

# اورژانس های گوارش در کودکان

دکتر سوده صالحی  
فوق تخصص گوارش کودکان

# Vomiting

- Caused by a wide range of conditions
- The goals of the evaluation are to quickly identify life threatening disorders such as bowel obstruction , diabetic ketoacidosis , adrenal crisis, toxic ingestion and increased intracranial pressure (ICP) ,that requires urgent treatment.



# Warning signs that may indicate a serious cause of vomiting

- Marked abdominal distension and tenderness
- Bulging fontanelle in a neonate or young infant
- Headache, positional triggers for vomiting or vomiting on awakening, and/or lack of nausea
- Altered consciousness, seizures, or focal neurologic abnormalities
- History of head trauma
- Hypotension disproportionate to the apparent illness and/or hyponatremia and hyperkalemia

# Warning signs that may indicate intestinal obstruction

- Projectile vomiting in a young infant
- Bilious vomitus (green or yellow) or feculent (with the odor of feces)
- Marked abdominal distension
- Visible bowel loops
- Bowel sounds either absent, or increased and high-pitched

# Intestinal obstruction causes

- Intestinal atresia, stenosis, or duplication
- Pyloric stenosis
- Malrotation with volvulus
- Intussusception
- Antral or duodenal web
- Hirschsprung disease
- Foreign body
- Incarcerated hernia

# Foreign bodies of the esophagus and gastrointestinal tract

## Indications for urgent removal

- signs of airway compromise
- evidence of near-complete esophageal obstruction
- ingested object is sharp –
- Open Safety Pin
- disk battery in
- superabsorbent polymer and is in the esophagus or stomach
- ingested object is a high-powered magnet or magnets

# Button battery ingestion



# Complication of Button battery ingestion

- mucosal damage can occur within 2 hours after lodgement .
- Perforations are usually diagnosed within 2 days (rarely in the first 12 hours) but fistulas can present up to 4 weeks post-removal.
- complications, such as esophageal strictures, spondylodiscitis or recurrent laryngeal nerve injury, take weeks or even months to develop
- In delayed diagnosis, even if the battery has passed the esophagus, endoscopy to screen for esophageal damage and a CT scan to rule out vascular injury should be considered even in asymptomatic children.
- Batteries passing the esophagus usually pass the remaining gastrointestinal tract successfully: only 7% and 1.3% of overall complications occur in the stomach and small bowel, respectively

# Button battery ingestion

- Immediate endoscopic removal is necessary if possible within 2 hours of ingestion . Endoscopy should not be delay even if the patient has eaten .
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- There are several reasons why timely removal of the battery may not be possible. In such cases Honey and sucralfate can be considered in ingestions  $\leq 12$  hours within this time span.
- The advised dose for both is 10 mL (2 teaspoons) every 10 minutes with a maximum of 6 doses of honey and 3 doses of sucralfate .
- administration of honey or sucralfate should never be the reason to delay endoscopy removal, which is always the most important intervention.

# Button battery ingestion

- The mechanism of honey and sucralfate action is thought to be not only coating of the battery and thereby limiting electrolysis but also neutralization of generated hydroxide as both honey and sucralfate are weak acids.
- cautious in case of a delayed diagnosis, clinical suspicion of perforation, mediastinitis, sepsis, swallowing difficulties, allergies to honey or sucralfate, and in children <1 year of age because of the small risk for infant botulism with honey intake ·

# Food allergy

## **IgE-MEDIATED REACTIONS**

- Urticaria and angioedema , acute contact urticarial
- Oropharyngeal symptoms
- Respiratory tract symptoms
- Gastrointestinal symptoms
- Anaphylaxis

## **NON-IgE-MEDIATED REACTIONS**

- Food protein-induced enterocolitis syndrome (FPIES; entire gastrointestinal tract)
- Food protein-induced enteropathy (small bowel)
- Food protein-induced proctitis and proctocolitis (rectum and colon)

## **MIXED IgE AND NON-IgE-MEDIATED REACTIONS**

- Atopic dermatitis
- Eosinophilic esophagitis (EOE)
- Eosinophilic gastroenteritis ( EOGE )

# Immunologic reactions to food that present with vomiting

## IgE-mediated hypersensitivity reaction

IgE-mediated food allergies can present any time after a dietary protein is introduced. They generally occur shortly after ingestion of the allergen (usually within minutes).

Vomiting is a very common manifestation, often in conjunction with other symptoms such as diarrhea, urticaria, or wheezing.

### **Anaphylaxis**

Gastrointestinal symptoms are rarely the sole manifestations of a food-allergic reaction.

Concurrent anaphylactic symptoms may include pruritus, flushing, urticaria/angioedema, periorbital edema, conjunctival injection, rhinorrhea, nasal congestion, cough, wheezing, dyspnea, change of voice quality, sense of choking, tachycardia (or, less commonly, bradycardia), dizziness, hypotension, sense of impending doom, and cardiovascular collapse.

When triggered by ingested substances (typically foods or medications), it tends to present with prominent gastrointestinal symptoms, including nausea, crampy or colicky abdominal pain, vomiting (sometimes large quantities of "stringy" mucus), and diarrhea.

In most cases, an allergic reaction to food can be readily distinguished from other causes of vomiting by the presence of concurrent anaphylactic symptoms and by the history.

# Food allergy

## **anaphylaxis**

respiratory or cardiac arrest and death can occur within minutes.

**Epinephrine** 0.01 mg/kg (maximum of 0.5 mg) should be administered in the mid-outer thigh every 5 to 15 minutes, or more frequently if necessary.

When an autoinjector is used, children weighing less than 25 kg should receive the 0.15 mg dose, and those weighing over 25 kg should receive the 0.3 mg dose administered to the outer thigh every 5 to 15 minutes or more frequently, if necessary.

