“ETIOLOGICAL PROFILE OF PATIENTS PRESENTING WITH LOWER GASTROINTESTINAL BLEEDING - A ONE YEAR CROSS SECTIONAL STUDY”

REG NO. BG0114005

Dissertation

Submitted to the
KLE University, Belagavi, Karnataka

In Partial Fulfillment
of the requirements for the degree of

M. D.
in
GENERAL MEDICINE

DEPARTMENT OF MEDICINE,
JAWAHARLAL NEHRU MEDICAL COLLEGE,
BELAGAVI, KARNATAKA

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ENDORSEMENT

This is to certify that the dissertation entitled **"ETIOLOGICAL PROFILE OF PATIENTS PRESENTING WITH LOWER GASTROINTESTINAL BLEEDING - A ONE YEAR CROSS SECTIONAL STUDY"** is a bonafide research work done by **CANDIDATE REG NO. BG0114005.**

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LIST OF ABBREVIATIONS USED

AAFP	-	American Academy of Family Physicians
AIDS	-	Acquired immunodeficiency syndrome
ASGE	-	American Society for Gastrointestinal Endoscopy
AVMs	-	Arteriovenous malformations
CKD	-	Chronic kidney disease
CLD	-	Chronic liver disease
cm	-	Centimeter
CT	-	Computed tomography
DM	-	Diabetes mellitus
eg,	-	For example,
EGD	-	Esophagogastroduodenoscopy
EUS	-	Endoscopic ultrasonography
g/dL	-	grams per deci litre
GI	-	Gastrointestinal
h	-	Hour
H/O	-	History of
Hb	-	Hemoglobin
HIV	-	Human immunodeficiency virus
HTN	-	Hypertension
IBD	-	Inflammatory bowel disease
INR	-	International normalized ratio
LGIscopy	-	Lower gastrointestinal scopy
LGIB	-	Lower gastrointestinal bleeding

mg	-	Milligrams
ml/min	-	Milliliters per minute
mmHg	-	Millimeters of mercury
MRI	-	Magnetic resonance imaging
n	-	Total number
Nd:YAG	-	Neodymium-doped yttrium aluminium garnet
NG	-	Nasogastric
NSAIDs	-	Nonsteroidal anti-inflammatory drugs
RBC	-	Red blood cell
U	-	Units
UGI	-	Upper gastrointestinal
UGIB	-	Upper gastrointestinal bleeding
UGIE	-	Upper gastrointestinal endoscopy
VA	-	Veterans Affairs
vs	-	Versus
WCE	-	Wireless capsule endoscopy
y	-	Year

ABSTRACT

Background and objectives

Lower gastrointestinal bleeding (LGIB) is a common clinical condition. The present study was undertaken to determine the etiological profile, among patients presenting with LGIB.

Materials and methods

This one year cross-sectional study was done from January 2015 to December 2015. Fifty patients presenting with lower gastro-intestinal bleeding in the Department of Medicine and Gastro-enterology, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum were studied. All the patients underwent LGIscopy.

Results

Majority of the patients were males (62%) and male to female ratio was 1.63:1. The most common age group was 18 to 30 years (34%) and the mean age was 43.82±17.96 years. The most common clinical symptom was Haematochezia (bleeding per rectum) (80%) followed by constipation (76%), loss of weight (56%), Blood mixed with stool (50%). the most common medical history was diabetes mellitus (12%). Personal history of smoking was noted in 20% of the patients while 18% of the patients reported history of alcohol consumption. Majority of the patients (90%) of the patients reported history of mixed diet. Majority of the patients were moderately built and moderately nourished (98%). The most common clinical sign was pallor (48%). On LGIscopy, Internal haemorrhoids was diagnosed in 48% of the patients followed by ulcerative colitis

in 24%. The most common diagnosis was Internal haemorrhoids (48%) followed by Idiopathic ulcerative colitis (24%) and Carcinoma colon (10%).

Conclusion

Internal hemorrhoids was the most common cause of lower GI bleed in the study area followed by ulcerative colitis. Though not common, carcinoma colon, solitary rectal ulcer syndrome, polyp, colonic diverticulosis, ischaemic colitis, non specific proctitis, and radiation proctitis are the other causes of LGIB.

Key words

Lower gastrointestinal bleeding; Internal hemorrhoids; lower GI scopy;

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INTRODUCTION

Lower gastrointestinal bleeding (LGIB) is bleeding arising below the ligament of Treitz.[1] Hemorrhage from the lower gastrointestinal (GI) tract accounts for about 20% of all cases of acute GI bleeding.[2-5]

Lower GI bleeding is that which occurs from the colon, rectum, or anus, and presenting as either hematochezia (bright red blood or red wine color stools) or melena, blood streaking of the stool. It has an annual incidence of hospitalization of approximately 36/100,000 population. The rate of hospitalization is even higher in the elderly.[6,7] Patients usually present with painless hematochezia and a decrease in hematocrit value, but without orthostasis.[7]

Lower GI bleeding can be subdivided into two categories: Clinically overt GI bleeding (melena, hematochezia) or occult bleeding identified by an unexplained iron deficiency and/or positive fecal occult blood test.[5,8]

The incidence of LGIB ranges from 20.5 to 27 cases/100,000 adults. In comparison with the west, in India, patients are younger, localization is possible in a majority of patients, mortality is lower and re-bleed rate is 4%.[9] Compared with acute upper GI (UGI) bleeding, patients with acute LGIB are significantly less likely to experience shock (35% vs. 19%, respectively), require fewer blood transfusions (64% vs. 36%) and have a significantly higher hemoglobin level (61% vs. 84%).[10] Colonic bleeding necessitates fewer blood transfusions compared with bleeding from the small intestine. The overall mortality rate ranges from 2% to 4%.[5]

The etiology and the epidemiology of LGIB varies according to the environmental conditions depending upon the life style, dietary habits, the prevalence of smoking, history of drug intake, age, longevity of the population, etc. Most of the data from the west suggests that colonic diverticula are the most frequent source of LGIB followed by angiodysplasias (angiectasias), colitis (ischemic, infectious, chronic inflammatory bowel disease [IBD]), neoplasms, small bowel bleeding and postpolypectomy bleeding. However, in the India, the etiology differs significantly.[5,11]

Nonspecific ulcers account for 30% of cases while as the rest are enteric ulcers 15%, tubercular ulcers 6%, neoplasm 6%, amoebic ulcers 6%, angiodysplasia 6% and others.[12]

Colonoscopy is the most convenient and effective preliminary investigation. Actual visualization during the acute episode is uncommon because the view is poor. While some authors advocate early colonoscopy in an unprepared bowel, others advise a more expectant approach.[5,13]

Most cases of acute colonic bleeding will stop spontaneously, thereby allowing elective evaluation. However, for patients with severe hematochezia, defined as continued bleeding within the first 24 h of hospitalization with a drop in the hemoglobin of at least 2 g/dL and/or a transfusion requirement of at least 2 units of packed red blood cells, urgent diagnosis and intervention are required to control the bleeding.[7]

Active treatment is necessary for a small group of patients because, in the majority, bleeding stops spontaneously. The treatment options available are

therapeutic colonoscopy or angiography and surgery. The various colonoscopic therapeutic modalities currently in use are injection, laser coagulation electrocautery and "heater probe." Surgical treatment is reserved for those who continue to bleed or re-bleed after initial cessation.[5]

Clinical factors predictive of severe colonic bleeding include aspirin use, at least two comorbid illnesses, pulse greater than 100/minute, and systolic blood pressure <115 mmHg.[14] The overall mortality rate from colonic bleeding is 2.4–3.9 %.[6,15] Independent predictors of in hospital mortality are age over 70 years, intestinal ischemia, and two or more comorbidities.[15]

However, the data regarding etiology of LGIB remains unexplored as is scarce in the Indian subcontinent as most of the studies of LGIB have been reported in Western populations and there has been limited number of reports of etiological profile of LGIB from Indian population till date. Hence this study was undertaken to evaluate the etiological profile of patients presenting with lower gastrointestinal bleeding.

OBJECTIVES

The objective of this study was to evaluate the etiological profile of patients presenting with lower gastrointestinal bleeding.

REVIEW OF LITERATURE

LGIB is defined as bleeding that originates from a source distal to the ligament of Treitz.[16-18] After the advent of deep enteroscopy, small-bowel sources have been placed in the category of midgut bleeding, and a new definition of LGIB has been proposed as bleeding from a source distal to the ileocecal valve.[19,20] Acute LGIB is defined as bleeding of recent duration (<3 days) that may result in hemodynamic instability, anemia, and/or the need for blood transfusion.[16] Chronic LGIB is the passage of blood per rectum over a period of several days or longer and usually implies intermittent or slow loss of blood. Patients with chronic LGIB present with occult fecal blood, intermittent melena or maroon stools, or scant amounts of bright red blood per rectum.[16]

Lower gastrointestinal bleeding (LGIB) is one of the frequent causes of hospital admission and is a factor in hospital morbidity and mortality. LGIB is distinct from upper GI bleeding in epidemiology, management, and prognosis.[21]

Historical perspectives

Understanding of the pathogenesis, diagnosis, and treatment of LGIB has drastically changed during the last 50 years. In the first half of the 20th century, large intestinal neoplasms were believed to be the most common cause of LGIB. In the 1950s, this condition was commonly attributed to diverticulosis; surgical treatment consisted of blind segmental bowel resections, with disappointing results. Patients who underwent these procedures suffered from a high rebleeding rate (up to 75%), morbidity (up to 83%), and mortality (up to 60%).[21]

In the last 4 decades, diagnostic methods for locating the precise bleeding point greatly improved. The flexible endoscope was developed in 1954. The full-length colonoscope was developed in 1965 in Japan. Also in 1965, Baum et al described selective mesenteric angiography, which permitted the identification of vascular abnormalities and the precise bleeding point.[22] The first anal colonoscopy was performed in 1969.[5]

Experience with mesenteric angiography in the late 1960s and 1970s suggested that angiodysplasias and diverticulosis were the most common reasons for LGIB. Since its discovery, mesenteric angiography remains the criterion standard in precise localization of the bleeding site.[21]

Rosch et al described superselective visceral arteriography for infusion of vasoconstrictors in 1971 and superselective embolization of the mesenteric vessels as an alternative technique to treat massive LGIB in 1972.[23,24] The most feared complication of embolization of the mesenteric vessels is ischemic colitis, which has limited its use in GI bleeding.[21]

The initial experience with vasopressin infusion was reported in 1973-1974. Vasopressin causes vasoconstriction and arrests the bleeding in 36-100% of patients. The recurrence rate following completion of vasopressin infusion can be as high as 71%; therefore, vasopressin is used to control the acute event and to stabilize patients before surgery.[21]

Endoscopic control of bleeding with thermal modalities or sclerosing agents has been in use since the 1980s. One of the advantages of upper (or lower) endoscopic evaluation is that it provides a means to administer therapy in patients

with GI bleeding. Nuclear scintigraphy has been used since the early 1980s as a very sensitive diagnostic tool to evaluate bleeding from the GI tract; this modality can detect hemorrhage at rates as low as 0.1 mL/min.[21]

For the purposes of endoscopy, the upper GI tract includes the esophagus, stomach and duodenum (esophagogastroduodenoscopy [EGD] or upper GI endoscopy [UGIE]), and the lower GI tract includes the anus, rectum, colon, and cecum (anoproctocolonoscopy or lower GI endoscopy). The small intestine (jejunum and ileum) is relatively inaccessible to endoscopy; proximal jejunum can be examined by push enteroscopy at upper GI endoscopy while disatl ileum can be examined by retrograde ileoscopy at colonoscopy. Capsule endoscopy can visualize the entire small intestine.[25]

The lower gastrointestinal (GI) tract can be evaluated by means of lower GI endoscopy (anoproctosigmoido colonoscopy), and the lower GI series can be evaluated with radiologic contrast media (eg, barium, diatrizoate meglumine and diatrizoate sodium [Gastrografin], and fluoroscopy). Late films of a barium follow-through study may also show the lower GI tract. Reconstruction of CT scans (CT colonography) gives as good an inside view of the colon as does colonoscopy (virtual colonoscopy). Magnetic resonance imaging (MRI) is very good for evaluation of the anorectum. Ultrasonography is not useful for evaluation of the lower GI tract, but endoscopic ultrasonography (EUS) is useful for evaluation of the anorectum.[25]

The average length of the large intestine is 135-150 cm. Ascending and descending segments of the colon are fixed to the retroperitoneum. However, the

transverse and sigmoid colon are supported by a mesentery. A comprehensive understanding of small bowel and colonic vascular anatomy is essential for any physician performing a primary lower GI procedure for hemorrhage or other diseases.[25]

The ileocolic, right colic, and middle colic branches of the superior mesenteric artery supply blood to the cecum, ascending, and proximal transverse colon, respectively. The superior mesenteric vein drains the right side of the colon, joining the splenic vein to form the portal vein. The inferior mesenteric artery supplies blood to the distal transverse, descending, and sigmoid colon. The inferior mesenteric vein carries blood from the left side of the colon to the splenic vein. A rich network of vessels from the superior, middle, and inferior hemorrhoidal vessels supplies the rectosigmoid junction and rectum.[26]

Epidemiology

Lower gastrointestinal bleeding (LGIB) accounts for approximately 20-33% of episodes of gastrointestinal (GI) hemorrhage, with an annual incidence of about 20-27 cases per 100,000 population in Western countries.[21] However, although LGIB is statistically less common than upper GI bleeding (UGIB), it has been suggested that LGIB is underreported because a higher percentage of affected patients do not seek medical attention.[27] Indeed, LGIB continues to be a frequent cause of hospital admission and is a factor in hospital morbidity and mortality, particularly among elderly patients.[28] LGIB is distinct from UGIB in epidemiology, management, and prognosis.[21]

The annual incidence of LGIB is 0.03%, and it increases 200-fold from the second to eighth decades of life.[16] The mean age at presentation ranges from 63 to 77 years.[16] Approximately 35.7 per 100,000 adults in the United States are hospitalized for LGIB annually, and a full-time gastroenterologist manages more than 10 cases per year.[16,29-31]

LGIB that requires hospitalization represents less than 1% of all hospital admissions in the United States.[32] In one study, the estimated annual incidence rate was 20.5 patients per 100,000 (24.2 in males vs 17.2 in females); however, in individuals in the third to the ninth decades, the incidence rate of LGIB increased more than 200-fold.[29,33] LGIB is somewhat more common in men than in women, because diverticulosis and vascular disease are more common in men.[21]

Worldwide, acute LBIG accounts for 1-2% of hospital emergencies, with 15% of these presenting as massive bleeding and about 5% requiring operative intervention. The small bowel represents 5% of all LGIB bleeding sites, but it is the most common site of obscure bleeding.[34]

The leading causes of significant LGIB are diverticulosis and angiodysplasia. Colonic diverticular disease is the most common cause of LGIB.[21,35] Diverticulosis accounts for around 30-50% of the cases of hemodynamically significant LGIB, whereas angiodysplasia accounts for about 20-30% of cases. LGIB is more common in the elderly than in younger people, because diverticulosis and vascular disease are more common in these groups. Some experts believe that angiodysplasia is the most frequent cause of LGIB in patients older than 65 years.[21]

