

# Diagnosis and Treatment of Hematoschezia: Guideline for Clinical Practice

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## ABSTRACT

*Hematoschezia as an acute and chronic lower gastrointestinal bleeding could be caused by diverticulosis, angiodysplasia, neoplasm, perianal disorders, Meckel's diverticle, colitis (infectious and non-infectious) intussusception, and many others. Lower gastrointestinal bleeding mostly occurs in older age. Mortality caused by acute and chronic lower gastrointestinal bleeding is very high. On the other hand, there are difficulties in clinical practice to find the cause and making the diagnosis and therapy for hematoschezia. Fortunately, the progress and development in medical technology, especially colonoscopy and arteriography, has assisted in clinical practice.*

**Key words:** hematoschezia, melena, rectal bleeding, colonoscopy, arteriography.

## INTRODUCTION

Lower gastrointestinal bleeding mostly occurs in old age. From 1950 to 1960, the mortality caused by acute lower gastrointestinal bleeding was very high, inspite of surgical interventions. This was mainly caused by difficulties in locating the bleeding source.

The progress and development in medical technology, especially colonoscopy and angiography, have decreased the mortality rate caused by lower gastrointestinal bleeding to 5-10% during the last decade. This is mostly due to improved ability in locating the source of bleeding, improvements in resuscitation, and also better medical treatment.<sup>1,2</sup>

**Hematoschezia** is passing red-coloured blood in the stool through the anus, with the source of bleeding located below the Treitz ligament (also known as lower gastrointestinal bleeding).<sup>1,3-5</sup> **Melena** is passing black-coloured blood in the stool through the anus, with the source of bleeding between the back part of throat to

the upper part of the Treitz ligament (also known as upper gastrointestinal bleeding).<sup>1,3,4</sup> **Rectal Bleeding** is passing red-coloured blood in the stool through the anus, and the source of bleeding is located between rectum and the anus.<sup>1,3-5</sup>

## CAUSES OF HEMATOSCHEZIA

Some major causes of hematoschezia are:

1. Diverticulosis
2. Angiodysplasia
3. Neoplasm
4. Perianal disorders
5. Meckel's diverticle
6. Colitis:
  - Infective
  - Non-infective
7. Intussusception
8. Others

**Table 1. Causes of Lower Gastrointestinal Bleeding based on Total Amount of Blood Loss**

Diagnosis	%
Diverticulosis	43
Angiodysplasia	20
Neoplasm	9
Colitis	
- Radiation	6
- Ischemia	2
- Ulcer	1
Others	7

Major blood loss from acute lower gastrointestinal bleeding is commonly caused by diverticuloses and angiodysplasia. Meanwhile, major causes of chronic lower gastrointestinal bleeding are malignancy and diseases on the perianal region.

Chronic lower gastrointestinal bleeding is gradual and intermittent in nature, so that it frequently needs hospitalization.<sup>6,7</sup>

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## DIVERTICULOSIS

Diverticulosis bleeding only occurs in 3% of all diverticulosis, however, from the view point of the total amount of blood loss, this is comparatively the biggest. In Western countries, diverticulosis is the major cause of profuse lower gastrointestinal bleeding.

At the time when barium enema was the only means to assist in diagnosis, diverticulosis mostly caused false positive and false negative results, and also rebleeding after surgical intervention due to difficulties in locating the source of bleeding. During the last decade, after the introduction of colonoscopy and arterial vasopressin drugs, the number of mortality due to bleeding could be minimized.<sup>1</sup>

Colonoscopy can properly locate the source of bleeding and enables us to install a clip. Only when clip installation is not possible, resection or surgical intervention should be conducted.

## ANGIODYSPLASIA

Angiodysplasia (vascularectasis) is classified as acute lower gastrointestinal bleeding causing gradual and intermittent bleeding. Fifty-four percent of angiodysplasia cause chronic silent bleeding inside the intestines. Angiodysplasia is a degenerative lesion related to aging. Two-third (2/3) of patients with angiodysplasia are above 70 years old.

The pathogenesis of angiodysplasia is unknown, presumably caused by partial, intermittent obstruction, starting from submucosal venous till the occurrence of dilatation, so that the arteriovenous relation is established. Angiodysplasia is diagnosed by using colonoscopy and angiography. The application of vasopressin could control the profuse bleeding and proceed with clip installation assisted by colonoscopy. If clipping fails to stop the rebleeding, hemicolectomy ought to be done.<sup>1,3</sup>

## NEOPLASMS

Both malignant and benign tumors in the colon could resemble diverticulosis, and mostly occur at old age. Neoplasm rarely cause profuse bleeding. The bleeding could either be intermittent, or in the vast majority the bleeding is hidden. In earlier days, diagnosis was made using barium enema; however, nowadays by using colonoscopy and biopsy diagnosis could be directly conducted. Management of lower gastrointestinal tumor is excision, either assisted by endoscopy or through surgery.<sup>1</sup>

## PERIANAL DISORDER

Hemorrhoid and anal fissures are frequent causes of minor and intermittent lower gastrointestinal bleeding. Hemorrhoid bleeding usually does not cause any pain. The blood only surrounds the stool and does not mix with the stool.

