GASTRO-INTESTINAL BLEEDING

Introduction

Gastrointestinal bleeding is an uncommon but important sign in paediatric patients.

Patients with acute significant blood loss will need urgent IV access & resuscitation. Refer to guidelines for CPR &/or Shock

Tachycardia is an important sign of hypovolaemia in paediatric patients with blood loss

There are many causes of GI bleeding in children. Important factors that help determine aetiology and focus interventions include:

- Site of bleeding
- Age of onset
- Presence of abdominal pain
- Presence of diarrhoea

NB: For patients with liver disease see separate guideline – GI bleeding in Liver Disease

Site of bleeding

Non GI mimics of GI blood loss.
- Epistaxis, maternal blood, dental work, haemoptysis. Substances such as iron, bismuth, beets, spinach and blueberries can mimic melaena

Upper GI (mouth to the ligament of Treitz, the 2nd part of the duodenum)
- Haematemesis (vomited blood)
  - Bright red suggests active bleeding
  - Altered blood – may be black (resembling coffee ground) suggests less active bleeding
- Upper GI blood loss may present as melaena

(see table next page)

Lower GI (distal to the ligament of Treitz)
- Melaena (black, tarry odiferous stool) suggests blood proximal to ileocaecal valve
- Haematochezia (bright red blood per rectum) generally indicates a colonic site of bleeding. Occasionally red blood in the stool may originate from the small intestine as a result of rapid gut transit.

(see flow chart next page)
# GASTRO-INTESTINAL BLEEDING

## Haematemesis

<table>
<thead>
<tr>
<th>Oesophagus</th>
<th>Mallory–Weiss tear</th>
<th>Repeated vomiting</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Oesophageal varices</td>
<td>Stigmata of chronic liver disease or portal hypertension</td>
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<td></td>
<td>Oesophagitis</td>
<td>Reflux symptoms</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Stomach</th>
<th>H. pylori peptic ulcer</th>
<th>Non-steroidal anti-inflammatory use</th>
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<tbody>
<tr>
<td></td>
<td>Non-helicobacter gastritis</td>
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</table>

<table>
<thead>
<tr>
<th>Small intestine</th>
<th>H. pylori/peptic ulcer</th>
<th>Elevated urea</th>
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<tbody>
<tr>
<td></td>
<td>Haemolytic uraemic syndrome</td>
<td>Rash</td>
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<tr>
<td></td>
<td>Henoch–Schoenlein purpura</td>
<td>Cutaneous A-V malformations</td>
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<td></td>
<td>Arteriovenous malformation</td>
<td>Weight loss, diarrhoea</td>
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<td></td>
<td>Crohn’s disease</td>
<td>Cutaneous haemangioma</td>
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<tr>
<td></td>
<td>Haemangioma</td>
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<td></td>
<td>Intestinal necrosis</td>
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</tbody>
</table>

## Rectal Blood Loss

- **Painless**
  - < 3 months
    - Swallowed maternal blood
    - VIt K deficiency
    - Gastritis
    - Vascular malformation
    - Haemophilia
  - 3-24 months
    - Mallory-Weiss tears
    - Allergic colitis
    - Meckel’s diverticulum
    - Vascular malformation
    - Polyps
    - Malformation
  - > 2 years
    - Polyps
    - Mallory-Weiss tears
    - Meckel’s diverticulum
    - Oesophageal varices

- **Painful**
  - < 3 months
    - Anal fissure
    - Oesophagitis
    - Gastritis
    - Peptic Ulcer disease
    - Intussusception
    - Infectious colitis
    - Inflammatory bowel disease
    - Henoch–Schoenlein purpura
  - 3-24 months
    - Anal fissure
    - Infectious colitis
    - Peptic ulcer disease
    - Oesophagitis
    - Inflammatory bowel disease
    - Henoch–Schoenlein purpura
  - > 2 years
    - Intussusception
GASTRO-INTESTINAL BLEEDING

