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## Acute lower gastrointestinal bleeding in Sudanese patients: a study on 301 patients in a specialized centre

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## ABSTRACT

**Background and study aims:** Lower gastrointestinal bleeding originates from a site distal to the ligament of Treitz. It can present as an acute life-threatening or chronic bleeding. It is common among older patients and those with comorbidity. The common causes are diverticular disease, angiodysplasias, neoplasms, colitis, ischaemia and anorectal disorders. The aim of this study is to determine the prevalence and causes of acute lower gastrointestinal bleeding among Sudanese patients.

**Patients and methods:** In a period of 2 years we studied 301 patients with fresh rectal bleeding out of 5625 patients with gastrointestinal bleeding in Ibn Sina Specialized Hospital, Khartoum, Sudan. This is a cross sectional observational hospital based study. All patients with fresh rectal bleeding within 24 h were included and consented.

**Result:** Lower gastrointestinal bleeding constituted 5.37% of total cases of gastrointestinal bleeding. The mean age of patients was  $55.43 \pm 17.779$ , male: female ratio was 2:1. The most common cause (if upper gastrointestinal bleeding is excluded) was diverticular disease 39.6% (n = 61) followed by piles 24.1% (n = 35), colonic tumours 12.34% (n = 19), ulcerative colitis 5.19% (n = 8), Crohn's 5.19% (n = 8), colonic polyps 3.89% (n = 6), angiodysplasia 4.5% (n = 7), colonic ulcer 2.59% (n = 4), ischaemic colitis 1.3%, non-specific colitis 1.3% (n = 2), and small bowel source in 1.3% (n = 2). The majority of those patients with diverticular disease were male and with first presentation. The commonest cause in those patients younger than 20 years was polyps, and in those between 21 and 40 was piles followed by inflammatory bowel disease, and in those between 41 and 60 years old was piles followed by diverticular disease and tumours, and in those above 60 years was diverticular disease followed by piles and tumours. The correlation between positive colonoscopy finding and diabetes and the use of nonsteroidal anti-inflammatory drugs were statistically significant. The one-month mortality rate was 2.3%

**Conclusion:** Acute lower gastrointestinal bleeding is common among elderly patients and the commonest cause is diverticular disease. Colonoscopy plays an important role in the diagnosis. Most patients respond to conservative therapy.

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## Introduction

Lower gastrointestinal bleeding (LGIB) is defined as bleeding which originates from a site distal to the ligament of Treitz and is usually suspected when patients present with haematochezia, or maroon stools per rectum [1], although some researchers defined LGIB as bleeding from a colonic source only and any bleeding from the small bowel has been shown to be a distinct entity [2].

LGIB can present as an acute and life-threatening event or as chronic bleeding, which might manifest as iron-deficiency anaemia, faecal occult blood or intermittent haematochezia [2]. Acute lower gastrointestinal bleeding (ALGIB) is a frequent gastrointestinal cause of hospital admission particularly in the elderly, and its incidence seems to be rising [3]. In 15% of cases ALGIB and the incidence increases with age and comorbidity, and the identification of the origin of bleeding may be difficult [4]. There are several factors which might contribute to increased mortality like a severe course of bleeding and recurrent bleeding as well as advanced age, comorbidity, intestinal ischaemia, and haemodynamic instability.

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There are many causes for LGIB but common causes are diverticulosis, angiodysplasias, neoplasms, colitis, ischaemia, anorectal disorders and post polypectomy. ALGIB presents a more complex diagnostic and therapeutic challenge than upper gastrointestinal bleeding (UGIB) and it is usually less dramatic than UGIB [2]. Colonoscopy remains the mainstay of diagnosis and therapy for ALGIB. For LGIB lesions which are amenable to endoscopic therapy, the proper selection of haemostatic tools usually results in a successful outcome [5]. The majority of ALGIB cases resolve spontaneously with no adverse outcome (80–85%) and death is uncommon (2–4%) [2,6]. The aim of this study is to determine the prevalence and causes of ALGIB among Sudanese patients.

## Patients and methods

We studied 301 patients with fresh rectal bleeding out of 5625 patients with gastrointestinal bleeding who presented to Mohammed Salih Idris GI Bleeding Center (MSI BC), Ibn Sina Specialized Hospital, Khartoum, Sudan, a referral hospital for gastrointestinal diseases which receives 1900–2300 patients with emergency gastrointestinal bleeding per year as. The study is a cross sectional observational hospital based study and was carried out in a period of two years (2013–2015). We defined LGIB as bleeding which occurs distal to the ligament of Treitz, acute LGIB as bleeding occurring within 24 h and severe acute LGIB as bleeding necessitating more than 4 units of blood transfusion and/or haemodynamically unstable patient despite good initial resuscitation. We included all patients with acute fresh rectal bleeding within 24 h of presentation and excluded those who had rectal bleeding more than 24 h or refused to participate in the study. We recorded age, gender, frequency and amount of bleeding, associated factors, comorbidities, symptoms of blood loss or malignancies, family history, history of malignancy, drug intake, special habits like smoking. The study was approved by the local ethical committee.