Examination is conducted using anoscopy and colonoscopy. Perianal disorders are treated with medicine (suppositories, lubricant, hydrocortisone) but the complaints frequently recur. When the symptom continues, sclerotherapy/coagulation, ligation, or surgical intervention may be considered.<sup>1,8</sup>

## MECKEL'S DIVERTICLE

Meckel's diverticle is a congenital disorder (0.3-3%) as recorded from autopsy report. Lower gastrointestinal bleeding is a complication that mostly occur in children and rarely found in adults. Treatment is clips installment assisted by endoscopy or through surgery.

## COLITIS

### Infective colitis consists of:

- Amoebic colitis
- Dysentery colitis
- Tuberculous colitis
- Other infective colitis:
  - Campylobacter
  - E coli
  - Clostridium difficile

### INon-Infective Colitis:

- Crohn's disease
- Ulcerative colitis
- Radiation colitis
- Ischemic colitis

Crohn's disease and ulcerative colitis belong to the group of IBD (inflammatory bowel disease).<sup>1,9,10</sup>

## INFECTIVE COLITIS

Amoebic bacteria, Shigella, *Campylobacter jejuni*, *Salmonella species*, and *Clostridium difficile* causes diarrhea mixed up with blood, but it rarely causes profuse bloody stool.

Apart from anamnesis and physical examination, the diagnosis through colonoscopy and biopsy as well as stool culture need to be considered. Medical treatment depends largely on diagnostic output and the aforesaid specific germs.<sup>1,8</sup>

## TUBERCULOUS COLITIS

Tuberculous colitis frequently occurs in developing countries. This is commonly caused by swallowed tuberculous sputum from lung infection or caused by unpasteurized milk. The symptoms are increased body temperature, painful abdomen, decreased body weight, diarrhea, and unpleasant feeling on the lower right stomach.

In developing countries such as Indonesia, prevalence of tuberculosis is still high. Colonoscopic examination of tuberculous colitis is similar to that of IBD due to the presence of mucosal ulceration and nodules, aphthous ulcer, mucosal edema, pseudopolyps, and lumen strictures. Massive bleeding rarely occurs and tuberculous colitis is treated in the same way as that of lung tuberculosis.<sup>7,8</sup>

## RADIATION COLITIS

One impact of radiation is the occurrence of chronic colitis which could cause a problem up to several years ahead. Symptoms of radiation colitis is rectal bleeding, which is rarely massive. The diagnosis is established based on history of radiation and through colonoscopic evaluation. Sulfasalazin group has been used experimentally for treatment, although its effectiveness has not been yet established. Coagulation technique using endoscopy shows good result, since it reduces bleeding and also the need for blood transfusion. Beside endoscopy, another successful invention is the application of hyperbaric oxygen. Surgical intervention is not recommended, since the muscle tissue of lower gastrointestinal tract has already been damaged due to radiation.<sup>9</sup>

## INFLAMMATORY BOWEL DISEASE (IBD)

### Crohn's Disease and Ulcerative Colitis

IBD is an inflammatory disease involving the gastrointestinal tract with unknown origin. There are 3 (three) types of IBD, namely: Crohn's colitis, ulcerative colitis, and in the case where it is difficult to distinguish both of these types, it is classified as 'indeterminate colitis'. IBD usually has minor to intermediate level of bleeding, it is rarely massive, mixed up with stool accompanied by some particular symptoms such as diarrhea, tenesmus, and stomach pain. The prevalence of IBD, according to the record using the endoscopic facilities issued by the Health Center, tends to increase.

The course of IBD is identified by active and remission phases. The remission phase can be due to medical treatment, but it can also occur spontaneously.

**Table 2. Clinical Findings of IBD**

Diagnosis	UC	CD
Chronic diarrhea	++	++
Hematoschezia	++	+
Abdominal pain	+	++
Abdominal mass	0	++
Fistula	+/-	++
Stenosis/stricture	+	++
Involvement of small intestine	+/-	++
Involvement of rectum	95%	50%
Extraintestinal manifestation	+	+
Megatoxic colon	+	+/-

**Note:** UC : Ulcerative colitis                      CD : Crohn's Disease  
 ++ : frequently                                      + / - : rarely  
 + : sometimes                                        0 : Nil / not available  
 IBD is diagnosed through colonoscopy and biopsy

## ENDOSCOPIC FINDINGS

Endoscopy has an important role, not only in diagnosis but also in treatment and surveillance of IBD. Endoscopy can eliminate other differential diagnosis of IBD from irritable bowel syndrome (IBS) to malignancy. Through endoscopy, patients can be classified to have either ulcerative colitis or Crohn's disease. This is based on the form of lesion found, its location, portion of colon or small intestine involved as well as its size. In addition, through endoscopy the histopathological biopsy can be conducted. Such endoscopic action certainly is not merely esophagogastroduodenoscopy and colonoscopy, but also the pushed enteroscopy to confirm and evaluate the involvement of small intestines.