Hemorrhoids are the most common cause of LGIB in patients younger than 50 years, but the bleeding is usually minor and is rarely the cause of significant LGIB. According to a review of 7 series of patients with LGIB, the most common cause of LGIB was diverticulosis, accounting for approximately 33% of cases, followed by cancer and polyps, which accounted for about 19% of cases.[21,36]

LGIB has a mortality rate ranging from about 10% to 20%, with patients of advanced age (>60 y) and patients with comorbid conditions (eg, multiorgan system disease, transfusion requirements in excess of 5 U, need for operation, and recent stress, such as surgery, trauma, and sepsis) at the greatest risk. LGIB is more likely in the elderly because of a higher incidence of diverticulosis and vascular disease in these groups. The incidence of LGIB is higher in men than in women.[21]

A recent epidemiologic study reported a decreased incidence of LGIB (41.8/100,000 in 2001 vs 35.7/100,000 in 2009; p=0.02) and a lower age adjusted and sex-adjusted case fatality rate (1.93% in 2001 vs 1.47% in 2009; p=0.003) over the past decade.[16]

Indian scenario

The incidence of LGIB in the west ranges from 20.5 to 27 cases/100,000 adults. In comparison with the west, in the Indian experience, patients are younger, localization is possible in a majority of patients, mortality is lower and re-bleed rate is only 4%.[5,9] Compared with acute upper GI (UGI) bleeding, patients with acute LGIB are significantly less likely to experience shock (35% vs. 19%, respectively), require fewer blood transfusions (64% vs. 36%) and have a significantly higher hemoglobin level (61% vs. 84%).[5,10] Colonic bleeding necessitates fewer blood

transfusions compared with bleeding from the small intestine. The overall mortality rate ranges from 2% to 4%.[5]

Pathophysiology

Diverticulosis

Diverticulosis is a common acquired condition in Western societies; approximately 50% of adults older than 60 years have radiologic evidence of this disease. A diverticulum is a saclike protrusion of the colonic wall that develops at a small point of weakness where the penetrating vessel has perforated through the circular muscle fibers. The vessel becomes draped over the dome of the diverticulum, separated from the bowel lumen only by the mucosa. Subsequent chronic trauma to the vasa recta along the luminal aspect, as well as contraction and relaxation of the surrounding muscularis propria, leads to eccentric thinning of the media. Ultimately, erosion of the vessel and bleeding can occur.[21]

Diverticula are most commonly located in the sigmoid and descending colon, and diverticular bleeding originates from vasa rectae located in the submucosa, which can rupture at the dome or the neck of the diverticulum.[37] Up to 20% of patients with diverticular disease experience bleeding, which stops spontaneously in 80% of patients; however, in 5% of patients with diverticular disease, the bleeding from diverticular disease can be massive.[21]

Although about 75% of the diverticula occur on the left side of the colon, right-sided diverticula are responsible for approximately 50-90% of the bleeding.[37] This may be because false right-sided diverticula have wider necks and domes, which expose the vasa recta to injury over a greater length. The incidence of true

right-sided diverticula is uncommon (1%-2%) in the United States, unlike in Asian populations. True right-sided diverticula are usually solitary and originate in the anterior cecum adjacent to the ileocecal valve. Usually true right-sided diverticula cause right-sided diverticulitis and are misdiagnosed as appendicitis.[21]

Angiodysplasias

Angiodysplasias, sometimes referred to as angioectasias, are aberrant blood vessels found through GI tract that develop with advancing age.They are distinct from arteriovenous malformations and angiomas. These are the lesions that result from dilatation of terminal aspect of a vessel.[21]

Colitis

Massive hemorrhage due to inflammatory bowel disease (IBD) is rare. Ulcerative colitis causes bloody diarrhea in most cases. In up to 50% of patients with ulcerative colitis, mild to moderate LGIB occurs, and approximately 4% of patients with ulcerative colitis have massive hemorrhage.

LGIB in patients with Crohn disease is not as common as in patients with ulcerative colitis; 1-2% of patients with Crohn disease may experience massive bleeding. The frequency of bleeding in patients with Crohn disease is significantly more common with colonic involvement than with small bowel involvement alone. The mucosal pattern of injury is similar to that found in patients with infectious and ischemic colitis, with the mucosa appearing friable, erythematous, edematous, and ulcerated. In severe Crohn disease, the inflammatory process may extend into the serosa, leading to colonic perforation.[21]

Ischemic colitis is a disease of the elderly population and is commonly observed after the sixth decade of life. This condition is the most common form of ischemic injury to the digestive system, frequently involves the watershed areas, including the splenic flexure and the rectosigmoid junction. Ischemia causes mucosal and partial-thickness colonic wall sloughing, edema, and bleeding. In most cases, the precipitating event cannot be identified. However, although abdominal pain and bloody diarrhea are the main clinical manifestations, ischemic colitis is not associated with significant blood loss or hematochezia.[21]

The pathophysiologic mechanism of infectious colitis may be due to either colonic tissue invasion by bacteria, such as *Salmonella* and *Shigella*, or toxin-mediated damage, as with *Escherichia coli* 0157:H7.[21]

Colon carcinoma

Colorectal adenocarcinoma is the third most common cancer in the United States. Colorectal carcinoma causes occult bleeding as a result of mucosal ulceration or erosion, but the incidence of massive bleeding due to colorectal carcinoma varies from 5% to 20% in different series.[21]

Other diseases

Benign anorectal disease (eg, hemorrhoids, anal fissures, anorectal fistulas) can cause intermittent rectal bleeding. Massive rectal bleeding due to benign anorectal disease has also been reported. A review of the Department of Veterans Affairs (VA) database revealed that 11% of patients with LGIB had hemorrhage from anorectal disease.[32]

Postpolypectomy hemorrhage is reported to occur in 0.1%-3% of patients up to 1 month following colonoscopic polyp resection.[21]

Various small intestinal conditions, such as Crohn disease, Peutz-Jeghers syndrome, hemangiomas, and small intestinal adenocarcinomas, may cause small intestinal bleeding, but these hemorrhages are usually occult in nature.[21]

Clinical presentation

History

Patients presenting with GI bleeding should undergo a directed history and physical examination to look for clues that suggest whether the bleeding source is in the upper tract, colon, or possibly the small bowel, as well as a possible etiology for the hemorrhage. Important historical points to assess include: abdominal pain and weight loss (non-specific, but may suggest inflammatory bowel disease, ischemia, and/or malignancy), medication use (non-steroidal anti-inflammatory drugs—NSAIDS—and other medications that can cause ulcers or intestinal ischemia), recent colonoscopy with polypectomy (post-polypectomy bleed), prior abdominal/pelvic radiation (radiation proctitis/colitis), prior operations (possible anastomotic ulcers), or a history of abdominal aortic aneurysm with or without surgical repair (possible aorto-enteric fistula). A history of alcoholism or chronic liver disease raises the suspicion for bleeding due to portal hypertension, such as varices. The manner in which the patient with bleeding presents can also suggest potential etiologies. Bright red blood is more often seen from ano-rectal and distal colonic sources, but brisk upper GI bleeding can also manifest this way. Painless severe bleeding with clots is

more common with diverticular hemorrhage. Bloody diarrhea often occurs with ischemic and inflammatory colitides.[7]

The most important component of the physical exam is the vital signs, including orthostatic measurements. This can help with assessment of vascular volume status, the severity of the hemorrhage, and the need for aggressive volume resuscitation. Other aspects of the examination may be helpful for determining the potential cause of the bleeding, such as stigmata of liver disease that may suggest underlying cirrhosis and portal hypertension. Because about 15 % of hematochezia cases are due to an upper GI source, a nasogastric lavage should be performed in all patients with significant hematochezia, who do not have hematemesis, to assess for blood in the upper GI tract that would warrant an upper endoscopy.[2,3,7,38] Similarly, while melena typically indicates bleeding from a foregut location, it may result from bleeding from the small intestine or the right colon, particularly with slow GI bleeding or slow GI transit.[7]

Resuscitation should take place during the course of the initial assessment. The vital signs are essential to determining the degree of volume repletion needed, including assessment of orthostatic changes. Isotonic crystalloid solutions (such as normal saline) should be infused in bolus fashion to maintain a systolic blood pressure of >100 mmHg. This threshold may be lower in some patients with certain comorbidities, such as cirrhosis or those on drugs such as beta-blockers. Blood products should be infused as soon as available. The hemoglobin (Hb) threshold for transfusion of packed red blood cells generally should be 9–10 g/dL, depending on cardiovascular comorbidities. A recent study of blood transfusions for upper GI bleeding found that a more restrictive transfusion threshold of 7 g/dL led to a

significantly higher 6-week survival rate and lower rebleeding rate in non-cirrhotic, low-risk patients when compared to a threshold of 9 g/dL. This study, however, excluded high-risk patients and those with colonic bleeding, so it is unclear whether these results would carry over to colonic bleeding scenarios.[39] The platelet count should be kept above 50,000/mm^3 and the international normalized ratio (INR) should be corrected to 1.5 or less.[7]

History and physical examination are essential parts of an initial evaluation of lower gastrointestinal bleeding (LGIB). These can provide valuable clues to the etiology and anatomical source of bleeding. Document whether this is a first or recurrent episode of gastrointestinal (GI) bleeding as well as significant medical history (including peptic ulcer disease, liver disease, cirrhosis, coagulopathy, inflammatory bowel disease [IBD]) and previous medication use (eg, nonsteroidal anti-inflammatory drugs (NSAIDs) and/or warfarin). In patients with cancer, the history of radiation, chemotherapy, or both should be considered.[21]

The clinical presentation of LGIB varies with the anatomical source of the bleeding as well as with the etiology. Commonly, LGIB from the right side of the colon can manifest as maroon stools, whereas a left-sided bleeding source may be evidenced by bright red blood per rectum. In practice, however, patients with upper GI bleeding (UGIB), and right-sided colonic bleeding may also present with bright red blood per rectum if the bleeding is brisk and massive. Similarly, cecal bleeding may present with melena, which is typically seen with UGIB, suggesting no distinct method exists for determining the anatomic source of bleeding based solely on stool color.[21]

The presentation of LGIB can also vary depending on the etiology. A young patient may present with fever, dehydration, abdominal cramps, and hematochezia caused by infectious or noninfectious (idiopathic) colitis. An older patient may present with painless bleeding and minimal symptoms caused by diverticular bleeding or angiodysplasia. LGIB can be mild and intermittent, as often is the case with angiodysplasia, or moderate or severe, as may be the situation in diverticula-related bleeding.[21]

Symptoms are also important in identifying the source of bleeding. Young patients may present with abdominal pain, rectal bleeding, diarrhea, and mucous discharge that may be associated with IBD. However, elderly patients presenting with abdominal pain, rectal bleeding, and diarrhea may have ischemic colitis, or elderly patients with atherosclerotic heart disease may present with intermittent LGIB and syncope that may be due to angiodysplastic lesions. Stools streaked with blood, perianal pain, and blood drops on the toilet paper or in the toilet bowl may be associated with perianal pathology, such as anal fissure or hemorrhoidal bleeding.[21]

Massive lower GI bleeding is a life-threatening condition in which patients present with a systolic blood pressure of less than 90 mm Hg and a hemoglobin (Hb) level of 6 g/dL or less. These patients are usually aged 65 years and older, have multiple medical problems, and are at risk of death from acute hemorrhage or its complications. The passage of maroon stools or bright red blood from the rectum is usually indicative of massive lower GI hemorrhage.[21]

Diverticular bleeding

Although diverticular bleeding is painless, patients may experience mild abdominal cramping due to the intraluminal blood that triggers spasmodic contraction of the colonic wall. Bleeding is usually acute, without antecedent symptoms, and is self-limited in about 70-80% of cases. Rebleeding can occur in up to 25% of patients.[40]

If the bleeding is brisk and voluminous, patients may be hypotensive and display signs of shock. Clinical recommendations for diverticular bleeding published by the American Academy of Family Physicians (AAFP) in 2009 state that bleeding or unstable vital signs require rapid assessment and resuscitation before diagnostic testing.[41]

Chronic, intermittent, minimal blood loss per rectum is unlikely to be caused by diverticular bleeding, because diverticular bleeding is arterial in origin.[21]

Angiodysplasia

Significant angiodysplasia-related bleeding, like diverticular bleeding, presents as painless, self-limited hematochezia or melena; angiodysplasia-related bleeding is venocapillary. Unlike diverticular bleeding, angiodysplasia tends to cause slow but repeated episodes of bleeding. Therefore, patients may present with Hemoccult-positive stools, iron-deficiency anemia, and syncope. Occasionally, patients can present with bleeding of large quantities.[21]

Colitis

Ischemic colitis may or may not present with abdominal pain and associated bloody diarrhea. The bloody diarrhea is self-limited but can recur if the underlying cause is not corrected. Although the clinical presentation is indistinguishable at times from that of infectious colitis, idiopathic colitis, and radiation-induced colitis, patients with ischemic colitis are usually older with cardiovascular comorbidities. Ischemic colitis may be fulminant, presenting with acute abdominal pain, rectal bleeding, and hypotension, or this condition may be insidious, presenting with pain and rectal bleeding over several weeks.[21]

In infectious colitis, the clinical examination findings vary depending on the volume status, amount of blood loss, extent of abdominal pain, and accompanying peritoneal signs. The clinical presentation of fever, diarrhea, dehydration, and abdominal pain can be caused by any of a number of bacterial, viral, or parasitic pathogens. The specific etiology can only be determined by isolating the organism from the stool, blood, or other tissue fluid. Patients may be quite ill and may experience intravascular volume depletion, abdominal pain, and generalized malaise, but blood loss is usually mild and a minor factor in symptomatology.[21]

The clinical presentation of ulcerative colitis depends on whether the disease is mild, moderate, or severe. Although bleeding is minimal to none in people with mild disease, those with moderate-to-severe ulcerative colitis present with bloody diarrhea with pus, abdominal cramps, and dehydration. Symptoms of weight loss and fever occur in those with severe disease. Patients with Crohn disease usually

present with fever, nonbloody diarrhea, and abdominal pain. However, patients with Crohn colitis can present with bloody diarrhea.[21]

Colon carcinoma

The bleeding associated with colon cancer, particularly right-sided bleeding, can be insidious, with patients presenting with iron-deficiency anemia and syncope. Right-sided colon cancer may also present with maroon-colored stools or melena, whereas left-sided colonic cancers can present as bright red blood per rectum, which can sometimes be confused with hemorrhoidal bleeding.[21]

Anorectal disease

Hemorrhoidal bleeding is most often painless, whereas bleeding secondary to fissures tends to be painful. Hemorrhoids can also present with strangulation, hematochezia, and pruritus. Typically, bright red blood coats the stool at the end of defecation or blood may stain the toilet paper. Rarely, the bleeding may be copious, distressing to the patient.[21]

Physical Examination

The physical examination should be thorough and include the skin, oropharynx, nasopharynx, abdomen, perineum, and anorectum to evaluate for sources of bleeding.[21]

Because brisk UGIB can present as LGIB, a nasogastric (NG) tube may be necessary and the aspirate or lavage examined for the presence of blood and bile. These aspirates usually correlate well with upper gastric hemorrhage proximal to the

