

## Melaena / Bleeding Per Rectum

### Definition / Supporting Information

Melaena:

- Black, tarry, sticky stools
- Usually associated with blood loss from the proximal or upper gastrointestinal (GI) tract
- Colour is due to haemoglobin that has been denatured by intestinal bacteria and enzymes

Haematochezia:

- Red, bloody stools
- Usually result from bleeding from the distal part of the GI tract

**Keywords / also known as:** lower gastrointestinal bleed, PR bleed

### Essential History

In cases of acute blood loss, evaluation should progress only after the ABCs (airway, breathing, and circulation) of resuscitation have been addressed.

**Ask about:**

- Constipation
- Systemic symptoms such as:
  - Fever
    - Common in infectious or inflammatory disorders
    - Associated joint pains
    - Associated rash
    - Associated eye problems
- Abdominal pain
- Weight loss / faltering growth
- Bowel habit
- Known food allergy
  - Enterocolitis or proctocolitis induced by food protein (eg, in cow's milk)
- Any family history of:
  - Bleeding disorders
  - GI diseases
    - Inflammatory bowel disease (IBD)
    - Peptic ulcer disease

- Polyps
- Bowel cancer in childhood or early adulthood

## ‘Red Flag’ Symptoms and Signs

In cases of acute blood loss, evaluation should progress only after the ABCs of resuscitation have been addressed.

### Ask about:

- Bile- or blood-stained vomiting
- Altered mental status (see Altered Conscious Level), lethargy and / or fatigue

### Look for:

- Signs of shock:
  - Tachycardia
  - Prolonged capillary refill time
  - Hypotension (N.B. this is a late, pre-terminal sign of decompensated shock)
  - Tachypnoea
  - Lethargy
- Pallor
- Evidence of bleeding lesions or burns around the nose or mouth
- Abdominal tenderness and / or distension
- Absent bowel sounds
- Masses
- Hepatomegaly / splenomegaly
- Evidence of anal trauma
  - Anal fissures may be associated with constipation
  - Consider child maltreatment (see [When to suspect child maltreatment \[NICE clinical guideline CG89\]](#))
    - Look for other alerting features of maltreatment in the history and examination
    - Where possible, obtain history and background directly from the child
    - Follow local safeguarding procedures
- Petechial or purpuric rash
  - Bleeding disorders
  - Henoch-Schönlein purpura (HSP)

## Differential Diagnosis / Conditions

### Newborns

- Anal fissure (common)

- Suggested by bright red blood streaks on the surface of the stool
- Often associated with hard stools
- Maternal blood swallowed during delivery or from bleeding nipples (common)
- Local trauma after nasogastric suctioning
- Haemorrhagic disease of the newborn
  - GI bleeding can occasionally result from:
    - Inherited deficits of coagulation factors
    - Delay in administration of postnatal vitamin K
  - Early-onset vitamin K deficiency bleeding may occur if the mother has used any of the following during pregnancy:
    - Anti-epileptic drugs
    - Anti-tuberculous drugs
    - Vitamin K antagonists
- Milk protein allergy or soy protein allergy
  - Can begin as early as the first week of life
  - Exhibits as:
    - Severe diarrhoea
    - Gross blood in the stool
    - Abdominal distension
    - Vomiting
  - Older infants may have occult lower GI bleeding and mucus in the stool
  - The diagnosis is made by clinical response to withdrawal and rechallenge with the offending protein under expert supervision
- Necrotising enterocolitis (NEC) may manifest as:
  - Lower GI bleeding
  - Bilious vomiting
  - Abdominal distension
  - Lethargy
- Intrinsic structural lesions
  - Duplication (tubular structure adjacent to the true intestine)
    - May lead to obstruction, volvulus, or perforation
  - Volvulus or malrotation
    - Abdominal pain, bilious vomiting, and melaena
  - Vascular malformation
    - Painless rectal bleeding
  - Other vascular lesions such as:
    - Hereditary haemorrhagic telangiectasia (Osler-Rendu-Weber disease)
    - Haemangiomas
    - Vascular ectasias