History

- Constipation (possible anal fissure)
- Diarrhoea (inflammatory bowel disease/ infectious causes Salmonella, Campylobacter, Shigella, entero-invasive E.coli and Yersinia)
- Recent antibiotic exposure (clostridium difficile)
- Liver disease (oesophageal varices and vitamin K deficiency)
- Bleeding disorders
- Cystic fibrosis (oesophageal varices and vitamin K deficiency)
- Medication exposure NSAIDs (gastritis) and prior antibiotic exposure (pseudomembranous colitis)
- Overseas travel (infectious)
- Family medical history (peptic ulcer disease, bleeding disorders, inflammatory bowel disease, polyposis syndrome. Other sick contacts may indicate an infectious cause)

Physical Examination

Look for:

- Tachycardia
- Hypotension is a late and ominous sign in GI bleeding
- Orthostatic hypotension (a rise in the pulse rate by 20 beats per minute or a fall in the systolic blood pressure of more than 10mmHg indicates significant volume depletion, usually > 20%).
- Abdominal tenderness suggesting a surgical cause of pain, haemolytic uraemic syndrome, gastric/ duodenal ulceration
- Anal fissure - constipation
- Anal skin tags suggesting Crohn’s disease.
- “Haemorrhoids” are an uncommon in paediatric and adolescent patients. Anal skin tags are a common mimic of “haemorrhoids”. Presence of true anal varicosities suggest portal hypertension.
- Stigmata of liver disease (hepatosplenomegaly, jaundice, cutaneous purpura, spider naevi, clubbing, ascites)
- Cutaneous haemangiomata may indicate the presence of GI mucosal haemangiomata.
- Pigmentation of the lips and buccal mucosa may suggest Peutz-Jeghers syndrome.
- Purpura on the buttocks and lower extremities are characteristic of HSP.
Laboratory Tests

- **FBC** - A recent bleed may not initially alter the haemoglobin or haematocrit. The MCV can be low in chronic low grade bleeding. Raised eosinophils may signify an allergic colitis.

- **ESR/ CRP** - may indicate inflammatory bowel disease or sepsis

- **Coagulation profile** to rule out a liver disease, bleeding disorder or disseminated intravascular coagulopathy.

- **Liver function tests** if there are signs of portal hypertension or chronic liver disease.

- **Stool cultures** and a **C-difficile toxin** assay if there are loose stools.

- **Renal function** tests. A high urea may be a clue for haemolytic uraemic syndrome or may indicate the presence of dehydration. A high urea may also be due to resorbed blood in the upper GI tract

- **H.pylori** stool antigen is not recommended as H.pylori has a very high prevalence in the general paediatric population. H.pylori is diagnosed via endoscopy.

Investigation

Fibreoptic endoscopy and biopsy has increased the rate of positive diagnosis. The yield decreases if endoscopy is delayed, so it is important that endoscopy occurs promptly. Preparation of the patient is critically important. In emergency situations where bleeding is severe, resuscitation of the patient is paramount. Endoscopy should not be performed hastily if the patient is unstable.

**Upper GI bleeding**
Significant upper GI bleeding requires endoscopy for investigation. Contrast studies should not be the initial study to rule out oesophagitis, gastritis or peptic ulcers because of the lack of sensitivity. Contrast studies may be indicated in patients with dysphagia or odynophagia. Ultrasound should be requested if there is evidence of liver disease or splenomegaly.

**Haemotochezia**
Colonoscopy is the best test for significant lower GI bleeding. An exception is suspected intussusception, where ultrasound should be requested (and if confirmed, an enema for reduction).

**Massive painless rectal bleeding**
A Meckel scan is the procedure of choice. CT angiography may also help localize bleeding for AV malformations.

**Obscure bleeding in the GI tract**
Capsule endoscopy may provide a diagnosis in some cases.

If obstruction is suspected, plain abdominal X rays should be obtained as well.
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Treatment

1. If there is significant bleeding:
   2X large bore IV lines
   re-establish blood volume (rapid infusion of 0.9% NaCl +- by red cells).

2. Acid suppression   Omeprazole (2mg/kg/day). Patients < 7 years should receive q12hourly
dosing.

3. Urgent referral to appropriate teams PICU/ Surgery/ General Paediatrics/ Gastroenterology

4. Significant GI bleeding requires admission for observation +- ongoing investigation and
treatment.

5. Never discharge a patient with liver disease and GI bleeding unless discussed with on-call
   Paediatric Gastroenterologist/Hepatologist (separate guideline for GI bleeding in liver
   Disease).

References

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