Treitz ligamentum; therefore, insert an NG tube to confirm the presence or absence of blood in the stomach.[21]

If necessary, perform gastric lavage with warm isotonic fluids to obtain bilious discharge; an aspirate that is positive for bile is comprehensive in that it includes fluid even beyond the pylorus. In such a scenario, if no blood is present, a UGIB source only makes sense if the bleeding has stopped. If this possibility exists, an esophagogastroduodenoscopy (EGD) should be performed to obtain a more specific evaluation of the upper GI tract. Place a Foley catheter to monitor urine output. Careful digital rectal examination, anoscopy, and rigid proctosigmoidoscopy should exclude an anorectal source of bleeding.[21]

Patients who have rectal varices with portal hypertension may develop painless massive LGIB; therefore, examining the anorectum early in the workup is important. If active bleeding is identified, treat it aggressively. Note that the discovery of benign anorectal disease does not exclude the possibility of more proximal bleeding from the lower GI tract.[21]

Once the bleeding is determined to be from the lower GI tract as opposed to an upper GI source, the tempo of the bleeding and the extent of blood loss should be quickly estimated so that a precise and targeted algorithm is adopted (see an example in the image below). Patients with massive LGIB usually present with bright red blood per rectum, hypotension, and a markedly reduced hematocrit as opposed to patients with mild bleeding who may present with intermittent passage of maroon-colored stools. The emergency implementation of aggressive resuscitation, diagnostic evaluation, and early involvement of a gastroenterologist (and surgeon in

the case of a rapid LGIB) is key to reducing the morbidity and mortality and to improving outcomes.[21]

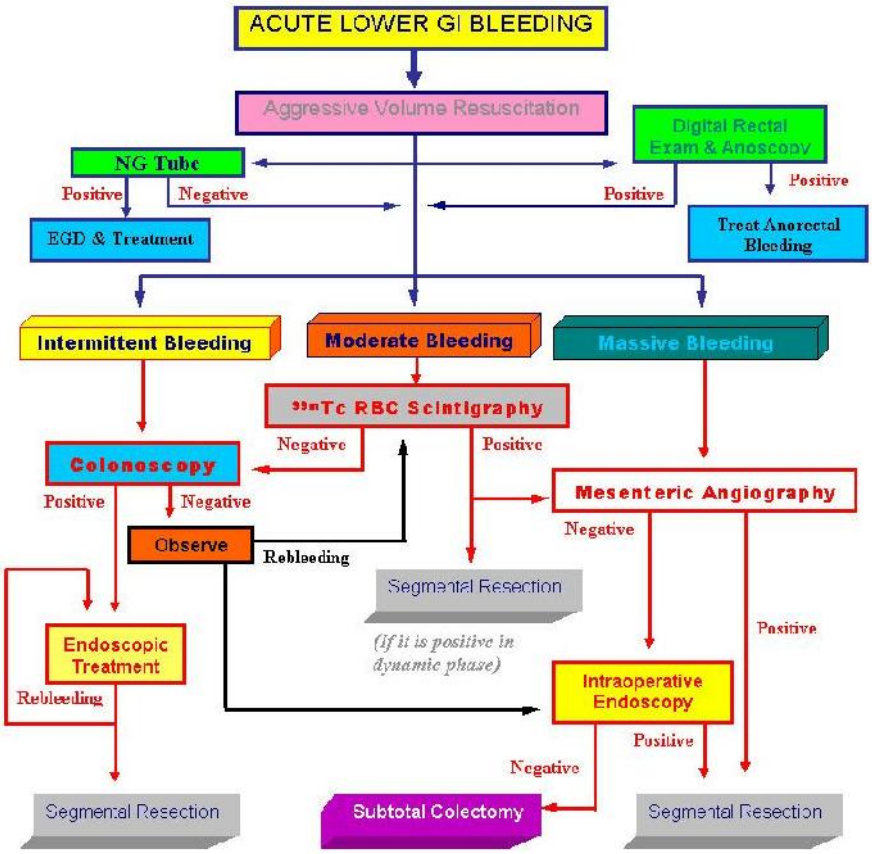


Figure 1. Algorithm for massive lower gastrointestinal (GI) bleeding, surgical perspective.[21]

EGD = esophagogastroduodenoscopy; NG = nasogastric; 99mTc RBC = technetium-99m pertechnetate–labeled autologous RBC.

Etiologies of LGIB

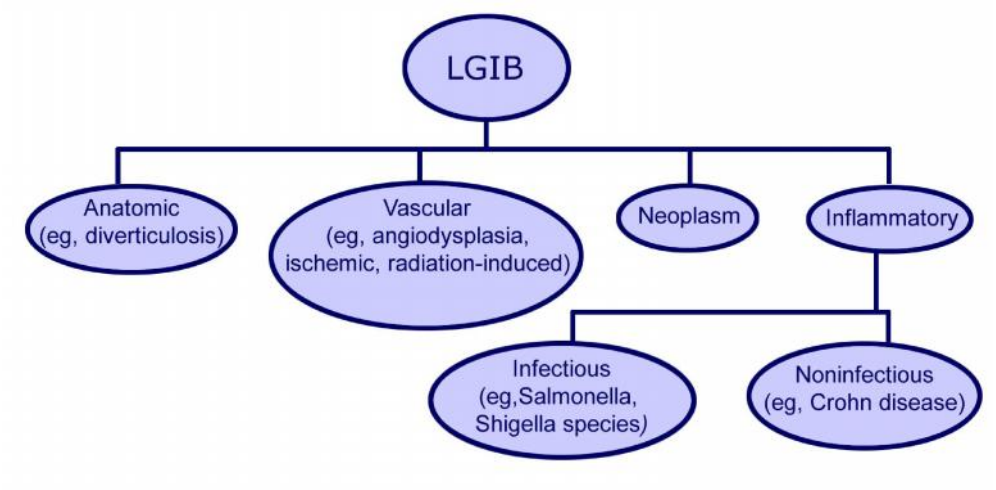


Figure 2. Types of lower gastrointestinal bleeding (LGIB).[21]

According to the UCLA-Center for Ulcer Research and Education (CURE) database, the frequencies of these different etiologies are similar to reports from other large centers.[7,42] Colonic diverticulosis continues to be the most common cause, accounting for about 30 % of lower GI bleeding cases requiring hospitalization. Internal hemorrhoids are the second-most common cause. Ischemic colitis and post-polypectomy bleeding are increasing in frequency, likely due to an increase in medical comorbidities and anti-platelet/anticoagulant use.[7,43] Our approach to patients hospitalized with severe hematochezia is summarized in Fig. 1.

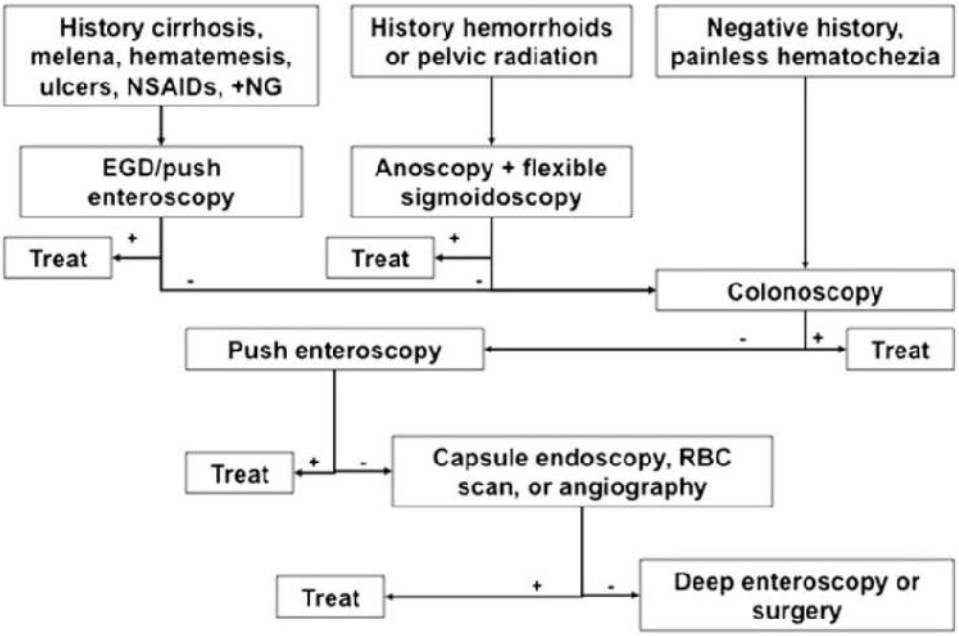


Figure 3. CURE Hemostasis Research Group diagnostic approach to patients hospitalized with severe hematochezia. *NSAIDs* non-steroidal anti-inflammatory drugs, *NG* nasogastric lavage, *EGD* esophagogastroduodenoscopy, *RBC* red blood cell[7]

Types of lower gastrointestinal bleeding (LGIB).

The most common etiologies of LGIB are;[7]

- Diverticular bleeding
- Ischemic colitis
- Angioectasia
- Hemorrhoids
- Colorectal neoplasia
- Postpolypectomy bleeding
- Inflammatory bowel disease
- Infectious colitis
- NSAID colopathy

- Radiation proctopathy
- Stercoral ulcer
- Rectal varices
- Dieulafoy lesion

Diverticular bleeding

Colon diverticula are present in up to 30% of patients aged ≥50 years, with the prevalence increasing to approximately 60% in those aged >80 years.[44,45,46] Diverticular bleeding accounts for 20% to 65% of acute LGIB episodes. Clinically significant bleeding occurs in 3% to 15% of patients with colon diverticula, usually as a result of trauma to the vasa recta at the neck or dome of the diverticulum.[16] Nonsteroidal anti-inflammatory drugs (NSAIDs) increase the risk for diverticular bleeding, while hypertension and anticoagulation also may contribute to severe bleeding.[16]

The clinical presentation of diverticular bleeding is characterized by painless hematochezia. Bleeding resolves spontaneously in 75% to 80% of patients but recurs in 25% to 40% within 4 years.[29,40] Early rebleeding is uncommon after endoscopic treatment. Older studies of treatments that have used epinephrine and/or thermal coagulation have reported early (<30 days) rebleeding rates ranging from 0% to 38% after endoscopic treatment. Two recent studies reported no early rebleeding after treatment with endoscopic clips and late rebleeding in 18% to 22% of patients. Late rebleeding may occur from diverticula at a location different from that of the index bleed.[16]

The diagnosis of diverticular hemorrhage is presumptive in most patients, based on the presence of colon diverticula and the absence of another obvious source of LGIB. A definitive diagnosis is made in approximately 22% of patients who have active bleeding or high-risk stigmata of a visible vessel or clot on colonoscopy.[38,47] Diverticular bleeding is detected by colonoscopy more commonly in the left side of the colon (50%-60%) and by angiography more commonly in the right side of the colon (50%-90%).[16]

Ischemic colitis

Ischemic colitis is the underlying etiology in 1% to 19% of patients with LGIB and most commonly affects elderly patients.[16] Ischemic colitis results from a sudden, often temporary, reduction in mesenteric blood flow secondary to hypoperfusion, vasospasm, or occlusion of the mesenteric vasculature. The typical locations affected by nonocclusive colon ischemia are the "watershed" areas of the colon: the splenic flexure and rectosigmoid junction. A recent review of 313 patients with ischemic colitis reported involvement of the sigmoid colon in 20.8%, descending colon to sigmoid colon in 9.9%, transverse colon to sigmoid colon in 4.2%, and pancolonic involvement in 7.3% of patients.[48] Patients with ischemic colitis often have underlying cardiovascular disease and present with hypotension or hypovolemia, which results in mesenteric hypoperfusion and vasoconstriction. Bleeding results from reperfusion injury after the hypoperfusion has resolved.[48,49]

Mesenteric occlusion related to cardiac thromboembolism has been reported in up to one-third of patients with ischemic colitis,[48] whereas hypercoagulable states, vasculitis, and medications are less common risk factors.[16,49] The clinical

presentation of ischemic colitis is characterized by the sudden onset of cramping abdominal pain, followed by hematochezia or bloody diarrhea within 24 hours.[33,50] Typical endoscopic findings are submucosal hemorrhage and ulcerations in the colon. These findings are present in a segmental distribution with an abrupt transition between abnormal and normal mucosa. The rectum usually is spared, because of its dual blood supply.[49] A single linear ulcer that runs along the longitudinal axis of the colon on the antimesenteric border ("single-strip" sign) also may indicate colon ischemia.[51] None of these endoscopic findings are pathognomonic of ischemic colitis, however, and infectious and inflammatory colitides should remain in the differential diagnosis.[30] Angiography should be considered in patients with severe ischemic colitis or right-sided involvement, when there is suspicion for an underlying thromboembolism or concomitant mesenteric ischemia involving the small bowel.[16,49]

The majority of patients diagnosed with ischemic colitis improve with conservative management including intravenous hydration and correction of the underlying etiology. Involvement of the right side of the colon and total colon ischemia (usually after a major abdominal surgery) may portend an unfavorable outcome because of concomitant small-bowel ischemia or transmural infarction, and may require surgical management.[16]

Angioectasias

The prevalence of colon angioectasias (also known as angiodysplasias or vascular ectasias) varies with clinical presentation (1%-2% in asymptomatic patients undergoing screening colonoscopy; 40% to 50% in those presenting with

hematochezia). It is suggested that angioectasias account for 3% to 15% of patients with LGIB. The incidence of angioectasias increases with age, and more than two-thirds of these lesions are seen in patients aged >70 years. Angioectasias are caused by degenerative changes and chronic intermittent low-grade obstruction in the submucosal vessels. They are located predominantly in the cecum and the ascending colon. Multiple angioectasias may be seen on colonoscopy and appear as red, flat lesions, ranging in size from 2 mm to several centimeters, with ectatic blood vessels radiating from a central feeding vessel.[16]

Risk factors for angioectatic bleeding include advanced age, comorbidities, the presence of multiple angioectasias, and the use of anticoagulants or antiplatelet agents. Patients can present with occult bleeding, melena, or painless intermittent hematochezia. Colonoscopy has a sensitivity of 80% for detection of angioectasias. However, the use of narcotics for sedation may reduce mucosal blood flow and impair the detection of these lesions at colonoscopy.[16]

Bleeding from angioectasias in patients with aortic stenosis is termed Heyde syndrome. It is hypothesized that severe aortic stenosis may result in type 2 von Willebrand disease, which precipitates bleeding in patients with underlying angioectasias. There is a high rebleeding rate despite endoscopic treatment, and definitive management of these patients may involve aortic valve replacement.[16]

Hemorrhoids

Hemorrhoids are a plexus of dilated arteriovenous vessels that arise from the superior and inferior hemorrhoidal veins. These plexuses are located in the submucosa of the distal rectum and are classified as internal or external, based on

their location relative to the dentate line. Although hemorrhoids may be present in up to 75% of patients with LGIB, the majority are considered incidental findings. Hemorrhoidal bleeding has been reported to account for only 2% to 10% of acute LGIB. However, two recent studies found that hemorrhoids were the underlying etiology in 24% to 64.4% of patients presenting with hematochezia. Patients typically present with painless, intermittent, scant hematochezia characterized by bright red blood on the toilet paper, coating the stool, or dripping into the toilet bowl. Anorectal disorders, including hemorrhoids, are discussed in another ASGE guideline.[16]

