

Rectal bleeding in children — causes and investigations

Farah Mushtaq

Gareth Tudor

Sarah El-Hadi

Abstract

Rectal bleeding in children is an alarming symptom which can lead to significant parental anxiety. Mostly the causes are benign and self-limiting however sometimes a lower GI bleed may be due to a significant pathology or can lead to life-threatening haemorrhage. Hence it requires careful assessment and appropriate investigations, taking into account the age of the child and the nature of the bleed. This review covers common causes and investigations of rectal bleeding in children.

Keywords anorectal fissure; bleeding; colitis; faecal calprotectin; haemorrhage; Meckel's diverticulum; MR enterogram

Introduction

Among children of all ages, lower gastrointestinal bleeding was the main symptom in 0.3% of patients admitted to an emergency department. Lower gastrointestinal bleeding in children is defined as bleeding from a site distal to the ligament of Treitz. It can manifest as either haematochezia (which is bright red blood per rectum) or melaena which is black tarry stools. Melaena suggests that source of bleeding is proximal to ileocaecal valve therefore the blood is in the GI tract for a long time leading to haemoglobin degradation by the gut flora. In general it takes about 14 hours for blood to be broken down within the intestinal lumen; therefore if transit time is less than 14 hours the patient will have haematochezia, and if greater than 14 hours the patient will exhibit melaena.

A detailed history, taking into account the age of the child, nature of the bleeding episode along with a thorough physical examination including anal inspection helps to differentiate various causes of rectal bleeding in children. Any child with bleeding should be assessed for haemodynamic stability and severity of bleeding. Detecting the source of bleeding is the key in the management of these children. However in a child with a self-limiting episode of lower GI bleeding, where no diagnosis was reached following a careful clinical evaluation, then 'a wait

and watch' approach can be used rather than performing invasive investigations.

Haematochezia typically indicates bleeding from colon. Red blood on surface of stool or on wiping suggests bleeding being anus or rectum. Blood mixed with stool or blood mixed with mucous means colonic bleeding or colitis respectively. Red-currant jelly stools suggest ischaemia of the bowel. In cases of pallor or fatigue, possibility of occult gastrointestinal bleeding should be considered.

Aetiology

Some causes of rectal bleeding occur in children of all ages however others are age specific. We have classified the causes of rectal bleeding in children according to the different age groups in [Table 1](#). These conditions are discussed below in more detail.

Swallowed maternal blood

Swallowed maternal blood, amniotic fluid or blood ingested from a cracked nipple in a breast fed baby can lead to rectal bleeding in an otherwise well neonate. The Apt test helps to differentiate adult HbA from fetal HbF. Fetal haemoglobin resists alkaline denaturation and retains a pink colour as compared to adult haemoglobin that changes to brown when exposed to sodium hydroxide.

Necrotizing enterocolitis

This is a life-threatening condition in the newborn which leads to bowel ischaemia and necrosis. The exact pathogenesis remains unknown. The incidence has been reported as 1–5% in neonatal units. Low birth weight and preterm babies are at high risk. Neonates may present with a variety of features including apnoea, respiratory failure, poor feeding, bilious vomiting, lethargy, temperature instability, abdominal distension, tenderness and rectal bleeding. Abdominal X-ray may show dilated bowel loops indicating ileus in early disease. As the disease progresses, pneumatosis intestinalis (gas in the bowel wall) can be seen. In severe cases bowel perforation may occur.

Malrotation and volvulus

The incidence of intestinal malrotation is 1 in 500. During fetal life, the midgut herniates into the base of the umbilical cord and rapidly elongates. Subsequently it returns to the abdominal cavity and undergoes rotation. This results in the duodenum crossing the midline so that the duodeno-jejunal flexure is normally located on the left. Midgut intestinal malrotation results when there is abnormal gut rotation and fixation. The mesentery has a short root, which allows it to act as a pedicle around which volvulus can occur leading to duodenal obstruction and midgut ischaemia.

Neonates or infants present with sudden onset of bilious vomiting, abdominal distension and melaena. Bilious vomiting should be considered as surgical emergency to avoid potential life threatening problems like irreversible intestinal necrosis. Ten to twenty percent of patients with malrotation present after infancy and this can lead to a diagnostic dilemma due to non-specific clinical features. In older children, 50% will have non bilious vomiting initially.

An upper GI contrast study is the investigation of choice as detailed below in the investigation section. Characteristically the

Farah Mushtaq MBBS MRCPH is a Speciality Doctor Paediatrics in the Department of Paediatrics, Princess of Wales Hospital, Bridgend, UK. Conflict of interest statement: none.

Gareth Tudor BSc MBBCh MRCP FRCR is a Consultant Radiologist in the Department of Radiology, Princess of Wales Hospital, Bridgend, UK. Conflict of interest statement: none.