## Infants and children

- Anal fissure (common)
- Infectious enterocolitis
  - Mild cases may show only mild diarrhoea
  - Severe cases may exhibit:
    - Diarrhoea
    - Fever
    - Abdominal cramps
    - Watery / mucoid stools with or without blood
- Milk protein allergy
- Gastro-oesophageal reflux disease
- Polyps
  - Juvenile polyps
    - Most common cause of non-infectious lower GI bleeding in 3- to 7-year-old children
  - Adenomatous polyps
    - Associated with familial polyposis and Gardner's syndrome
- Meckel's diverticulum
  - Congenital pouch on wall of lower intestine
  - May contain tissue similar to stomach:
    - Described as ectopic gastric mucosa
    - Capable of secreting acid
  - Acid causes peptic ulceration of the ileal mucosa
  - Usually present in diverticula that bleed
  - Causes painless, lower GI bleeding which may be significant and sudden
    - Blood is usually maroon or red-coloured
- Intussusception
  - Part of intestine slides into adjacent part of intestine
  - 'Telescoping' obstructs passage of food and fluids
  - Cuts off blood supply to affected region of intestine
  - Can lead to:
    - Perforation
    - Infection
    - Death of intestinal tissue
  - Presentation: intermittent, severe, crampy abdominal pain with vomiting
  - Increased vagal tone induces periods of pallor and lethargy / unresponsiveness
  - Blood is often a late sign and classically appears as "Recurrant jelly stools"
- Lymphonodular hyperplasia
  - May cause painless, blood-streaked stools

- Systemic diseases
  - HSP
    - Purpura with arthritis
    - Haematuria
    - Abdominal cramping
    - Bloody stool
  - Haemolytic uraemic syndrome (HUS)
    - In children, usually a result of *Escherichia coli* (*E.coli*) infection leading to haemorrhagic colitis
    - Initially characterised by diarrhoea (often bloody) for 2–14 days
    - Premature destruction of erythrocytes and platelets can lead to:
      - Thrombocytopenia
      - Haemolytic anaemia
      - Renal damage / disease
- Intrinsic structural lesions
  - Duplication (tubular structure adjacent to the true intestine)
    - May lead to obstruction, volvulus, malrotation and / or perforation, abdominal pain, bilious vomiting, and melaena
  - Vascular lesions
    - Vascular malformation
      - Painless rectal bleeding
    - Haemangiomas
    - Other vascular lesions such as hereditary haemorrhagic telangiectasia (Osler-Rendu-Weber disease)
- IBD
  - May appear as episodes of bloody diarrhoea, cramping, and tenesmus (feeling the need to pass stool even though the bowels may be empty)
  - Abdominal pain, fever, and weight loss suggest IBD
  - The diagnosis is also suggested by:
    - Faltering Growth
    - Anaemia

### Conditions that may mimic melaena (“false bleeding”)

- Ingestion of food, for example:
  - Beetroots
  - Red fruit juices
  - Spinach
  - Liquorice
- Use of certain medications
  - Iron supplements

- Rifampicin
- Bismuth (Pepto-Bismol [bismuth subsalicylate])
  - Used to treat:
    - Diarrhoea
    - Heartburn (acid reflux)
    - Nausea
    - Stomach discomfort
  - Can cause blackening of stools
- During menstruation, vaginal blood may be mistaken for rectal blood loss
- Fabricated or induced illness where a parent or carer adds blood to the stool

## Investigations

In cases of acute massive blood loss, evaluation should progress only after the ABCs of resuscitation have been addressed.

To be undertaken by non-specialist practitioners (eg, General Practitioner (GP) Team, usually with advice from paediatric specialists) or specialist practitioners (eg, Emergency Department / Paediatric / Paediatric Gastroenterology Team(s)):

- Stool specimen
  - For culture, if appropriate
  - For ova and parasites, if appropriate
  - The 'Apt' test may be used to differentiate swallowed maternal blood (during delivery or from cracked nipples) from neonatal blood in the stool:
    - Relies on the resistance of haemoglobin F to alkali denaturation
    - Requires frankly bloody stool
- Full blood count and reticulocyte count
- Coagulation studies
- Renal function
- Liver function tests for suspected liver disease
- Blood group
- Faecal calprotectin testing
  - Recommended by NICE to help distinguish between inflammatory bowel diseases and non-inflammatory bowel diseases (such as irritable bowel syndrome) – see Faecal calprotectin diagnostic tests for inflammatory diseases of the bowel [[NICE diagnostics guideline DG11](#)]
- Plain abdominal X-ray
  - Usually non-specific and not usually considered a first line investigation as it requires additional imaging to confirm a diagnosis. One exception is if necrotising enterocolitis is suspected.
  - Abdominal X-ray in two views (flat and upright) may reveal:
    - Signs of obstruction or calcifications