Colorectal neoplasia

Clinical features of bowel habit changes and weight loss should raise suspicion for a colorectal neoplasia and prompt colonoscopy in patients with LGIB. Colorectal neoplasia accounts for up to 17% of all etiologies in patients with LGIB and presents more commonly with occult bleeding. Acute LGIB associated with colorectal neoplasia usually results from surface ulcerations of an advanced tumor. Patients with tumors in the right side of the colon are more likely to present with occult blood loss and iron deficiency anemia, whereas those with left-sided tumors more commonly present with hematochezia. Endoscopic treatment for hemostasis is rarely required because bleeding from colorectal neoplasia is slow in the majority of patients.[16]

Postpolypectomy bleeding

Postpolypectomy bleeding has been reported to account for 2% to 8% of acute LGIB.[16] A recent large study[52] of 50,000 colonoscopies that used Medicare

claims data reported a bleeding rate of 8.7/1000 procedures. The adverse events of colonoscopy, including postpolypectomy bleeding, are discussed in another ASGE guideline.[53]

NSAID use

NSAID use is associated with an increased risk of LGIB, including diverticular bleeding.[16] A systematic review found that NSAID users had a significantly higher incidence of lower GI adverse events, including bleeding, compared with those who were not NSAID users.[54] The prevalence of NSAID use is reported to be as high as 86% in patients with LGIB.[55] The mechanisms involved in the induction of LGIB by NSAIDs are not well-understood and may include local mucosal trauma and platelet inhibition in susceptible individuals as well as the concomitant use of warfarin and other antiplatelet agents.[16]

Use of NSAIDs is associated with exacerbations of inflammatory bowel disease and can induce NSAID colopathy, which may be misdiagnosed as inflammatory bowel disease. This disorder is characterized by colon ulcerations and diaphragm-like strictures, predominantly located in the terminal ileum and right side of the colon. NSAID colopathy may be associated with adverse events of LGIB and perforation.[16]

Miscellaneous etiologies

Rectal ulcers have been reported in 8% of patients who present with severe hematochezia and in 32% of patients who develop LGIB after intensive care unit admissions for other critical illnesses. Patients often have major medical comorbidities of end stage renal disease on hemodialysis, respiratory failure

requiring mechanical ventilation, decompensated cirrhosis, or malignancy. Endoscopic findings range from clean-based ulcers (82%) to adherent clots (17%), nonbleeding visible vessels (33%), and active bleeding (50%).[16,56] Early rebleeding after endoscopic treatment has been reported in 44% to 48% of patients, and a mortality rate of 33% to 48% has been reported in patients with high-risk stigmata who have multiple comorbidities.[16,56]

LGIB has been reported in 4% to 13% of patients with radiation proctopathy. This disorder is caused by radiation-induced endarteritis obliterans, which results in neovascularization and telangioectasias in the rectum.[57]

Patients with inflammatory bowel disease commonly present with LGIB. Acute LGIB requiring hospitalization is uncommon and has been reported to account for only 1.2% to 6% of all admissions in patients with Crohn's disease and 0.1% to 4.2% in patients with ulcerative colitis. Clinically significant bleeding in Crohn's disease is more common in patients with colon involvement than in those with isolated small-bowel disease. Bleeding resolves spontaneously in up to 50% of patients, but there is a recurrence rate of up to 35%. Medical management with biologics can be effective in the management of these patients.[16]

LGIB occurs in 2.6% of patients with HIV, usually in the setting of AIDS-related thrombocytopenia, and is associated with an inpatient mortality rate of 28%. The most common etiologies of LGIB in these patients are opportunistic infections, including cytomegalovirus, herpes simplex virus, Kaposi's sarcoma, and idiopathic proctocolitis.[16]

An upper GI source may be present in 11% to 15% of patients with suspected LGIB, whereas small-bowel sources constitute 2% to 15% of cases.[16]

In a retrospective review of medical records from approximately 1100 patients with acute LGIB, all of whom were admitted to the surgical service of a single urban emergency hospital, Gayer et al.[59] determined that the most common etiologies for bleeding in these patients were diverticulosis (33.5%), hemorrhoids (22.5%), and carcinoma (12.7%). The investigators also found that most patients in the study (55.5%) presented with hematochezia, with the next most frequent presentations being maroon stools (16.7%) and melena (11%).

In a review by Vernava and colleagues,[32] patients with LGIB made up only 0.7% of all hospital admissions (17,941 patients); among the patients who underwent a diagnostic workup (4410 [24%]), the most common causes of bleeding were diverticular disease (60%), IBD (13%), and anorectal diseases (11%). These figures differ somewhat from the study by Gayer et al.[59] Although some publications have reported arteriovenous malformations (AVMs) as a common cause of LGIB, Vernava et al reported the true incidence of these lesions at 3%.[60]

Longstreth[29] reviewed the discharge summary and colonoscopy data from a large health maintenance organization with members in the San Diego, Calif, area; of 235 hospital admissions for 219 patients, the estimated hospital admission rate for LGIB was found to be 20 patients per 100,000 admissions, with bleeding from diverticular disease the most common reason (42%), followed by colorectal malignancies (9%) and ischemic colitis (8.7%).[29] The incidence of LGIB due to

colonic angiodysplasias was 6%. These findings were consistent with those of the VA database study by Vernava et al,[32] although that study was limited to males.

Recently Dar IA et al.[5] in Jammu and Kashmir conducted a study to determine the various etiologies, clinical presentations, a diagnostic test used and treatments received by LGIB patients admitted in our department. A total of 300 cases were studied which included 180 retrospective cases and 120 prospective cases. For retrospective cases, all the information was obtained by analyzing their case records while as prospective patients were managed as per a predefined protocol and details of various investigations and treatments documented. Most commonly affected was elderly population (>60 years), constituting 40% (120/300) of studied population. Males constituted 59% (177/300) and females 41% (123/300). The most common clinical presentation of LGIB in our patients was hematochezia (63.6%, 191/300). Growth/polyp was the most common finding on colonoscopic examination seen in 29.3% (n = 88) patients. Inflammatory lesions were seen in 77 out of 239 (25.7%) patients. Wireless capsule endoscopy was positive in 13 out of 24 patients (54%). Computed tomography (CT) enterography showed positive results in 6 out of 25 (24%) cases. Red blood cell scan was done in seven patients while as CT angiography in in four patients. Therapeutic endoscopy was successful in 115 out of 239 patients with positive colonoscopy, polypectomy was the commonest procedure performed. Medical management was carried out in 34.6% patients. Surgical treatment was offered to 21% patients. Authors commented that, colonoscopy is the initial and most common investigation used in the evaluation of GI bleed. A polyp is the most common diagnosis while as polypectomy the most common therapeutic procedure.

Diagnosis

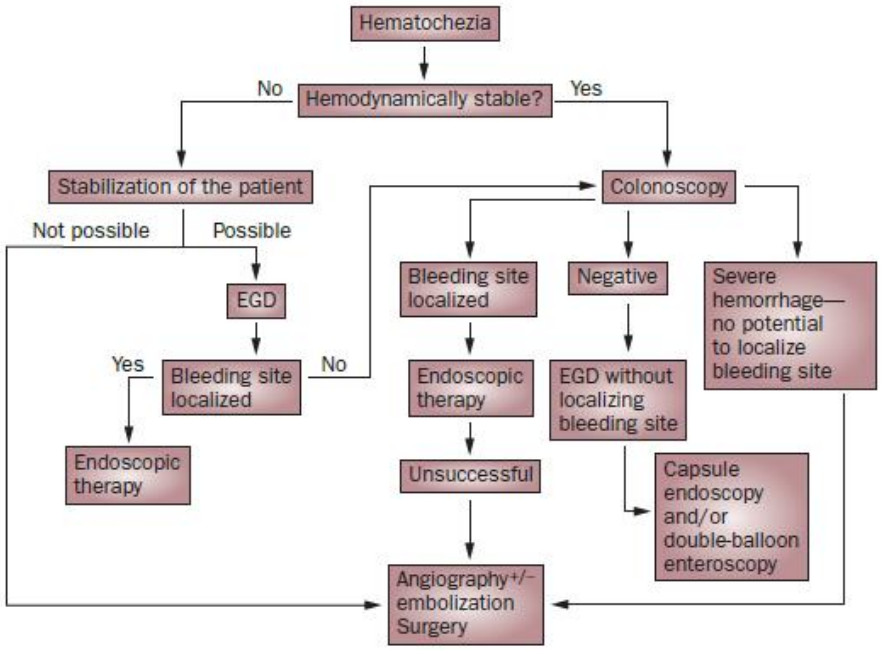


Figure 4. Algorithm showing recommended evaluation of acute lower gastrointestinal bleeding from initial presentation of the patient with hematochezia. Stabilization of the patient should be carried out before colonoscopy is performed. If this is not possible, angiography should be performed first. In other cases, colonoscopy is the mainstay in the diagnostic algorithm. Abbreviation: EGD, esophagogastroduodenoscopy.[57]

For chronic LGIB, colonoscopy and anoscopy are the cornerstones for investigation. if repeat colonoscopies and upper endoscopies are negative, the small bowel must be investigated as a potential source of the bleeding.[57]

The 3 nonsurgical modalities used to diagnose lower gastrointestinal bleeding (LGIB) are colonoscopy, radionuclide scans, and angiography. Apart from colonoscopy, endoscopic procedures, such as esophagogastroduodenoscopy (EGD), wireless capsule endoscopy (WCE), push enteroscopy, and double-balloon enteroscopy, are used depending on the clinical circumstance. The sequence of using

various modalities depends on such factors as rate of bleeding, hemodynamic status of the patient, and inability to localize bleeding with the initial modality.[21]

Patients who have experienced multiple episodes of LGIB without a known source or diagnosis should undergo elective mesenteric angiography, upper and lower endoscopy, Meckel scanning, upper gastrointestinal (GI) series with small bowel examination, and enteroclysis. Elective evaluation of the entire GI tract may identify uncommon lesions and undiagnosed arteriovenous malformations (AVMs).[21]

Ryan et al.[61] performed 17 elective provocative bleeding studies for occult LGIB in 16 patients. Although an abnormality was identified in 50% of patients, bleeding was provoked in 6 (37.5%) patients. Most of the positively provoked patients (ie, 5 patients) had a previously positive tagged red cell scintigraphy. Of the 6 patients with provoked bleeding, 3 were treated with superselective embolization at the time of provoked bleeding, 2 were treated with estrogen therapy, and 1 was treated with palliative therapy. Ten patients did not bleed during the provoked study.

Endoscopy

Flexible endoscopy is now considered the mainstay for evaluation of acute and chronic colonic bleeding. The incidence of serious complications is low (about 1 in 1,000 procedures). Patients should be continuously monitored during urgent endoscopy using eCG and noninvasive measurement of oxygen saturation. In case of hemodynamic instability, patients must undergo volume resuscitation before endoscopy.[57]

In patients with hematochezia and concurrent hemodynamic instability, esophagogastroduodenoscopy (eGD) should be performed first to exclude an upper gastrointestinal bleeding source. otherwise, colonoscopy is recommended as the first step in the evaluation of acute lGiB.[62] the timing of colonoscopy after initial presentation varies among studies from 12 h to 48 h.[62] Colonoscopy can determine the source and type of bleeding, and can help to identify patients with ongoing hemorrhage or those who are at high risk of rebleeding. Furthermore, endoscopic hemostasis can be performed, if necessary.[57]

the diagnostic yield for urgent colonoscopy in acute lGiB is 89–97%.[63,64] Current recommendations advise thorough cleansing of the colon in acute LGIB,[64,65] as this procedure facilitates endoscopic visualization, improves diagnostic yield, and improves (presumably) the safety of the procedure by decreasing the risk of perforation. For optimal purge of the colon, the patient must consume 3–6 l of a polyethylene glycol-based solution. Patients generally tolerate consumption of 1–2 l per hour. It might be helpful to administer a prokinetic antiemetic such as meto clopramide (10 mg intravenously) or to administer the solution through a nasogastric tube. Colonoscopy can be started with the appearance of liquid discharge because diluted blood and clots can be aspirated or washed away. If the discharge becomes free of blood during the preparation, the endoscopic evaluation can be done on an elective basis the following day. the cecum should be reached if at all possible, because a substantial proportion of bleeding sites are located in the right hemicolon. Flowing blood from above in the terminal ileum is a clear sign of a proximal bleeding site. in patients with severe and ongoing bleeding, urgent colonoscopy must sometimes be carried out without purge. in patients with hemo dynamic

instability, an urgent angiography is recommended. For chronic LGIB, colonoscopy and anoscopy should be performed first in patients with scant intermittent hematochezia or iron-deficiency anemia. EGD should be carried out in patients with iron- deficiency anemia if colonoscopy fails to detect the source of bleeding. if both colonoscopy and EGD fail to localize the source in acute and chronic GI bleeding, additional endoscopic methods can be performed to examine the small intestine. Push enteroscopy enables visualization of about 50–120 cm of the proximal jejunum. Double-balloon enteroscopy can make the whole small intestine visible, especially if bi directional enteroscopy is performed that is, if the scope is introduced successively by mouth and anus. using wireless video capsule endoscopy, the small bowel can be completely visualized in about 80% of cases.[66]

Nonendoscopic methods

Nuclear scintigraphy

Nuclear scintigraphy is a sensitive method for detecting gastrointestinal bleeding at a rate of 0.1 ml/min. the method is more sensitive, but less specific, than angio graphy.49 the role of nuclear scans and, in particular, of technetium-99m-labeled erythrocytes is limited for obscure gastrointestinal bleeding. the major disadvantages are that nuclear imaging localizes bleeding only to an area of the abdomen and that the intra luminal blood is moved away by intestinal motility. when scans are positive within 2 h after injection of the labeled erythrocytes, localization is correct in 95–100% of cases. However, when scans are positive after more than 2 h after injection, the accuracy decreases to 57–67%. Scintigraphy might be useful, especially for recurrent bleeding, when other methods have failed.[57]

Radiology

Visceral angiography is estimated to only detect active bleeding when the rate is at least 0.5–1 ml/min. the specificity of this procedure is 100%, but sensitivity varies from 47% with acute LGIB to 30% with recurrent bleeding. Unfortunately, bleeding is frequently intermittent and might be slow, thereby limiting detection of the causative lesion. Angiography should be reserved for patients who have massive bleeding that precludes colonoscopy, or for whom endoscopies were negative. visceral angiography has a complication rate of 9.3%. Studies have shown that Ct angiography is highly sensitive and specific for diagnosing colonic angio dysplasia.[67,68] this approach seems to be equivalent to visceral angiography in the detection of acute gastrointestinal hemorrhage,[69] showing accuracy rates of 54–79% for colonic bleeding. there is no role for barium studies in the detection of acute lGiB. Plain abdominal radiography and/or CT might be carried out, depending on the clinical presenta tion and suspected etiology (such as ischemic or inflammatory colitis, or in cases where bowel obstruction or perforation are suspected). In cases of chronic LGIB, CT colonography can be used to examine the colon. However, it must be considered that small or flat lesions such as angiodysplasias are usually not recognized by this method.[57]

One of the advantages of upper or lower endoscopic evaluation is that it provides access to therapy in patients with gastrointestinal (GI) bleeding. Endoscopic control of bleeding can be achieved using thermal modalities or sclerosing agents. Absolute alcohol, morrhuate sodium, and sodium tetradecyl sulfate can be used for sclerotherapy of upper and lower GI lesions.[21]

Endoscopic epinephrine injection is used commonly because of its low cost, easy accessibility, and low risk of complications. In a recent study, 175 patients underwent endoscopic epinephrine injection. Univariate analysis of 31 patients with rebleeding indicated that factors predictive of a high rebleeding rate included older age (≥60 y), American Society of Anesthesiology category III, IV, and V; severe anemia of greater than 8 g/dL; shock; epinephrine injection dose greater than or equal to 12 mL; and severe bleeding signs (hematemesis or hematochezia).[70] An additional hemostatic method such as clips or thermoregulation is needed to prevent subsequent bleeding.[70]

Endoscopic thermal modalities (eg, laser photocoagulation, electrocoagulation, heater probe) can also be used to arrest hemorrhage. Endoscopic control of hemorrhage is suitable for GI polyps and cancers, arteriovenous malformations, mucosal lesions, postpolypectomy hemorrhage, endometriosis, and colonic and rectal varices. Postpolypectomy hemorrhage can be managed by electrocoagulation of the polypectomy site bleeding with either snare or hot biopsy forceps or by epinephrine injection.[21]

The medical literature has also been reviewed for endoscopic treatment of significant lower GI bleeding (total of 286 patients in 8 publications). Hemorrhage was successfully arrested in 70% of patients, with a rebleeding rate of 15%. Endoscopic therapy for LGIB is a minimally invasive and viable option in carefully selected patients.[71]

Hunter et al.[72] evaluated 222 GI endoscopic laser procedures in 122 patients and reported hemorrhage was arrested in 84% of the patients with GI bleeding. No

perforations were reported in this series, but 1 death occurred and was attributed to laser therapy in a patient with duodenal ulcer and gastroduodenal artery bleeding.