**IM injection into the mid-outer thigh** as the initial route of administration

**large volume fluid resuscitation**

**Oxygen and bronchodilators for residual respiratory symptoms**

**Indications for IV epinephrine**

indicated for patients with profound hypotension or symptoms and signs suggestive of impending shock (dizziness, incontinence of urine or stool) who do not respond to initial IM injections of epinephrine and fluid resuscitation

# Immunologic reactions to food that present with vomiting

## **NON-IgE-MEDIATED hypersensitivity reaction**

Food protein-induced enterocolitis syndrome (FPIES)

FPIES is an uncommon gastrointestinal food hypersensitivity that manifests as profuse, repetitive vomiting, often with diarrhea, leading to dehydration and lethargy in the acute setting (typically within one to three hours of ingestion) or weight loss and failure to thrive in a chronic form.

usually begins in early infancy, within one to four weeks following introduction of cow's milk or soy protein.

The term "food protein-induced enteropathy" has been used to describe an immunologic reaction to dietary proteins that causes a diffuse enteritis and presents with subacute onset of vomiting, diarrhea, and poor weight gain, sometimes with bloody stools.

A more common immunologic reaction to food in infants is isolated allergic proctocolitis, which presents with bloody stools, usually without vomiting in an otherwise healthy infant.

# Inflammatory bowel disease

## Clinical presentation

Typical presenting features of inflammatory bowel disease (IBD) in children are **loose stools or bloody diarrhea, abdominal pain, fever, weight loss or growth failure, perianal disease, anemia, arthritis, or delayed onset of puberty** .

Clinical features supportive of the diagnosis include abdominal tenderness, oral ulcers, or perianal disease.

## Laboratory features

often reveals anemia, hypoalbuminemia , and/or an elevated erythrocyte sedimentation rate (ESR) or C-reactive protein (CRP)  
laboratory studies are normal in a significant number of children with IBD.

# Inflammatory bowel disease

## **Diagnostic evaluation**

small bowel imaging.

colonoscopy (with biopsies taken from the terminal ileum, if possible).

In many centers, upper endoscopy

before six years of age, especially those younger than two years or with any features of monogenic IBD, should be carefully evaluated for monogenic IBD, including immunologic evaluation and genetic sequencing.

## **Differential diagnosis**

stool cultures and C. difficile toxin.

If stools are formed (ie, not diarrhea), other causes of rectal bleeding should be explored, including Meckel's diverticulum, polyps, and anal fissures.

# Toxic megacolon

Toxic megacolon is total or segmental nonobstructive colonic dilatation that occurs in the context of systemic toxicity .

Patients typically present with severe bloody diarrhea that is refractory to therapy for at least one week prior to acute colonic dilatation; diarrhea may improve after the development of megacolon.

## DIAGNOSIS

The most widely used criteria are

Radiographic evidence of **colonic dilation (diameter >6 cm)** PLUS at least **three of the following**:

- Fever >38°C
- Heart rate >120 beats/min
- Neutrophilic leukocytosis >10,500/microL
- Anemia
- **PLUS at least one of the following**:
- Dehydration
- Altered sensorium
- Electrolyte disturbances
- Hypotension

# GI Bleeding

## **Initial assessment**

Vital signs, including the heart rate, blood pressure, presence of orthostatic changes, and capillary refill, are used to assess and monitor the hemodynamic state of the patient.

Patients with hemodynamic instability (shock, orthostatic hypotension) should be admitted to an intensive care unit for resuscitation and close observation.

Both a gastroenterologist and a surgeon should be notified promptly of all patients with severe acute UGI bleeding.

# Clinical features suggesting a severe UGI bleeding

<b>Sheffield Scoring Scheme</b>	
<b>History</b>	
Significant pre-existing condition	1
Presence of melaena	1
History of large bloody vomit	1
<b>Clinical examination</b>	
HR > 20 from mean for age	1
Prolonged capillary refill	4
<b>Lab tests</b>	
Hb drop > 20g/L	3
<b>Management</b>	
Requirement for IV fluid bolus	3
Requirement for transfusion (Hb < 80 g/L)	6
Need for other blood product	4
<b>Maximum score</b>	<b>= 24.</b>

- Sheffield score  $\geq 8$  predict the need for vasoactive treatment and invasive intervention

# Management of GI Bleeding

- **History**
- **Physical examination**
- **Lab test**
- **Imaging**
- **Endoscopy**
- **IV Line and ...fluid and blood transfusion**
- **Nasogastric tube**
- **Acid suppression**
- **octreotide**
- **Antibiotic ?**

# GI Bleeding

## hemodynamic resuscitation

- immediate assessment of hemodynamic status in patients who present with acute upper gastrointestinal hemorrhage (UGIH), with crystalloid fluids.
- target hemoglobin between 7 g/dL and 9 g/dL. A higher target hemoglobin should be considered in patients with significant co-morbidity ( ischemic cardiovascular disease)

# GI Bleedin

- **Nasogastric tube**
- often used to confirm the diagnosis
- to determine if the bleeding is ongoing
- remove particulate matter, fresh blood, and clots to facilitate endoscopy and decrease the risk of aspiration.

water or normal saline, at room temperature. Ice water lavage is **not** recommended

**Contraindication :**

# GI Bleeding

- **Acid suppression** with high dose intravenous proton pump inhibitors (PPI)
- Octreotide (analogue of somatostatin ), inhibit both acid and pepsin secretion while also reducing gastroduodenal mucosal blood flow .
- Not routinely recommended in NVUGIH (e. g., peptic ulcer bleeding), either pre-endoscopy or as an adjunctive therapy post endoscopy .