- Air-fluid levels
- Dilated bowel loops
- Some specific radiographic findings include:
  - *Pneumatosis intestinalis* in NEC
    - Gas within wall of bowel
    - Often associated with intestinal ischaemia or infarction
  - Intussusception
    - Intestinal obstruction with absence of gas in the right colon
  - In volvulus / malrotation, a radiograph may show:
    - Loops of small bowel overriding the liver shadow
    - Paucity of air in the GI tract distal to the volvulus
  - Ulcerative colitis
    - “Stove-pipe” (or “lead pipe”) colon

To be undertaken by specialist practitioners (eg, Emergency Department / Paediatric / Paediatric Gastroenterology Team(s)):

- Ultrasonography
  - For clinically suspected intussusception
    - Layering of intestinal mucosa as a bullseye or coiled-spring lesion
  - Can complement abdominal X-ray in the diagnosis of necrotising enterocolitis
- Endoscopy
  - Upper or lower GI endoscopy can help locate the source of the haemorrhage
  - Consider small bowel enema, video capsule endoscopy or enteroscopy if the suspected lesion is inaccessible to endoscopy
- Nuclear imaging (Tc-99m-labelled red blood cells)
  - Nuclear imaging (using Tc-99m-labelled RBCs) is used for detecting active bleeding sites including Meckel’s diverticulum
- Angiography (CT or transcatheter)
  - For severe, life-threatening bleeding
  - Can be both diagnostic and therapeutic, depending on the ability to embolise the bleeding vessels
- If the rate of bleeding is too fast to permit these studies, vasopressin or octreotide may be administered parenterally by continuous intravenous infusion in an attempt to control bleeding and to stabilise the patient.
  - Vasopressin in child 1 month - 18 years: initially 0.3 units/kg (max. 20 units) over 20-30 minutes then 0.3 units/kg/hour, adjusted according to response (max. 1 unit/kg/hour). If bleeding stops, continue at the same dose for 12 hours, then withdraw gradually over 24-48 hours. Max duration of treatment 72 hours. May be infused directly in to the mesenteric artery.

- Octreotide in child 1 month - 18 years: 1 microgram/kg/hour, higher doses may be required initially (usual max. 50 micrograms/hour). When there is no active bleeding, reduce dose over 24 hours.
- See iRefer Imaging Guidelines [[The Royal College of Radiologists](#)]

### Diagnostic procedures

- Colonoscopy and biopsy usually confirm diagnosis of IBD
  - Need to be carried out with caution in the presence of active / acute disease

## Treatment Approach

### Acute massive bleeding per rectum

Evaluation should progress only after the ABCs of resuscitation have been addressed.

To be undertaken by non-specialist practitioners (eg, GP Team):

- Administer oxygen
- Evaluate for the presence of shock
  - Tachycardia
  - Prolonged capillary refill time of > 2 seconds
  - Hypotension (this is a late, pre-terminal sign of decompensated shock)
  - Tachypnoea
  - Lethargy
- Arrange emergency transfer to specialist practitioners if any evidence of shock or altered mental status (see Altered Conscious Level)

To be undertaken by specialist practitioners (eg, Emergency Department / Paediatric / Paediatric Gastroenterology / Paediatric Surgery Team(s)):

- Stabilise airway:
  - With endotracheal intubation if massive upper GI bleeding causes:
    - Aspiration
    - And / or airway obstruction or risk of obstruction
- In presence of shock:
  - Fluid bolus (10–20 mL/kg) of 0.9% sodium chloride
    - Repeat fluid bolus if no response
  - Packed red blood cells if inadequate response to fluid bolus
- Replace clotting factors and platelets as indicated
- Prompt surgical intervention is required when the rate of bleeding is excessive and uncontrollable by more conservative methods
- Insert nasogastric tube
  - Preferably vented sump type
  - Low-pressure continuous suction if tube is vented