Although the treatment options for angiodysplasias are numerous, including segmental bowel resection and selective mesenteric embolization, endoscopic coagulation of angiodysplasias is becoming a treatment of choice using either heated probe or lasers, such as Nd:YAG and argon. Argon laser treatment is recommended for mucosal or superficial lesions, because the energy penetrates only 1 mm. Nd:YAG lasers are more useful for deeper lesions, because they penetrate 3-4 mm.[21]

Management of LGIB

Advances in diagnostic and therapeutic colonoscopy and in interventional angiography have resulted in a shift away from the need for surgical treatment. Effective management with less invasive modalities has also reduced healthcare costs and, more importantly, patient morbidity and mortality.

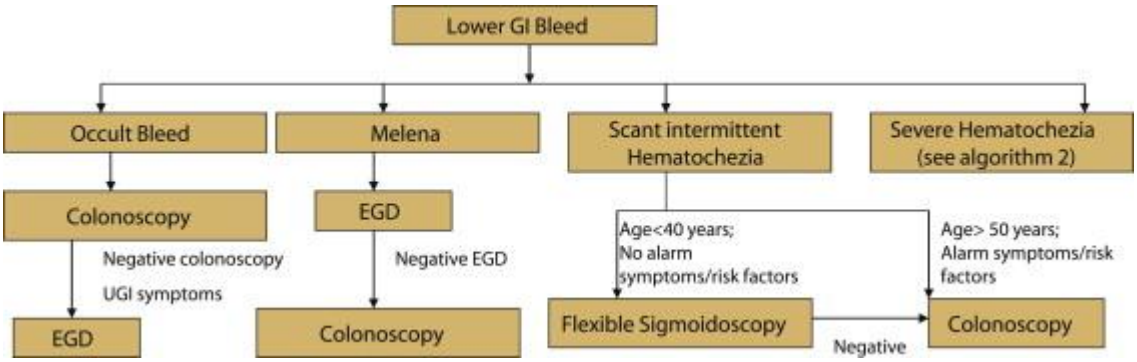


Figure 5. Management of LGIB[16]

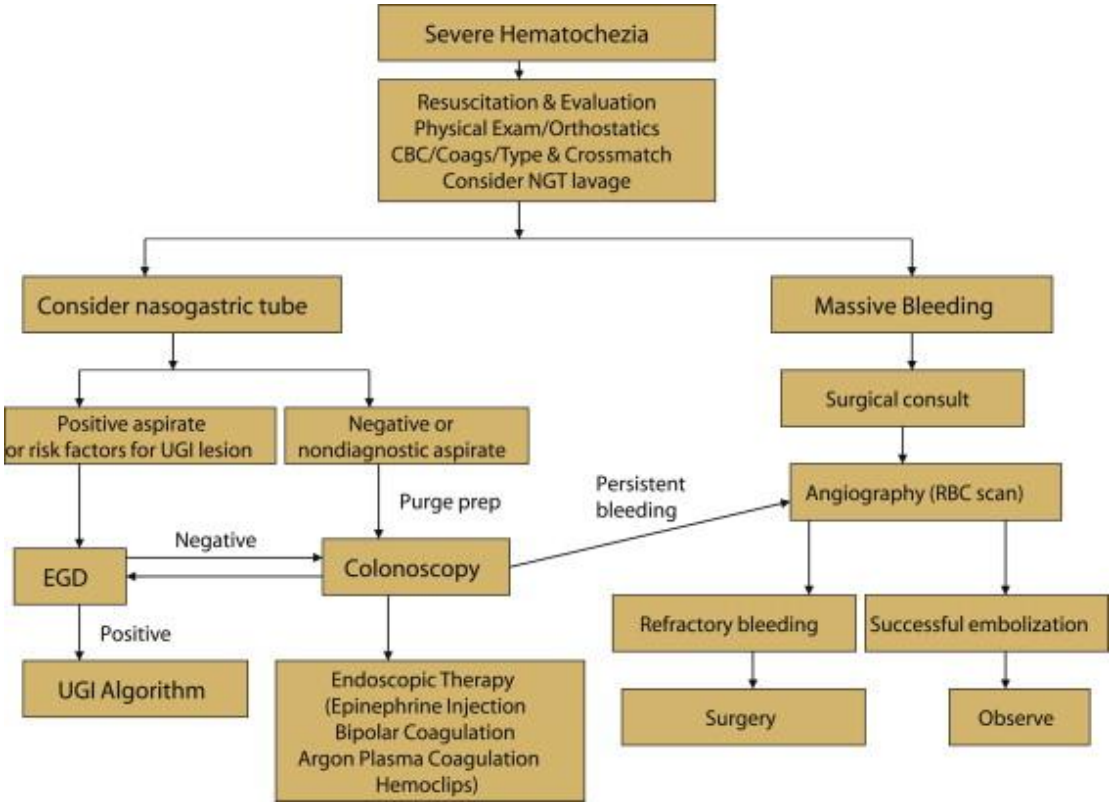


Figure 6. Management of severe hematochezia[16]

METHODOLOGY

This one year cross-sectional study was conducted in the Department of Medicine, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi from January 2015 to December 2015.

Study design and duration

The study design was a cross-sectional study.

Study period

This study was carried out from January 2015 to December 2015.

Source of Data

Patients with lower gastro-intestinal bleeding presenting at Department of Medicine and Department of Gastro-enterology, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi were studied.

Sample size

A total of 50 patients with Lower gastro-intestinal bleeding were included in the study.

Sampling procedure

As the data regarding the prevalence of lower gastrointestinal bleeding is not available previously, the sample size was determined considering 80% of the

average three year hospital statistics on patients presenting with lower GI bleed as below.

Year	Number of patients
2012	58
2013	62
2014	66
Total	186
Average	62
80% of average	49.6

Hence the sample size of 50 was considered.

Selection criteria

Inclusion Criteria

- Patients presenting with lower gastrointestinal bleeding
- Patients aged 18 years and above

Exclusion Criteria

- Patients unfit for lower Gastrointestinal video endoscopy.

Ethical clearance

Prior to the commencement **t**he study was approved by the Ethical and Research Committee of Jawaharlal Nehru Medical College, Belagavi.

Informed consent

The patients presenting with lower gastro-intestinal bleeding were screened for eligibility. Those who fulfilled the selection criteria were informed about the nature of study and included after obtaining a written informed consent (Annexure–I).

Data collection

Patients were interviewed and demographic data, history of present illness, other comorbid conditions, personal history and diet pattern were obtained. Further these patients underwent clinical examination. The findings were noted on a predesigned and pretested proforma (Annexure-II).

Procedure

Patients were subjected to lower gastrointestinal video endoscopy. Endoscopy was performed in all patients within 24 h of admission depending upon the urgency of the condition by using an Olympus forward viewing flexible video endoscope. Endoscopy was performed by placing the patients in a left lateral position by standard technique.

Statistical methods

The data obtained was coded and entered into the Microsoft Excel Spreadsheet (Annexure III). The categorical data was expressed in terms of rates, ratios and percentages and continuous data was expressed as mean ± standard deviation.

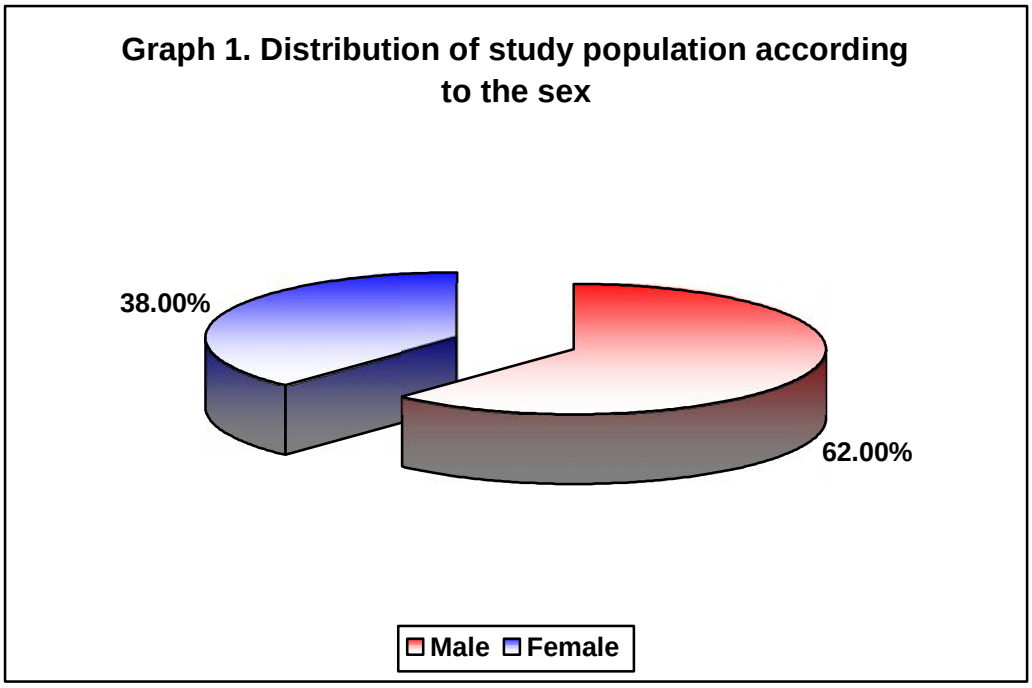
RESULTS

The present one year cross-sectional study was conducted from January 2015 to December 2015. A total of 50 patients presenting with lower gastro-intestinal bleeding at the Department of Medicine and Gastro-enterology, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi were studied.

Data obtained was analysed and the observations and interpretation were tabulated as below.

Table 1. Distribution of study population according to the sex

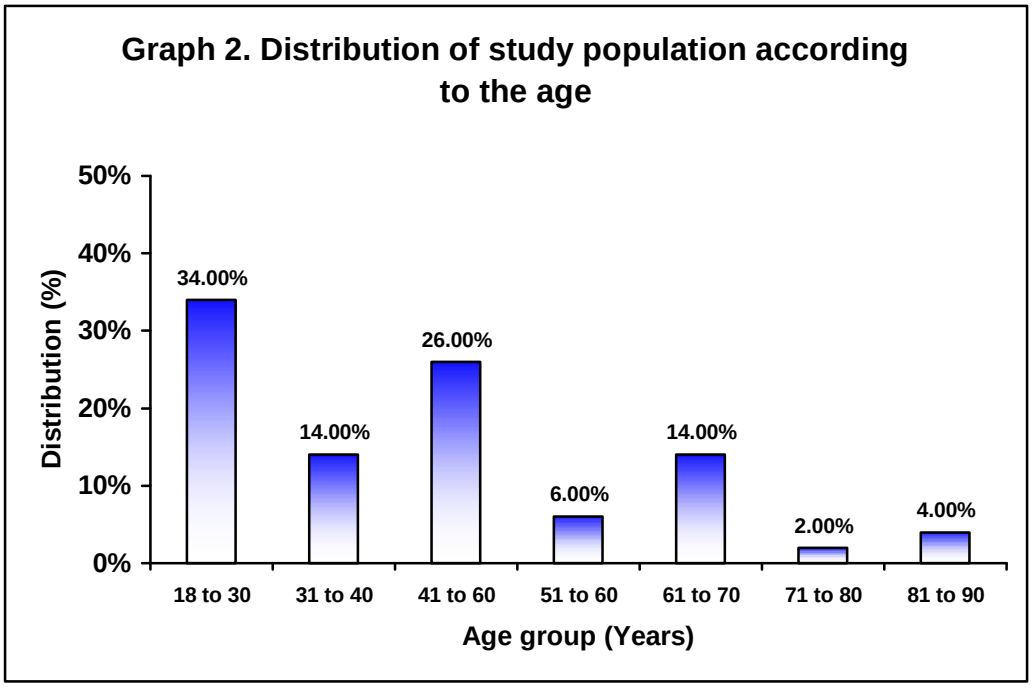
Sex	Distribution (n=50)	
	Number	**Percentage**
Male	31	62.00
Female	19	38.00
Total	**50**	**100.00**



In the present study majority of the patients were males (62%). The male to female ratio is 1.63:1.

