hospital for other reasons, and rectal bleeding was incidentally found in them during clinical examination; only 2 patients were transfers from the emergency room for urgent colonoscopy due to heavy rectal bleeding. The remaining 50 patients were referrals from district hospitals for colonoscopic examination.

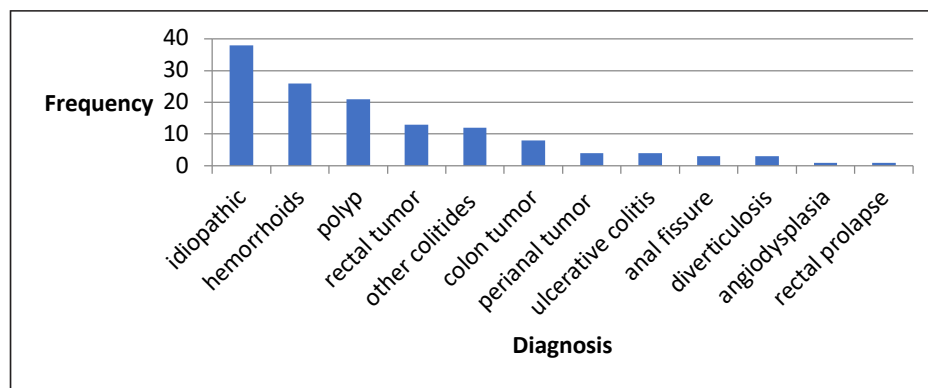
Most of the patients complained of hematochezia, while others had symptoms such melena, weight loss and anemia as showed in table 1

78 patients (58%) had associated altered bowel habits with either constipation or diarrhea. 38 patients (28%) had a history of alcohol drinking, while 33(24%) were smokers of cigarettes. Only 15 patients had a past medical history of hypertension; 6 were diabetics and 2 patients had a family history of colonic cancer.

The common clinical diagnoses following history and physical examination are presented in the table2. Those were the likely diagnoses which had to be confirmed or excluded by further investigations. Suspected colorectal cancer and hemorrhoids were the most common presumptive diagnoses in almost 68% of patients who presented at CHUK com-

**Table 3.** Histological diagnoses of patients with LGIB at CHUK

Colonoscopic findings	Histological diagnosis	n	%
Colon tumor	Colon adenocarcinoma	8	5.97
Rectal tumor	Rectal adenocarcinoma	8	5.97
	Rectal MALT lymphoma	2	1.49
	Villous adenoma	1	0.74
	Inflammatory polyp	2	1.49
Colon polyp	Inflammatory polyp	8	5.97
	Adenomatous polyp	3	2.23
	Juvenile polyp	2	1.49
	Hyperplastic polyp	3	2.23
Rectocolitis	Ulcerative colitis	4	2.98
Perianal tumor	Anal SCC	3	2.23
	Anal canal adenocarcinoma	1	0.74
Angiodysplasia	Angiodysplasia	1	0.74
Total		46	34

**Figure 1.** Colonoscopic findings of some of the patients with LGIB at CHUK

plaining of LGIB, although there was a significant number of patient for whom there was no obvious cause.

After clinical examination and getting likely diagnosis, many of patients were sent for colonoscopic evaluation, especially those suspected to have malignant process or with associated danger signs such as weight loss or unexplained anemia in elderly people. Graph 3 describes their colonoscopic findings.

Biopsies were taken in 46 patients and were mainly indicated for colorectal or anal tumor, polyps and some colitides. The patients whose colonoscopy was normal (idiopathic cause of LGI bleeding, by the colonoscopist) or those with clear colonoscopic diagnosis like hemorrhoids did not get biopsy exam. Some polyps were not biopsied depending on the expertise of the colonoscopist. The table below summa-

rizes the histological findings.

Only 46 out of the 134 patients had histological results, representing 34%. The most common histological diagnosis was malignant tumors such as colon, rectal and anal cancers accounting almost 16% of all patients with histological results in this study.

## Discussion

This descriptive cross-sectional observation study was conducted at the University teaching hospital of Kigali (CHUK), Rwanda, between July 2017 and March 2018. It involved patients who consulted for LGIB. In total 134 patients were recruited and most of them were male with M:F ratio of 1.5:1 which is similar to other studies<sup>1</sup>. Most of our patients population was young with median age of 47 years reflecting

the population of Rwanda in which 52% are younger than 20 years<sup>12</sup>. this age group is very different from western countries in which most of the cases of LGIB occur in elderly people with mean age of 72 years<sup>1</sup>.

CHUK is one of the major referral hospital of Rwanda. It receives many patients from both rural and urban communities, with complicated pathologies. There are only 2 centers in Rwanda that have colonoscopy facilities; and it is only (CHUK) which has a Gastroenterologist who is able to perform diagnostic colonoscopy, and some endoscopic interventions. Therefore many of the patients enrolled in this study were referred from other hospitals. It is rare to see those with minor pathologies such as infectious colitis or in early phase of the disease as they have to pass through several referral levels before reaching CHUK.

Hematochezia (fresh blood per rectum) which was the dominant complaint in most patients (109 patients) and rarely melena, weight loss and unexplained anemia in elderly were the common presenting complaints. There were no significant risk factors for LGIB in our study population compared to the western population where about 75% have some predisposing factors such as use of antiplatelet agents, anti-coagulants and NSAIDs<sup>1</sup>.

Most of patients were assessed in the outpatient clinics, and presumptive diagnoses were made. However, in 46 out of the 134 study patients, the final diagnoses were those obtained after colonoscopic and histological findings. The cause of bleeding was not evident in 38 (28%) of patients (this is the reason why in table 2, those with normal clinical examination amounted to 32%, while in Figure 1 there were no colonoscopic lesions found in 28% of the patients, and were labelled idiopathic) whereas hemorrhoids, colorectal polyps and tumors were the leading cause of LGIB at CHUK. These findings are almost similar to those in the Nigerian study<sup>8</sup>. It was very different from the findings in Western countries where diverticulosis, ischemic colitis and angiodysplasia predominate.

Malignant tumors (confirmed colon and rectal adenocarcinoma, rectal MALT lymphoma and anal SCC) were among the top causes of LGIB at CHUK, as evidenced by this study. This may not reflect the true incidence and causes of LGIB in Rwanda as CHUK receives patients from various corners of the country, who have been awaiting referral for several months. Some patients especially from far up-country are not able to make it to CHUK despite referral. And some patients consult during late stage of the disease, and often succumb before referral. Those with minor symptoms such as infectious colitis which may be common cause, often opt for alternative sources of treatment.

## Conclusions

Lower gastro-intestinal bleeding at CHUK was found in a relatively young and middle age population. Patients with massive bleeding requiring emergency evaluation were rare. The most common causes were hemorrhoids and colorectal tumors, suggesting the need for colonoscopy and biopsy in all patients presenting with the condition.

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