- Intermittent suction if tube is non-vented
- Consider irrigation with 0.9% sodium chloride through the nasogastric tube
  - To decrease mucosal blood flow and stop profuse bleeding

### **Intussusception**

- Reduce using air enema with surgical and anaesthetic support in case of unsuccessful reduction or perforation
- Ensure adequate intravenous fluid resuscitation and analgesia prior to attempting reduction

### **Necrotising enterocolitis**

- Neonates remain hospitalised for bowel rest and intravenous antibiotics
- Occasionally requires surgical intervention

### **Meckel's diverticulum**

- Treatment requires surgical excision

### **Volvulus / malrotation**

- Immediate surgical repair is necessary

## **When to Refer**

Arrange emergency transfer to paediatric specialists (eg, Emergency Department and / or Paediatric Intensive Care Team) if:

- GI bleeding and haemodynamic instability
- Altered mental status (see Altered Conscious Level) or lethargy
- Suggestion of surgical aetiology (eg, Meckel's diverticulum, intussusception, or volvulus)

Refer urgently to paediatric specialists (eg, Emergency Department / Paediatric Intensive Care / General Paediatric / Paediatric Gastroenterology and / or Paediatric Surgery Team(s)) if:

- Any non-trivial GI bleeding
- Anaemia
- Fall in haematocrit
- Severe abdominal pain
- Associated systemic symptoms (eg, HUS or HSP)

## When to Admit

Admit and escalate care to relevant specialist practitioners (eg, Paediatric Intensive Care / General Paediatric / Paediatric Gastroenterology and / or Paediatric Surgery Team(s)) if:

- Haemodynamic instability
- Any non-trivial GI bleeding
- Altered mental status (see [Altered Conscious Level](#)) or lethargy
- Suggestion of surgical aetiology (eg, intussusception, volvulus)
- Anaemia (haematocrit)
- Severe abdominal pain
- Symptoms suggestive of HUS or IBD

## 'Safety Netting' Advice

Advise parents and carers to seek medical review if their child passes fresh or altered blood in their stool or they have any concerns about their child. In particular, they should seek help immediately if their child has:

- Altered mental state (see [Altered Conscious Level](#)) or lethargy
- Bile-stained vomitus
- Associated [abdominal pain](#)
- [Fever](#)
- Ongoing bleeding

## Patient / Carer Information

***\*Please note: whilst these resources have been developed to a high standard they may not be specific to children.***

[Rectal bleeding](#) (Web page), NHS Choices.

[Vomiting blood \(haematemesis\)](#) (Web page), NHS Choices.

[Inflammatory bowel disease](#) (Web page), NHS Choices

## Resources

### National Clinical Guidance

[iRefer - Imaging Guidelines Website](#) (Website), The Royal College of Radiologists (accessible from any NHS linked computer able to access the NHS wide web)

[Faecal calprotectin diagnostic tests for inflammatory diseases of the bowel](#) (Web page), NICE diagnostics guideline DG11, National Institute for Health and Care Excellence.

[Gastro-oesophageal reflux disease: recognition, diagnosis and management in children and young people](#) (Web page), NICE clinical guideline NG1, National Institute for Health and Care Excellence.

[Ulcerative colitis: management](#) (Web page), NICE clinical guidance CG166, National Institute for Health and Care Excellence

[Crohn's disease: management](#) (Web page), NICE clinical guidance CG152, National Institute for Health and Care Excellence

## Medical Decision Support

[Child Sexual Abuse](#) (Web page), RCPCH Child Protection Companion 2013 (2nd Edition)

## Suggested Resources

***\*Please note: these resources include links to external websites. These resources may not have national accreditation and therefore PCO UK cannot guarantee the accuracy of the content.***

Hamoui N, Docherty S, Crookes P. Gastrointestinal hemorrhage: is the surgeon obsolete? *Emerg Med Clin North Am* 2003;21:1017–1056. [[PubMed](#)]

Kawamura T, Yasuda K, Morikawa S, et al. Current status of endoscopic management for nonvariceal upper gastrointestinal bleeding. *Dig Endosc* 2010;22(Suppl 1):S26–S30. [[PubMed](#)]

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