Table 2. Distribution of study population according to the age

Age group (Years)	Distribution (n=50)	
	Number	**Percentage**
18 to 30	17	34.00
31 to 40	7	14.00
41 to 50	13	26.00
51 to 60	3	6.00
61 to 70	7	14.00
71 to 80	1	2.00
81 to 90	2	4.00
Total	**50**	**100.00**

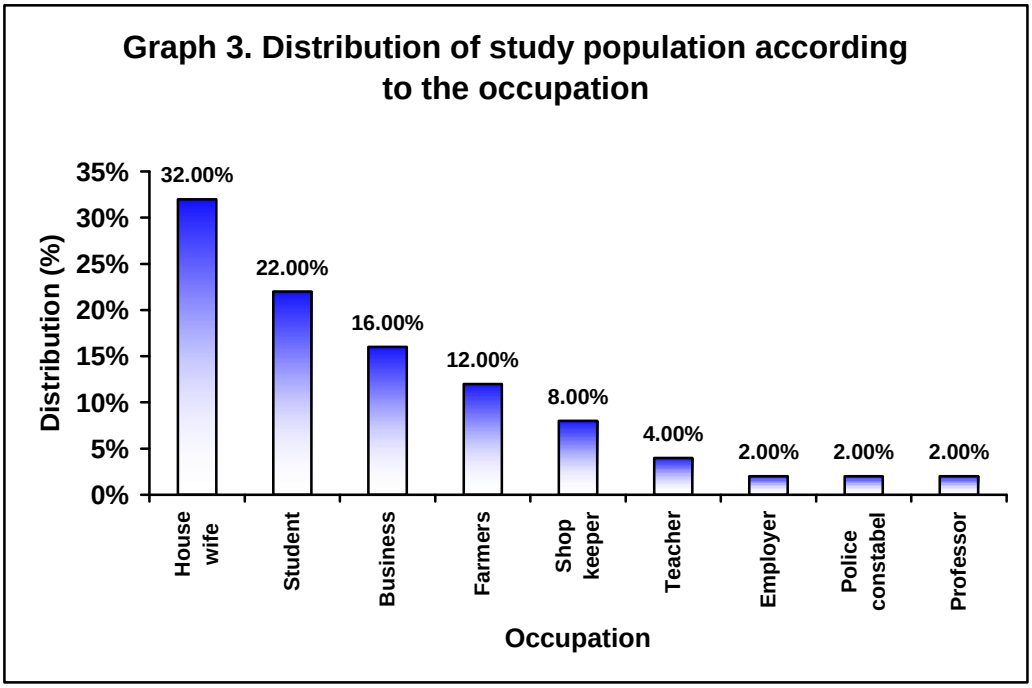


In this study (34%) of the patients presented with age between 18 to 30 years. The mean age was 43.82 ± 17.96 years.

Table 3. Distribution of study population according to the occupation

Occupation	Distribution (n=50)	
	Number	**Percentage**
House wife	16	32.00
Student	11	22.00
Business	8	16.00
Farmer	6	12.00
Shop keeper	4	8.00
Teacher	2	4.00
Employer	1	2.00
Police constable	1	2.00
Professor	1	2.00
Total	**50**	**100.00**

Multiple features hence total not shown

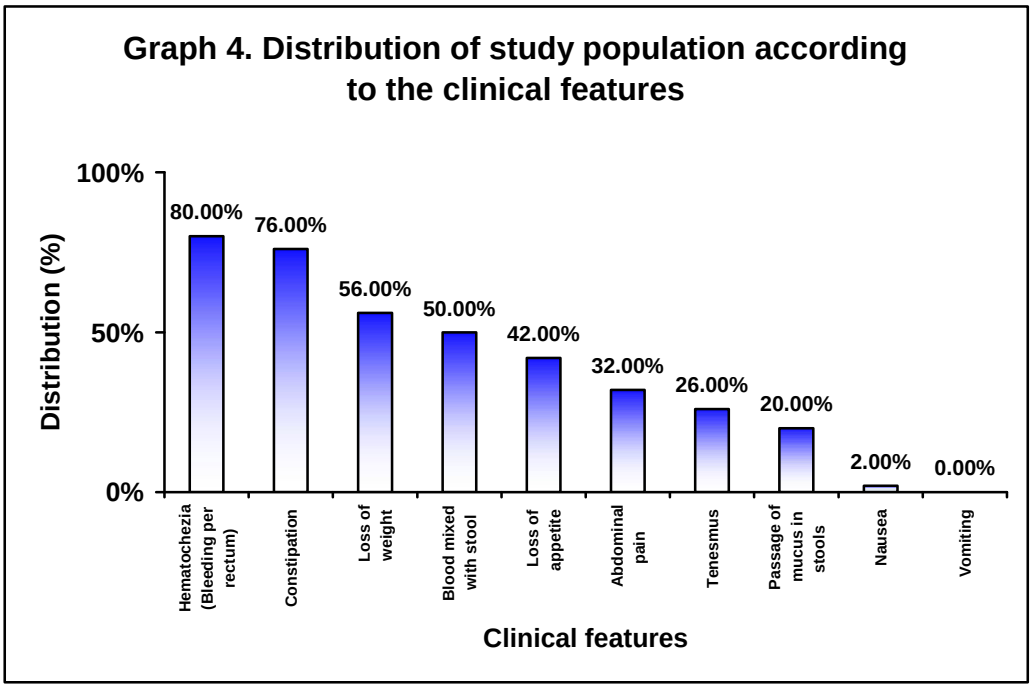


In the present study the most of the patients were housewives (32%) while 22% of the patients were students.

Table 4. Distribution of study population according to the clinical features

Clinical features	Distribution (n=50)	
	Number	Percentage
Haematochezia (bleeding per rectum)	40	80.00
Constipation	38	76.00
Loss of weight	28	56.00
Blood mixed with stool	25	50.00
Loss of appetite	21	42.00
Abdominal Pain	16	32.00
Tenesmus	13	26.00
Passage of mucus in stools	10	20.00
Nausea	1	2.00
Vomiting	0	0.00

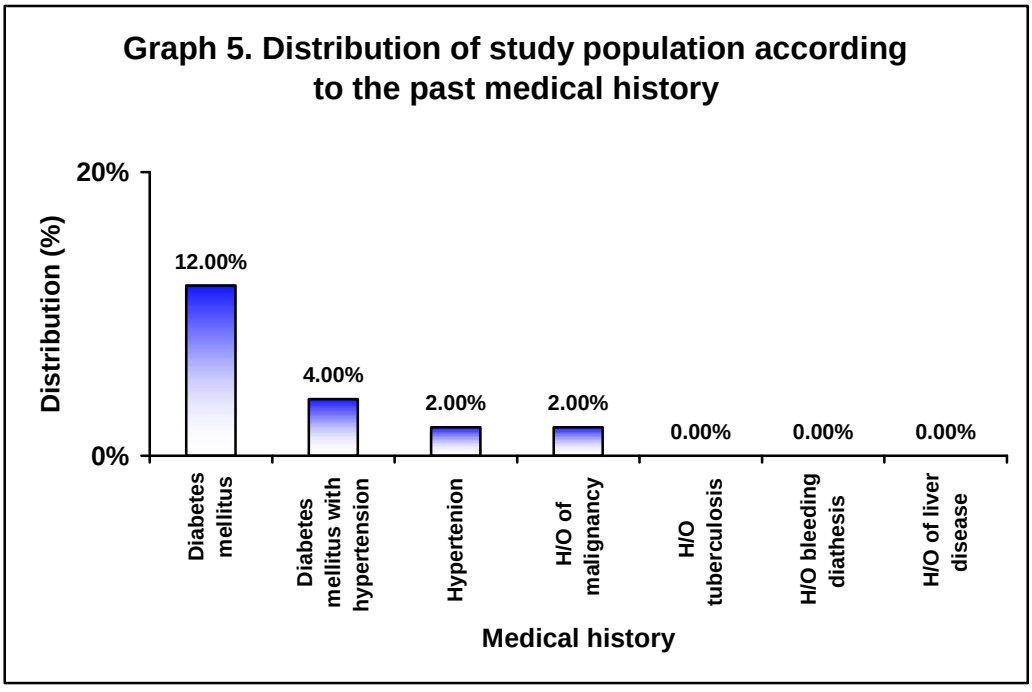
Multiple features hence total not shown



In this study, the most common clinical symptom was bleeding per rectum (80%) followed by constipation (76%), loss of weight (56%), blood mixed with stools (50%). The other complaints are as shown in table 4 and graph 4.

Table 5. Distribution of study population according to the past medical history

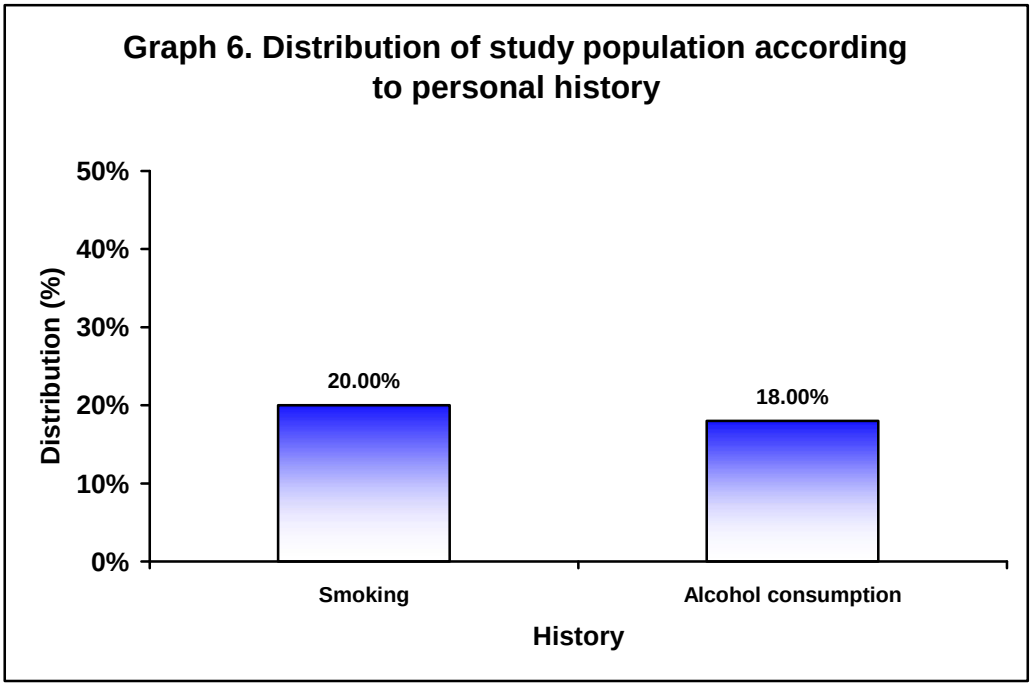
Medical History	Distribution (n=50)	
	Number	Percentage
Diabetes mellitus	6	12.00
Diabetes mellitus/ hypertension	2	4.00
Hypertension	1	2.00
H/O Malignancy	1	2.00
H/O Tuberculosis	0	0.00
H/O Bleeding diathesis	0	0.00
H/O Liver disease	0	0.00



In the present study diabetes mellitus was the most common medical history reported by 12% of the patients.

Table 6. Distribution of study population according to personal history

History	Distribution (n=50)	
	Number	Percentage
Tobacco chewing	0	0.00
Smoking	10	20.00
Alcohol consumption	9	18.00

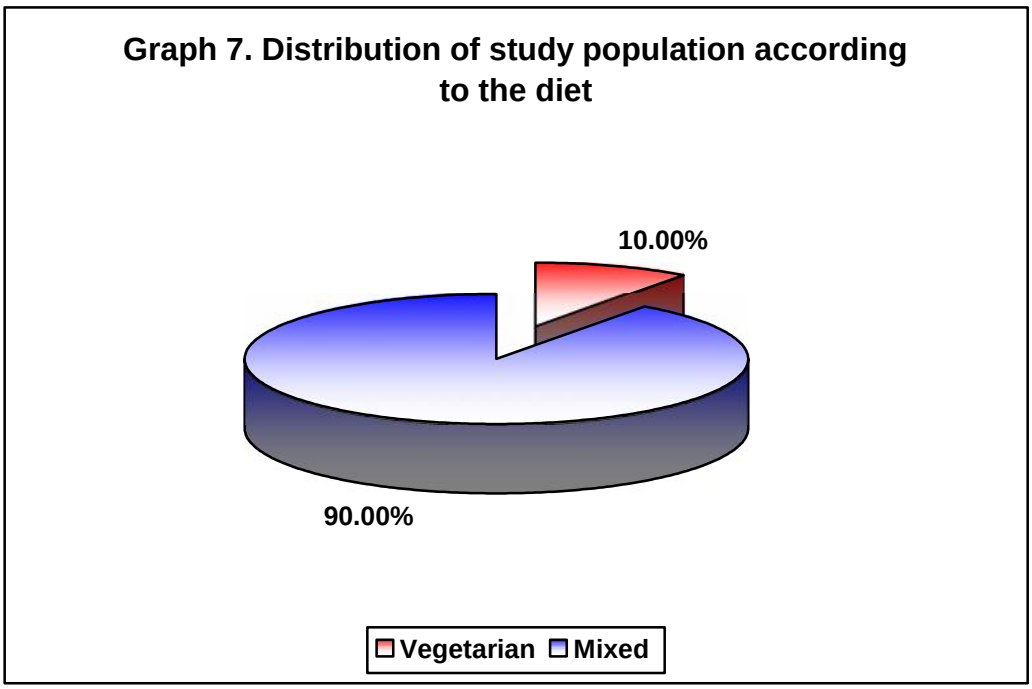


In the present study personal history of smoking was noted in 20% of the patients and alcohol consumption in 18% of the patients.

Table 7. Distribution of study population according to the diet

Diet	Distribution (n=50)	
	Number	**Percentage**
Mixed	45	90.00
Vegetarian	5	10.00
Total	**50**	**100.00**

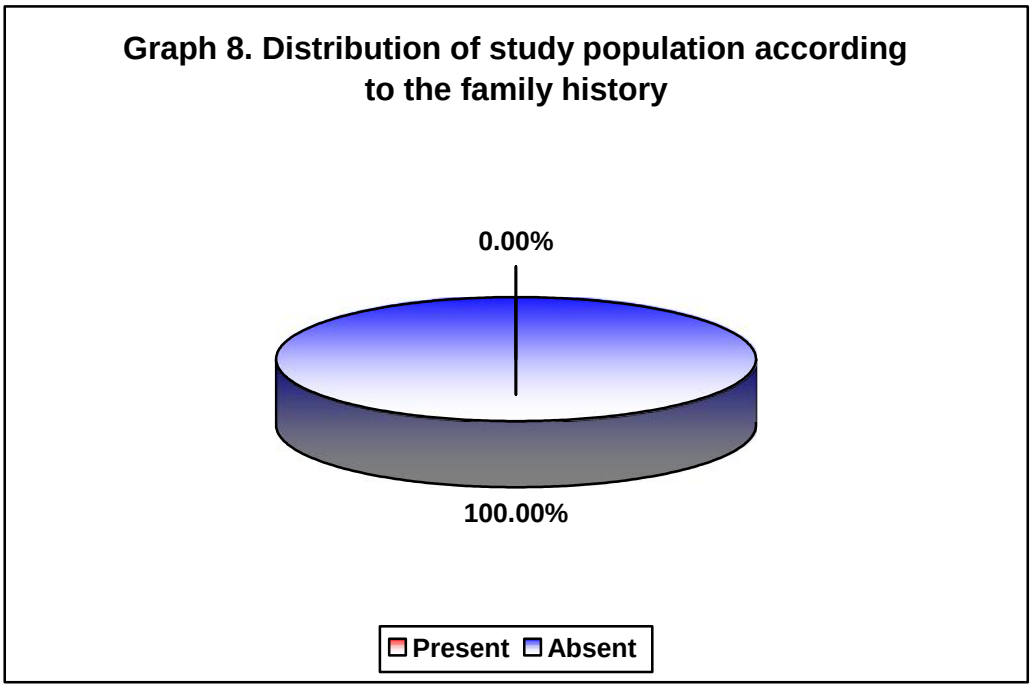
Graph 7. Distribution of study population according to the diet



In the present study 90% of the patients reported history of mixed diet that is vegetarian and non vegetarian.