In general, during the endoscopy, the criteria applied to determine whether a certain case is IBD or not IBD, by finding out whether the lesion is vulnerable, whether the linear ulceration, cobblestone illustration, pseudopolyp and the rectum involvement are available. Ulcerative colitis is generally vulnerable, has no linear ulceration and cobblestone shape. However, pseudopolyp is frequently found and often involves the rectum. The linear ulceration and cobblestone image are often found at Crohn's disease. Apart from the abovementioned lesion which is usually vulnerable, pseudopolyp and involvement of rectum are also found.<sup>10-11</sup> (Table 1)

In reality, the image of lesion is sometimes unclear and not in conformity with the IBD; therefore under such circumstances the diagnosis of IBD becomes difficult.

In a developing country such as Indonesia, the prevalence of tuberculosis (TB) is still high. The lesion as indicated on IBD imaging above can also be found in intestinal TB. Endoscopic imaging of intestinal TB among others are ulcerative and nodular mucosa, aphthous ulcer, mucosal fold edema, stricture, pseudopolyp, and lumen stricture. Due to similar appearance,

when the histopathological biopsy is unable to confirm between IBD and TB, this case is often handled first as IBD or unresponsive intestinal TB, and treated according to its disease.<sup>8,10,11</sup>

**Table 3. Endoscopic Imaging of Inflammatory Bowel Disease**

Endoscopic findings	Ulcerative colitis	Crohn's disease
Mucosal Vulnerability	Very frequently	Almost frequently
Apthous and linear ulcers	Not available	Frequently
Cobblestone image	Not available	Frequently
Pseudopolyp	Frequently	Almost frequently
Rectal involvement	Very frequently	Almost frequently

Inflammatory bowel disease is treated with optional treatment as stated on Table 4.<sup>10,11</sup>

**INTUSSUSCEPTION**

Intussusception is characterized by anal bleeding in maroon-red colour, usually accompanied by abdominal pain. It is rarely found in adult. It is usually accompanied by the presence of polyp or malignancy. Diagnosis is established through plain X-ray of the abdomen and through careful physical examination.

Barium enema can be performed in children and it can possibly be used as a means of therapy. Treatment of intussusception requires surgery, especially in adult.<sup>1</sup>

**OTHER CAUSES OF HEMATOSCHEZIA**

Hematoschezia can also be caused by:

- Varices of ileum and colon causing massive bleeding
- Multiple blood vessel ectasies accompanied by portal hypertension
- Solitary rectal ulcer
- Aortal – Colon/Ileal Fistula.

**Table 4. Optional Treatment for Inflammatory Bowel Disease**

Variable	Distal UC	Extensive UC	Crohn's disease
Light	Oral or rectal ASA Rectal Corticosteroid	Oral ASA	Oral ASA Oral Metronidazol Possibly budesonide or ciprofloxacin
Medium	Oral or rectal ASA Rectal corticosteroid	Oral ASA	Oral corticosteroid (budesonide for ile or right sided colon). Azathioprine or oral mercaptopurine
Severe	Oral or parenteral corticosteroid Rectal corticosteroid	Oral or parenteral corticosteroid Cyclosporine IV	Oral or parenteral corticosteroid Oral or parenteral methotrexate. Infliximab IV.
Refractor	Oral or parenteral corticosteroid plus azathioprine or oral mercaptopurine	Oral or parenteral corticosteroid plus azathioprine or oral mercaptopurine	Infliximab IV.
Perianal	-	-	Oral antibiotics. Infliximab IV Azathioprine or oral mercaptopurine
Remission	Oral or rectal ASA Azathioprine or oral mercaptopurine	Oral ASA Azathioprine or oral mercaptopurine	Possible azathioprine or oral mercaptopurine, mesa metronidazole Azathioprine or oral mercaptopurine

**Note:** ASA (Aminosalisilat), IV (Intravenø). If the above treatment frequently fails, surgery should be considered

Diagnosis of varices in ileum and colon is established through angiography and treated using systemic shunt surgery.<sup>1</sup>

## CONCLUSION

Based on the above explanation, this paper is expected to be useful in clinical practice. Hematoschezia is a lower gastrointestinal bleeding, red in color, and the bleeding is located below the Treitz ligament up to the anus. Possible causes of hematoschezia are diverticulosis, angiodysplasia, neoplasm, perianal disorders, Meckel's diverticle, infective and non-infective colitis, intussusception, and many others (varices ileum colon, multiple blood vessel ectasies, rectal ulcers, and fistula between ileum/colon with the aorta).

In most cases the bleeding is trivial and intermittent, except for diverticulosis, which causes massive bleeding. Diagnosis and therapy of hematoschezia could mostly be performed through endoscopy, only a small portion requires surgical intervention for diagnosis.

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