All patients were admitted, resuscitated and underwent upper endoscopy and colonoscopy within 24 h of admission. A written consent was obtained, data were collected and analysed. Statistical analysis was performed using statistical software (SPSS version 13). Frequencies and proportions were used to describe patient demographic data. Non normally distributed variables such as age were described with mean, and nonparametric tests for differences. Tests for differences in proportions were performed using Chi-square or Fisher exact tests, and risk presented as odds ratio (OR) with 95% confidence intervals (CI) where appropriate. Correlation was done with the Spearman rho, assuming a nonparametric distribution. All tests were 2-tailed and statistical significant was considered as  $p$  value  $<0.05$ .

## Results

We studied 301 patients with fresh rectal bleeding out of 5625 patients with gastrointestinal bleeding. The percentage of patients with LGIB among all patients with gastrointestinal bleeding was 5.37%. The mean age was 55.43 ( $\pm 17.779$ ). Male: female ratio was 2:1. The most common cause of fresh rectal bleeding was upper gastrointestinal bleeding (mostly oesophageal varices) in half of the patients, and if upper gastrointestinal bleeding was excluded as a main cause, the commonest cause would be diverticular disease 39.6% ( $n = 61$ ), piles 24.1% ( $n = 35$ ), colonic tumours 12.34% ( $n = 19$ ), ulcerative colitis 5.19% ( $n = 8$ ), Crohns' 5.19% ( $n = 8$ ), colonic polyps 3.89% ( $n = 6$ ), angiodysplasia 4.5% ( $n = 7$ ) colonic ulcer 2.59% ( $n = 4$ ), ischaemic colitis 1.3%, nonspecific colitis 1.3% ( $n = 2$ ), and small bowel disease in 1.3% ( $n = 2$ ) (Table 1). The majority of patients with diverticular disease were male

**Table 1**  
Tumour sites among patients with LGIB.

Type	Percent
Anal	11.5
Rectal	53.8
Sigmoid	23.1
Transverse	7.7
Caecal	3.8
Total	100.0

patients with first presentation. The two patients with small bowel bleeding had further computed tomography with contrast and capsule endoscopy followed by enteroscopy to localize the lesions and they underwent surgical resection of the affected specimen. We found that the common cause of ALGIB in patients below 20 years was colonic polyps, and in those between 21 and 40 piles followed by inflammatory bowel disease, and in those between 41 and 60 years piles followed by diverticular disease and tumours, and in those above 60 years the commonest cause was diverticular disease followed by piles and tumours. There was no correlation between gender and symptoms ( $p$  value  $>0.05$ ), nor a correlation between positive colonoscopy findings and smoking and alcohol consumption ( $p$  value  $> 0.05$ ) (Table 2). The correlation between upper endoscopy findings and colonoscopy finding was statistical significant ( $p$  value was less than 0.05). The correlation between positive colonoscopy findings and diabetes mellitus was statistical significant ( $p$  value  $< 0.05$ ) and the correlation between positive colonoscopy findings and the use of nonsteroidal anti-inflammatory drug was statistical significant ( $p$  value  $< 0.05$ ). Conservative treatment was successful in all patient with diverticular disease except four patients where total colectomy was done for two patient and clipping for the other two patients. Patients with angiodysplasia improved after agron plasma coagulation (APC), and endoscopic injection for those with bleeding piles. Re-bleeding occurred in only one patient with diverticular disease and one-month mortality rate was 2.3%.

## Discussion

The incidence of LGIB increases with age and is more common in men than women, and may be more common than acute UGIB in the elderly [7–9]. In UK, the prevalence rises from approximately 5% of people in their 40s to almost 50% of those above the age of 80 [10]. There are worldwide regional differences in the causes of LGIB. For example, in Western Europe and the United States diverticulosis coli is one of the most common cause of LGIB. In Asia, however, diverticulosis coli is not common and is a much less common cause of LGIB. In the United States the inci-

**Table 2**  
showed colonoscopy finding during the episode of LGIB.

Pathology	Frequency	Percent
Polyps	6	2.0
Ulcer	4	1.3
Diverticulosis	47	15.6
Tumour	25	8.3
UC	8	2.7
Crohns'	8	2.7
Colitis	2	.7
Ischaemic colitis	2	.7
Piles	40	13.3
Angiodysplasia	7	2.3
Normal	150	49.8
Others	2	.7
Total	301	100.0

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