Table 8. Distribution of study population according to the family history

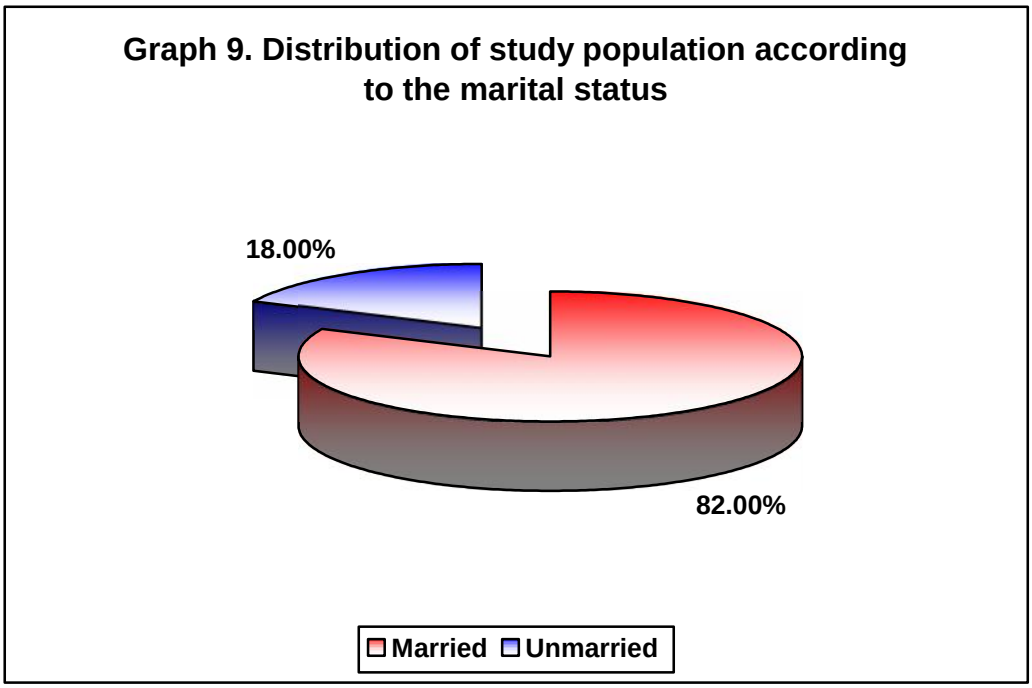
History	Distribution (n=50)	
	Number	**Percentage**
Present	0	0.00
Absent	50	100.00
Total	**50**	**100.00**



In the present study none of the patients reported family history.

Table 9. Distribution of study population according to the marital status

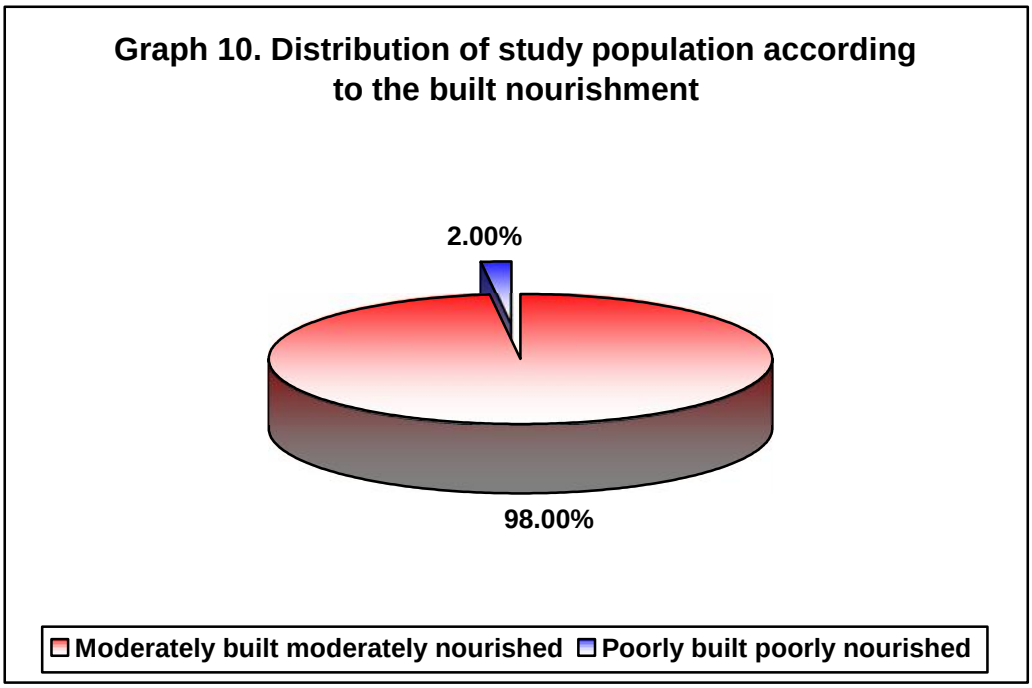
Marital status	Distribution (n=50)	
	Number	**Percentage**
Married	41	82.00
Unmarried	9	18.00
Total	**50**	**100.00**



In this study majority of the patients were married (82%).

Table 10. Distribution of study population according to the built nourishment

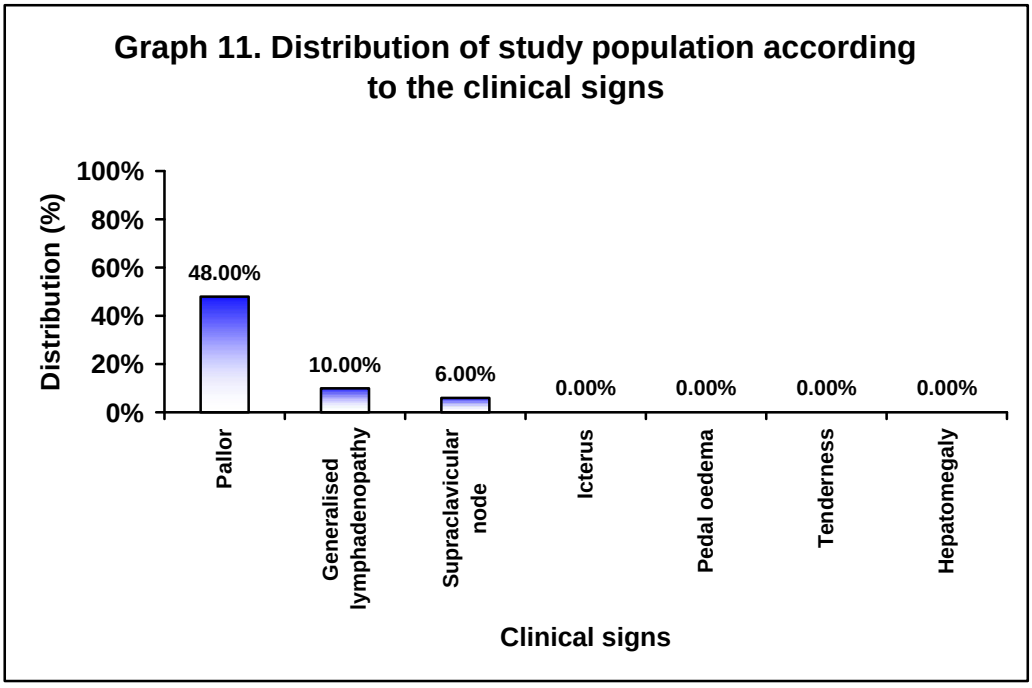
Findings	Distribution (n=50)	
	Number	**Percentage**
Moderately built moderately nourished	49	98.00
Poorly built poorly nourished	1	2.00
Total	**50**	**100.00**



In the present study majority of the patients (98%) were moderately built and moderately nourished.

Table 11. . Distribution of study population according to the clinical signs

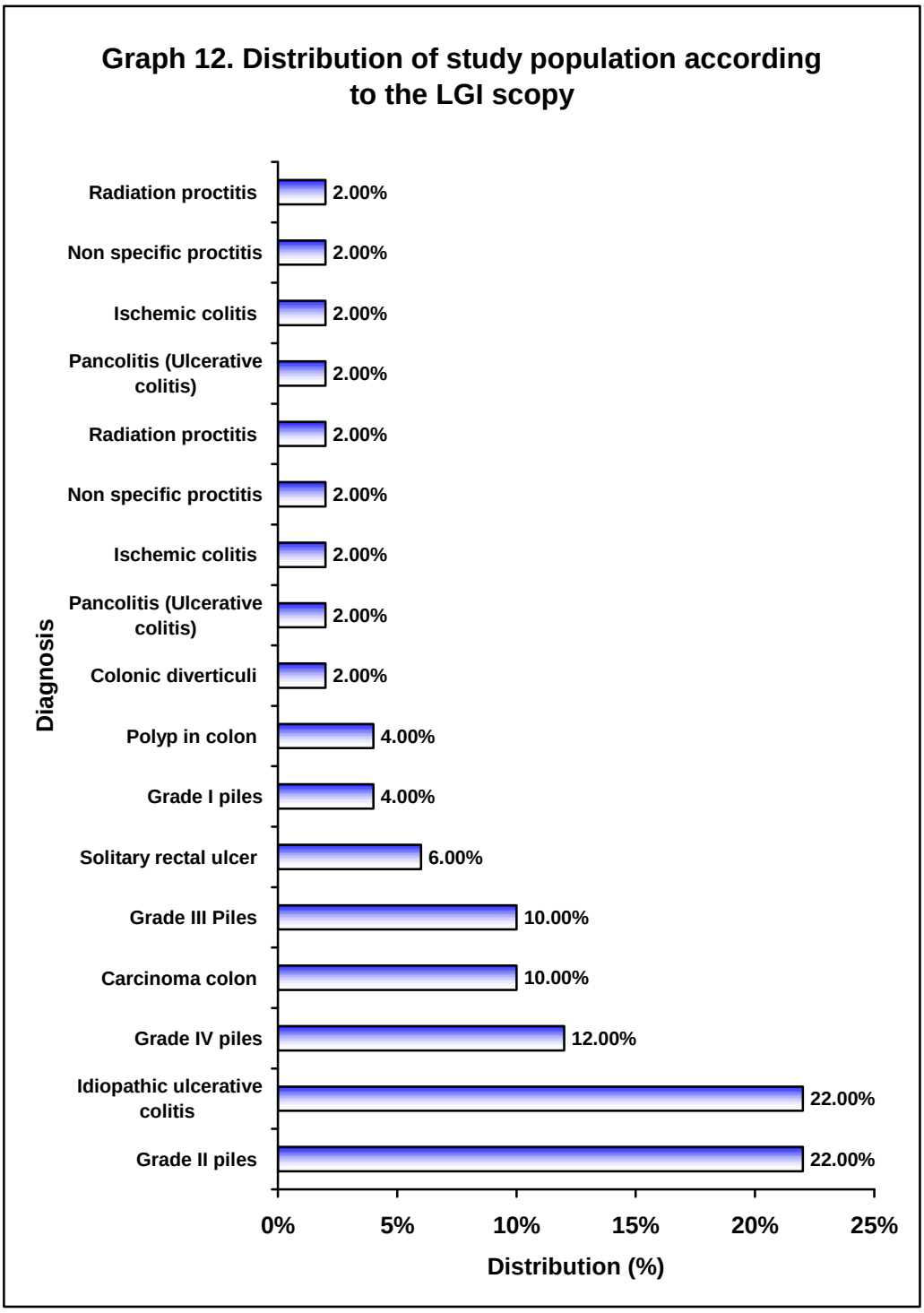
Clinical signs	Distribution (n=50)	
	Number	Percentage
Pallor	24	48.00
Generalised lymphadenopathy	5	10.00
Supraclavicular node	3	6.00
Tenderness	0	0.00
Hepatomegaly	0	0.00
Icterus	0	0.00
Pedal oedema	0	0.00



In this study on examination, the most common clinical sign was pallor noted among 48% of the patients.

Table 12. Distribution of study population according to the LGI scopy

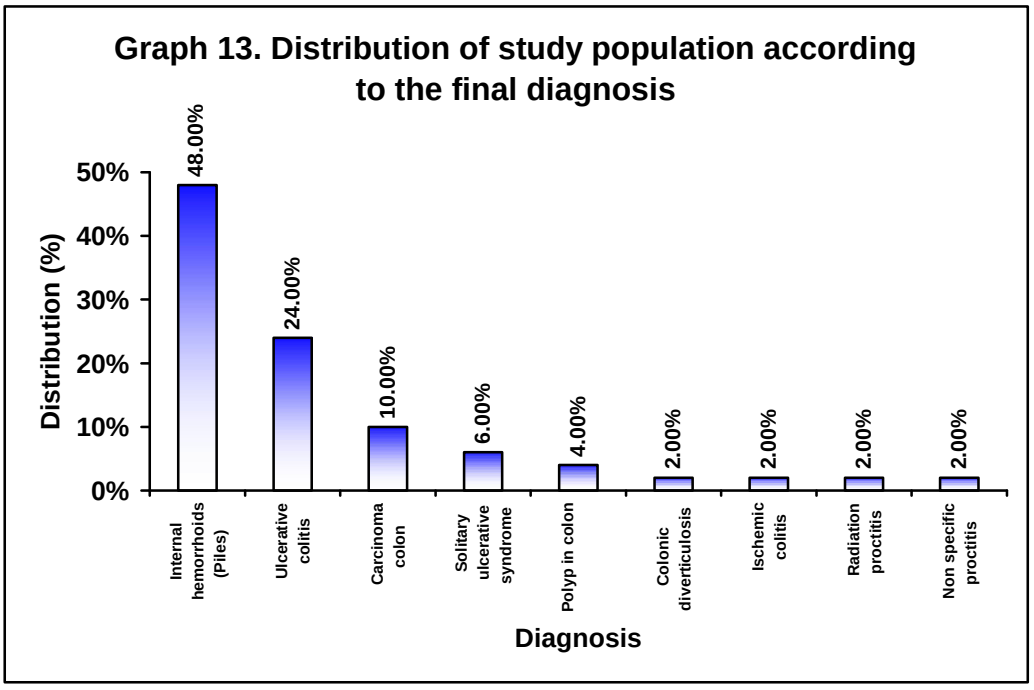
Findings	Distribution (n=50)	
	Number	**Percentage**
Grade II piles	11	22.00
Idiopathic ulcerative colitis	11	22.00
Grade IV piles	6	12.00
Carcinoma colon	5	10.00
Grade III piles	5	10.00
solitary rectal ulcer	3	6.00
Grade I piles	2	4.00
Polyp in colon	2	4.00
Colonic diverticuli	1	2.00
Pancolitis (Ulcerative colitis)	1	2.00
Ischemic colitis	1	2.00
Non specific proctitis	1	2.00
Radiation proctitis	1	2.00
Total	**50**	**100.00**



In the present study the LGIscopy revealed internal haemorroids (Grade 1, 2, 3 and 4 piles) in 48% of the patients followed by ulcerative colitis in 24% of the patients.