Sarah El-Hadi MBBS DCH MRCP MRCPCH FRCPC is a Consultant Paediatrician, in the Department of Paediatrics, Princess of Wales Hospital, Bridgend, UK. Conflict of interest statement: none.

Causes of lower gastrointestinal bleeding according to different age groups

Neonate	Infants 1 month–2 years	Pre-school 2–5 years	School age > 5 years
Necrotizing enterocolitis	Anal fissure	Anal fissure	Anal fissure
Malrotation	Infectious colitis	Infectious colitis	Infectious colitis
Allergic colitis	Allergic colitis	Polyp	Polyp
Swallowed maternal blood	Intussusception	Meckel's diverticulum	Henoch–Schonlein purpura
Haemorrhagic disease of the newborn	Meckel's diverticulum	Henoch–Schonlein purpura	Inflammatory bowel disease
Vascular malformations, duplication cyst	Malrotation	Haemolytic Uraemic Syndrome	Intussusception
	Hirschsprung's disease enterocolitis	Intussusception	Vascular malformations, duplication cyst
	Vascular malformations, duplication cyst	Vascular malformations, duplication cyst	

Table 1

duodeno–jejunal flexure is seen on the right of the midline in children with midgut malrotation.

Allergic colitis

Adverse reactions to cow's milk are frequent in the first year of life and can cause diarrhoea, faltering growth, bowel inflammation and rectal bleeding. Adverse reactions to cow's milk protein in infancy are estimated to occur in 5–15% babies (cow's milk protein intolerance) however the prevalence of true cow's milk protein allergy (IgE mediated and non-IgE mediated) is lower occurring in 2–7% of infants. An allergy focused history is important when cow's milk induced colitis is suspected. Negative stool culture helps to exclude possible infections. Elimination diet and challenge testing are both essential to reliably confirm the diagnosis of food allergy and reduce false positive diagnoses.

Anorectal fissure

Constipation leading to anal fissure is a common cause of painful rectal bleeding in children. Constipation is seen in about 5–30%. A history of infrequent stools, passage of large hard stools, painful defecation and soiling is usually present. It may not be possible to visualize a fissure in all cases but a history of constipation and appropriate treatment leading to resolution of bleeding will confirm the diagnosis.

Infectious colitis

Infectious colitis can occur at any age and may cause rectal bleeding. A history of diarrhoeal outbreaks, foreign travel, swimming in lakes or household contacts that are unwell are important to elicit. Fever and malaise may be present. The common pathogens causing bloody diarrhoea are Salmonella, Shigella, Campylobacter and Escherichia. Giardia and Entamoeba histolytica can also cause dysentery. Antibiotic use can alter the gut microbial flora leading to overgrowth of Clostridium difficile (C diff) which can cause mucosal damage due to toxins production. Hence a stool sample should be sent for not only culture, virology but also for C diff toxins, ova and parasites. C diff positive stool sample in a neonate does not explain rectal

bleeding and another cause should be sought as neonates lack toxin binding sites. Indeed studies indicate that 30–50 % neonates are colonized with C difficile.

Intussusception

Although intussusception can occur at any age, it is more common during infancy and in pre-school children where it is usually idiopathic. In older children it may be due to a polyp, Meckel's diverticulum, a duplication cyst or more rarely intestinal lymphoma. A pathologic lead point in intussusception is reported in 1.5–12% of all age groups however this rises to 60% in children above 6 years.

History of severe paroxysmal abdominal pain is typical and there may be bilious vomiting. Later abdominal distension and passage of redcurrant jelly stools may be reported. A sausage-shaped abdominal mass may be palpable. An abdominal X-ray can be normal initially but characteristically shows dilated gas filled bowel proximally, paucity of gas distally and multiple air fluid levels. Ultrasound is the investigation of choice and shows a doughnut or a target sign.

Meckel's diverticulum

This is the most common congenital anomaly of the GI tract and is present in 2% of the population. Meckel's diverticulum is a true intestinal diverticulum found in the distal ileum which results due to failure of obliteration of the vitelline duct. The yolk sac of the fetus is connected to the midgut by the vitelline duct that regresses between the fifth and seventh week of fetal life. If this does not regress, various anomalies can result, one of them being Meckel's diverticulum. The diverticulum may contain gastric, pancreatic or colonic mucosa.

This condition is typically seen in children younger than 2 years and may present with sudden onset of significant painless rectal bleeding which rarely leads to haemodynamic instability. Complications include perforation and intussusception. Meckel's diverticulum should always be sought in a child with significant painless bleeding. Nuclear imaging study Technetium 99m pertechnetate scan (Meckel's scan) helps to confirm the diagnosis as the contrast has affinity for the gastric mucosa.

Download English Version:

<https://daneshyari.com/en/article/4172053>

Download Persian Version:

<https://daneshyari.com/article/4172053>

[Daneshyari.com](https://daneshyari.com)