

## Gastro-intestinal bleeding in Children

### Introduction

Even a small amount of blood appears large and can be alarming for parents and doctor. It is usually self-limiting and seldom life threatening.

Careful history and physical examination is important, early resuscitation needed to stabilize patient before transport. Urgent referral needed for therapeutic gastroscopy or colonoscopy.

### Common causes of GIB in Childhood: Age group dependent

Age group	Upper GIB	Lower GIB
<b>Neonates</b>	Haemorrhagic disease of new-born Swallowed maternal blood Stress gastritis	Necrotizing enterocolitis Anal fissure Malrotation with volvulus
<b>Infants 1mth – 1 year</b>	Oesophagitis (Reflux) Stress gastritis	Anal fissure Intussusception Milk protein allergy
<b>Infants 1 – 2 years</b>	Peptic ulcer disease Gastritis	Polyps Meckel Diverticulum
<b>Children older than 2 years</b>	Oesophageal varices Peptic ulcer disease	Polyps Inflammatory bowel disease Infectious diarrhoea

### Common causes of GIB in Childhood: etiology dependent

#### Relevant history

Infective cause(dysentery)	Vomiting, diarrhoea, fever
Drugs	NSAIDS, caustic substance
Foreign bodies	Pain due to damage of gastric mucosa
Liver disease	Jaundice, bruising, pale stools
Imitation of bloody stools	Certain antibiotics, iron, beetroot

### Relevant signs with physical examination

Signs of shock	Heart rate, BP, capillary refill
Other sources of bleeding	Swallowed blood eg epistaxis, nasal polyps, hemoptysis
Abdominal scars	Reason for surgery eg liver
Bowel sounds	Hyperactive in upper GIB
Abdominal tenderness	Intussusception, volvulus(ischemia), GE reflux, ulcer
Liver disease	Hepato/splenomegaly, portal hypertension
Anal inspection	Fistulas/fissures/trauma/skin rash
Rectal examination	Polyps, masses

General management and management of specific causes:

#### Resuscitation

Place nasogastric tube on free drainage – to evaluate if bleeding is on-going

Intravenous fluid: Start with 20ml/kg Ringers lactate

Blood products only if patient not responding to crystalloid, or on-going bleeding

Somatostatin analogue

#### Haemorrhagic disease of new-born(Vit K deficiency)

Uncommon disease. Routine Vit K administration at birth is essential. If not given, vit K –dependent clotting factors decline within 48-72 hours postnatal. They present with coffee ground gastric aspirate or melena  
Coagulation studies needed to confirm

### *Swallowed maternal blood*

Baby can vomit large amount of fresh blood = swallowed maternal blood during delivery

Confirm with Apt test: Blood on filter paper with 1% sodium hydroxide

Maternal blood denatures and appears rusty brown

Foetal blood: No reaction and remains pink/red

### *Stress gastritis*

Very common in neonatal ICU

Coffee ground vomitus or nasogastric drainage

Causes: stressful delivery, resuscitation needed after birth, prematurity, mechanical ventilation

Treatment: nasogastric tube on free drainage, gastric irrigation, IV PPI's

### *Necrotizing enterocolitis (NEC)*

Bowel wall bacterial infection due to immature mucosal barrier – in premature babies

Immunoglobulins in breast milk protect against NEC, formula fed infants at risk

Clinical presentation: Sudden feeding intolerance, abdominal distension, bilious vomiting, abdominal wall erythema, blood per rectum. Can proceed to severe sepsis / acidosis / shock

Diagnosis on AXR: Pneumatosis intestinalis, bowel wall thickening, portal venous gas, pneumoperitoneum

Treatment: Keep NPO, nasogastric tube on free drainage, antibiotics, total parenteral feeds

Indications for surgery: perforation of bowel or signs of necrotic bowel.

### *Anal fissure*

Not always constipation, many are spontaneous. Clinical presentation: bright red blood on stools or small drops in diaper, healthy-appearing infant, small painful anal tear visible on rectal examination.

Treatment: local anesthetic cream, stool softeners (water is the best in formula fed babies, glycerine suppositories) wait and see

### *Malrotation with midgut volvulus*

Can occur any time in life, common in neonatal period. Could have intermittent bowel obstruction and then volvulus of whole small bowel.

Clinical presentation: rarely recurrent abdominal pain that resolves spontaneously. Usually present with sudden onset of blood per rectum, bilious vomiting and abdominal distension in a previously healthy baby. Bowel gangrene, shock and death. Baby often very sick with acute abdomen. Bloody mucous from rectum is ominous sign of necrotic bowel.

Surgical treatment: Must be done as an emergency. Laparotomy, de-rotate bowel, cut Ladd's bands, broaden mesentery, appendectomy and place bowel in abdominal cavity: small bowel on the right and large bowel on the left. If appendix left in situ and patient develops later in life the diagnosis may be missed.

### *Esophagitis and gastritis*

Rare condition in children. Causes of esophagitis: gastro esophageal reflux, viral esophagitis (HIV patients)

Gastritis: H Pylori infection, usually stress gastritis due to conditions such as severe systemic illnesses eg burns, head trauma, NSAID's. Gastroscopy required in all of these patients, must be done when the patient is under a full general anesthesia with intubation. If there are no facilities for a GA then refer to a pediatric surgery unit as soon as possible.

### *Intussusception*

Invagination of one part of intestine into another, mostly ileo-colic

Most common cause of bowel obstruction and blood per rectum in babies 3 – 18 months (peak 5months). Older or younger children would most likely have a pathological lead point such as tumors, polyps and foreign bodies.

History: healthy child with recent viral infection, causing lymphoid hyperplasia of Peyer's patches

Pathologic lead points in older babies: tumours (lymphoma), polyp, Meckel's diverticulum, worms, foreign bodies

Clinical presentation: well fed baby with recent upper respiratory tract infection or gastro-enteritis. Bloody slimy stools (red currant jelly), vomiting and abdominal distension/tenderness (bowel obstruction)

Colicky abdominal pain and palpable mass(abdominal/rectal), dehydration

Confirm diagnosis: AXR – air fluid levels and ultrasound – target sign

Management: nasogastric tube on free drainage, IV fluids (rehydration and maintenance)

Pneumatic reduction if child resuscitated, no peritonitis and no free air on AXR

Laparotomy if pneumatic reduction contraindicated or failed

Intraoperatively: trial of manual reduction and if it fails – resection of intussusception with a primary anastomosis (right hemi-colectomy). They don't develop a vitamin B12 deficiency.

### *Meckel's diverticulum*

Vitelline duct abnormality on antimesenteric border of small bowel, often ileum. All layers of intestinal wall present (true diverticulum).

Complications: Bowel obstruction or ulceration, perforation due to ectopic gastric mucosa. Presents with painless massive bleeding, which usually stops spontaneously. Often needs transfusion. Upper and lower endoscopy is normal. This must trigger the thought that this bleed may be from a Meckel's diverticulum, request a Meckel's scan.

Diagnosis: Technetium 99m scan – demonstrates abnormal gastric cells

Treatment: Surgical excision

### *Polyps*

Usually hamartomas common in toddlers. Presents with painless red rectal bleeding, polyp may prolapse through anus.

Treatment: sigmoidoscopy to confirm diagnosis and resect polyp. Histology essential to confirm diagnosis.

Importantly there is no malignant potential.

Adenoma: rare in small children. Presents in older children, associated with familial polyposis coli. Multiple polyps with high cancer risk. Colectomy needed in early adolescence.

### *Conclusion*

Never jump to conclusions, always take a proper history and appropriate clinical examination. Stabilize and then transfer