Table 13. Distribution of study population according to the final diagnosis

Diagnosis	Distribution (n=50)	
	Number	**Percentage**
Internal hemorrhoids (Piles)	24	48.00
Ulcerative colitis	12	24.00
Carcinoma colon	5	10.00
Solitary rectal ulcerative syndrome	3	6.00
Polyp in colon	2	4.00
Colonic Diverticulosis	1	2.00
Ischemic colitis	1	2.00
Radiation proctitis	1	2.00
Non specific proctitis	1	2.00
Total	**50**	**100.00**



In the present study the most common diagnosis was internal hemorrhoids (Piles) noted (48%) followed by ulcerarative colitis (24%).

DISCUSSION

Lower gastrointestinal bleeding (LGIB) is a common clinical condition associated with significant morbidity and mortality.[73-75] The spectrum of severity ranges from mild per rectal bleeding to life-threatening, massive hemorrhage. The incidence of hospitalization due to LGIB is 20-30/100,000/year in the United States.[76] Similarly the incidence of acute LGIB was 33/100,000 in Spain in 2005.[77] Diverticulosis was responsible for approximately 15 to 55 percent of LGIB in the most series[76,78] which were conducted in western population. A study conducted by Sakthivel S et al. reported that incidence of Diverticulosis in India is about 4.2%. However, hemorrhoids were the most common cause of rectal bleeding in patients under the age of 50 years in another study.[79] Most of the studies of epidemiology of LGIB have been reported in Western populations. There have been a lot of studies about the epidemiology and time trends of upper GI bleeding, but the data about the incidence of LGIB in India is limited.[5] Furthermore the etiological profile of LGIB in the study area is unknown. Hence, the present study is done to determine the etiological profile, among patients presenting with LGIB.

This one year cross-sectional study was conducted from January 2015 to December 2015. A total of 50 consecutive patients presenting with LGIB in the Department of Medicine and Gastro-enterology, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi were studied.

Most of the studies have shown that, LGIB affects Men more commonly than women. Same was true in this study. In a study conducted by Shrestha UK et al.[73] who reported male preponderance with 62.2% of the males and 37.8% of the

females in a sample size of 415 patients. In a study by Dar IA et al.[5] LGIB was more commonly seen in men as compared to women (59% vs. 41%).which was also consistent with the findings of this study. In a study conducted by Alruzug IM et al.[80] from Saudi Arabia showed predominantly a higher percentage of males with male to female ratio 1.5:1. In the present study LGIB was more prevalent among males as 62% of the patients were males and male to female ratio was 1.63:1. 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 increase transit time in colon and retain faecal wastages , thereby enhancing risk of LGIB.[80]

In this study more than one third (34%) of the patients were in the age group of 18 to 30 years followed by 41 to 60 years (26%). The mean age was 43.82 ± 17.96 years. These findings suggest that, LGIB is common in middle aged individuals during third and fourth decade of life. In contrast to these observations in a study by Dar IA et al[5] 40% of the patients were aged > 60 years. Also studies by Govil D et al.[81] and Longsterth GF et al.[29] reported that, LGIB predominantly afflicts an older population with a mean age of >65 years.

In this study, the commonest clinical symptom was hematochezia (Bleeding per rectum) (80%) followed by constipation (76%), loss of weight (56%) and blood mixed with stools (50%). In a study conducted by Dar IA et al[5] from Jammu and Kashmir reported that most common mode of presentation of LGIB as hematochezia seen in 63.3% patients followed by bloody diarrhea (17%), anorectal bleed (12.33%),

and malena (7%). However in the present study none of the patient presented with malena.

Most patients with LGIB usually present with hematochezia; however, a significant group presents with bloody diarrhea and anorectal bleed. Malena is seen only in a small group of patients, bleeding in such cases usually originates from the small bowel. This difference in presentation is usually explained by the different locations of bleeding source. No definitive studies exist to exactly quantify the magnitude of different presentations.[5]

Concurrent with the older age, there is a significant burden of comorbid illness. Studies reveal that at least 70% of patients with LGIB have at least one coexistent comorbid condition[20]. These comorbidities may themselves increase the risk of bleeding, e.g., due to vasculopathy or the drugs (e.g., antiplatelets, anticoagulants used for treating such illnesses may give rise to bleeding).[5] However, in the present study 12% of the patients reported history of diabetes mellitus (12%). Dar IA et al[5] in their study reported that, 16.7% patients had underlying comorbidities such as hypertension, diabetes mellitus, CKD, and CLD. Hypertension was the most common comorbidity seen in 14% patients while as 9.3% had more than one comorbidity. The lower incidence of comorbid illnesses in the present study may be possibly due to a significant proportion of young adults as compared to other studies.

The etiology and the epidemiology of LGIB varies according to the environmental conditions depending upon the life style, dietary habits, the prevalence of smoking, history of drug intake, age, longevity of the population. In

the present study, with regard to diet, 90% of the patients reported history of mixed diet .In the present study 20% of patients had history of smoking and 18% of patients had history of alcohol consumption. None of the patients reported family history. On examination, the most common clinical sign was pallor noted among 48% of the patients.

The cause of LGIB vary from one region of world to another. In a study conducted by Shreshta KU et al.[73] from Jammu and Kashmir, India ,reported the different etiologies of LGIB as hemorrhoids 35.2%, non-specific colitis 24.8%, colon polyp 18.3%, inflammatory bowel disease (IBD) 10.4%, colon cancer 6.5%, diverticulosis 1.7%, unknown 1.4%, upper gastrointestinal bleeding 1.2% and radiation colitis 0.5%. In a study by Dar IA. et al.[5] the most common cause of LGIB was colorectal polyps, which constituted 23.3% while as 17.7% cases could be attributed to IBD.. In one study[82] conducted in Spain, it was shown that the most common etiology of LGIB was internal hemorrhoid, which was found in 35.0% cases. In another study[83] done in Singapore, the most common etiology of LGIB was hemorrhoid. Similarly, a study[84] conducted in Jordan with 701 patients also found that the most common cause for LGIB was hemorrhoids. However, no distinct causes of LGIB were found in 5-20% colonoscopy procedure.[85,86] In a retrospective review[59] of medical records from approximately 1100 patients with acute LGIB, all of whom were admitted to the surgical service of a single urban emergency hospital, Gayer et al.[59] determined that the most common etiologies for bleeding in these patients were diverticulosis (33.5%), hemorrhoids (22.5%), and carcinoma (12.7%).

In a review by Vernava and colleagues,[32] patients with LGIB made up only 0.7% of all hospital admissions (17,941 patients); among the patients who

underwent a diagnostic workup (4410 [24%]), the most common causes of bleeding were diverticular disease (60%), IBD (13%), and anorectal diseases (11%). In the present study the most common etiology of lower GI bleed was internal hemorrhoids (48%) followed by ulcerative colitis (24%), carcinoma colon(10%),solitary rectal ulcerative syndrome(6%),polyp in colon (4%), colonic diverticulosis (1%), ischemic colitis (1%), radiation proctitis (1%) and nonspecific proctitis (1%).

In a study conducted by Alruzug IM. et al.[80] reported that, the most common colonoscopy findings of LGIB as hemorrhoids (38.5%), diverticulosis (12.1%), and malignant neoplasm confirmed by pathology (9.9%), rectal ulcer (8.2%), inflammatory bowel disease (IBD) and other types of colitis (8.1%). Other less common findings were polyps and post-polypectomy bleeding (4.9%), angiodysplasia (3.3%) and others including Dieulafoy's lesion (0.2%) and rectal varies (0.1%). Normal colonoscopy was observed in approximately 14.6% of patients. In the present study, the most common colonoscopy finding was internal hemorrhoids(48%),followed by ulcerative colitis (24%), carcinoma colon (10%) confirmed by histopathology report. In the present study, etiology of LGIB was found in all patients by colonoscopy and confirmed by histopathology report where ever it is necessary.

Overall, LGIB is a fairly common condition in gastroenterology wards. The present study was carried out in one of the busiest tertiary care health institutes of South India where all the patients, including referred ones, with a myriad of gastroenterological problems, are dealt with. Present study showed Internal hemorrhoids as the most common cause of LGIB followed by ulcerative colitis.

The limitations of the study were smaller sample size, single centre study, which limited us to determine associated comorbid diseases and other determinants. Further studies with larger sample involving patients from other centres may provide better insights for etiological profile in patients presenting with LGIB.

CONCLUSION

Internal hemorrhoids is the most common cause followed by ulcerative colitis. Though not common, carcinoma colon, solitary rectal ulcer syndrome, polyp, colonic diverticulosis, ischaemic colitis, non specific proctitis, and radiation proctitis are the other causes of LGIB.

SUMMARY

Lower gastrointestinal bleeding (LGIB) is a common clinical condition associated with significant morbidity and mortality. However, little is known about etiological profile of LGIB in the study area. Hence, the present study was undertaken to determine the etiological profile, among patients presenting with LGIB.

This one year cross-sectional study was done from January 2015 to December 2015. Fifty patients presenting with lower gastro-intestinal bleeding at the Department of Medicine and Gastro-enterology, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi were studied. The salient findings of the study are as summarized below.

- Majority of the patients were males (62%) and male to female ratio was 1.63:1.

- The most common age group was 18 to 30 years comprised of 34% of the patients. The mean age was 43.82 ± 17.96 years.

- Most of the patients were housewives (32%) while 22% of the patients were students.

- Majority of the patients were married (82%).

- The most common clinical symptom was Haematochezia (bleeding per rectum) (80%) followed by constipation (76%), loss of weight (56%), Blood mixed with stool (50%).

- Diabetes mellitus was the most common medical history reported by 12% of the patients.
- Personal history of smoking was noted in 20% of the patients while 18% of the patients reported history of alcohol consumption.
- Majority of the patients (90%) of the patients reported history of mixed diet.
- None of the patients has family history.
- On examination Majority of the patients (98%) were moderately built and moderately nourished.
- The most common clinical sign was pallor noted among 48% of the patients.
- In the present study the most common diagnosis was internal hemorrhoids (Piles) (48%) followed by ulcerarative colitis (10%).

Internal hemorrhoids was the most common cause of lower GI bleed in the study area followed by ulcerative colitis. Though not common, carcinoma colon, solitary rectal ulcer syndrome, polyp, colonic diverticulosis, ischaemic colitis, non specific proctitis, and radiation proctitis are the other causes of LGIB.

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ANNEXURE I- CONSENT FORM

Title of research study: ETIOLOGICAL PROFILE OF PATIENTS PRESENTING WITH LOWER GASTROINTESTINAL BLEEDING- A ONE YEAR CROSS SECTIONAL STUDY.

Principal investigator: **Dr. ***** *******
Post graduate student,
Department of general medicine,
Jawaharlal Nehru Medical College,
Belagavi – 590 010

Introduction and purpose

If cause of lower gastrointestinal bleed is known precisely patient can be treated appropriately and this helps in improving the quality of life and prevents repeated hospitalization of the patient for the same reason.

Procedure

If you agree to be part of the research study, you will be asked the relevant history and will be subjected to relevant clinical examination and colonoscopy. A tube or wire which contains a camera at the tip, is to be inserted through the anus up rectum, colon, (sigmoid, descending, transverse, ascending), caecum and terminal ileum through which inside of then intestine can be visualized on monitor and lesion can be picked up. Before doing this procedure digital rectal examination is done to examine the tone of sphincter.

Risk and benefits

The only risk and possible discomfort you might get is while doing lower gastrointestinal endoscopy for the investigations. It may cause perforation, pain, discomfort or infection (rarely happens)

Benefit is recognising the well defined etiology of lower gastrointestinal bleed which helps in early improvement of quality of life.

Alternatives

Taking part in this study is voluntary. You may choose not be take part in this study or if you decide to take part you can later change your mind and withdraw from the study. Your decision will not change the present or future health care or other services that you receive. The study doctor or sponsor may stop your participation in this study at any time. If you choose not to take part in the study, you will receive the standard treatment for patients with your condition.

Privacy and confidentiality

In case of any injury related to the study, treatment will be made available at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi. There is no compensation or payment for such medical treatment by low.

Financial incentives for participants

You will not be paid/offered any gifts/incentives for participating to the study.

Authorisation to publish the results

The results of the study would be forwarded to the KLE University, Belagavi as part of requirement towards the completion of MD degree, review and publishing.

Questions/contact details

In case of the queries during study you may contact following persons.

1) **Dr. ***** *******
Investigator,
PG in General Medicine,
Jawaharlal Nehru Medical College,
Belagavi – 590 010
Phone Number: **** ******

2) **Dr. **** ****** *********
PROFESSOR
Department of General Medicine,
Jawaharlal Nehru Medical College,
Belagavi – 590 010
Phone Number: **** *****

3) **Dr. **** *******
Chairman, Jawaharlal Nehru Medical College,
Ethical committee for human research
Phone Number : *** *******
Extension: *****

Consent statement

I voluntarily agree to take part in this study by signing below. I may withdraw at any time. I am not giving up any of my legal rights by signing this form. My signature below indicated that I have read, or it has been read to me, this consent form, and have had all the questions answered.

Name of the participant: _____ Signature/Thumb print:_____

Name of the guardian: _____ Signature/Thumb print:_____

Name of the witness:_____ Signature/Thumb print:_____

Investigator name:_____ Signature:_____

Date: Place:

ANNEXURE II – PROFORMA

ETIOLOGICAL PROFILE OF PATIENTS PRESENTING WITH LOWER GASTRO INTESTINAL BLEEDING- ONE YEAR CROSSSECTIONAL STUDY

NAME:

AGE:

SEX:

SERIAL NO.:

OP/IP NO.:

OCCUPATION:

1) PRESENTING COMPLAINTS DURATION:

1. Haematochezia (bleeding per rectum)
2. Blood mixed with stools
3. Loss of weight
4. Loss of appetite
5. Nausea
6. Tenesmus
7. Passage of mucus in stools
8. Constipation
9. Abdominal pain
10. Vomiting

PAST HISTORY

1. DM/HT

2. H/o Tuberculosis

3. H/o malignancy

4. H/O Bleeding diathesis

5. H/O Liver disease

6. H/O NSAIDS use

3) PERSONAL HISTORY

Smoking- Duration

Consumption of alcohol Duration

Diet- Veg/ Non veg

Tobacco chewing Duration

4) FAMILY HISTORY – Any history of liver disease/IBD/Colon cancer/colon polyp/Bleeding disorders

5) MARITAL STATUS

6) GENERAL EXAMINATION

Built/ nourishment / Pallor / icterus/ pedal edema/generalized lymphadenopathy/left supraclavicular node

PULSE RATE

BLOOD PRESSURE

ABDOMEN

CARDIOVASCULAR SYSTEM

RESPIRATORY SYSTEM

CENTERAL NERVOUS SYSTEM

2) LGI scopy findings

DIAGNOSIS

ANNEXURE III – KEY TO MASTER CHART

-	-	Absent
+	-	Present
BP	-	Blood pressure
DM	-	Diabetes mellitus
DM/HT	-	Diabetes mellitus / hypertension
F	-	Female
H/O	-	History of
HTN	-	Hypertension
HTNDM	-	Diabetes mellitus hypertension
IP/OP	-	In patient/Out patient
LGI	-	Lower gastrointestinal
M	-	Male
M.B, M.N	-	Moderately built moderately nourished
mmHg	-	Millimeters of mercury
NAD	-	No abnormality detected
Veg	-	Vegetarian