
Abdominal Pain in Children

Raed Al-Taher, MD

Pediatric Surgery Division
General Surgery Department
Faculty of Medicine
University of Jordan

**Why should a child have
abdominal pain?**

What/where is the
real starting point?



NEUROLOGIC BASIS OF ABDOMINAL PAIN

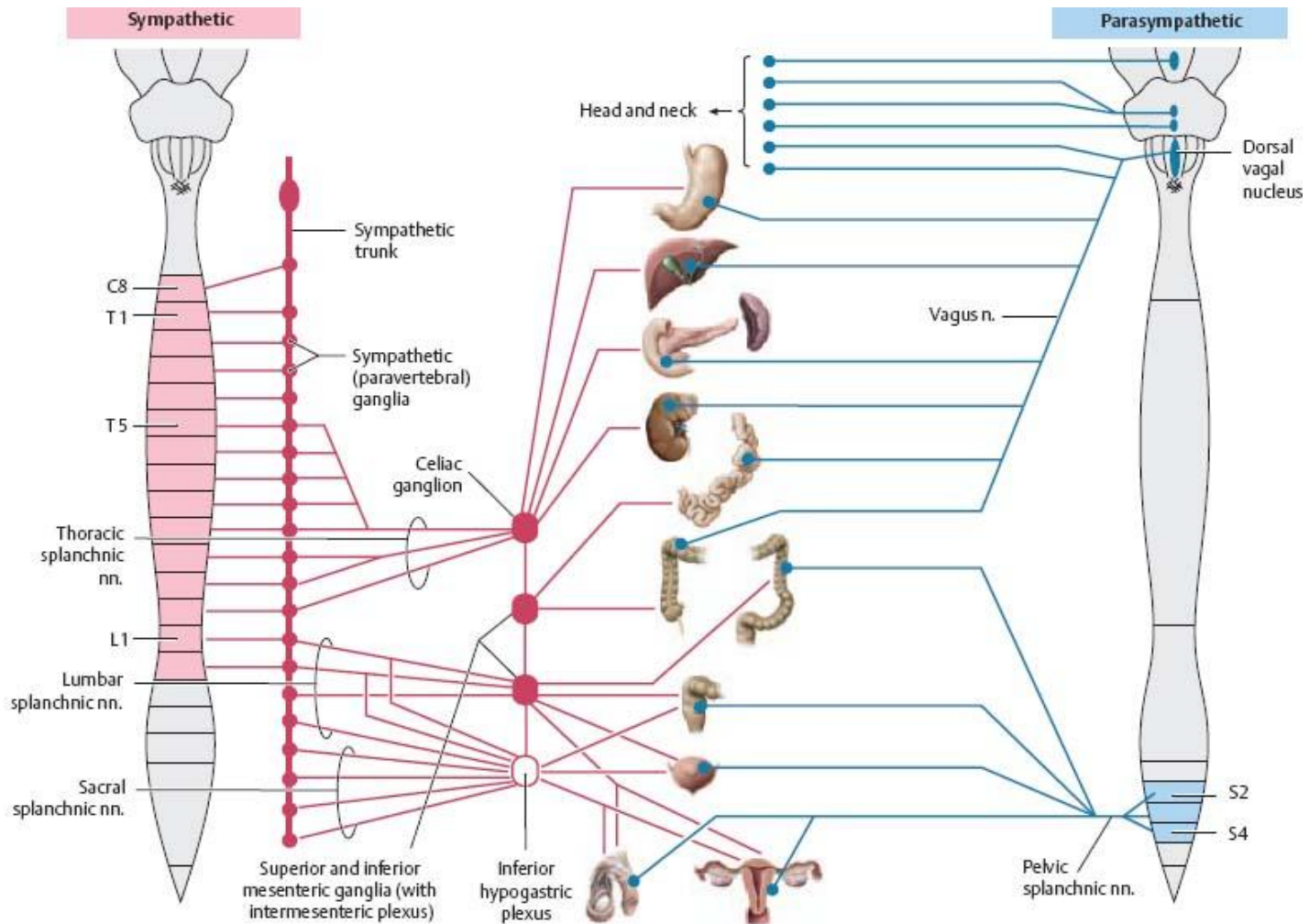
→ Visceral pain

- ◆ Visceral receptors
 - respond to mechanical and chemical stimuli
 - usually poorly localized
- ◆ Mucosal receptors
 - respond primarily to chemical stimuli

→ Somatic pain

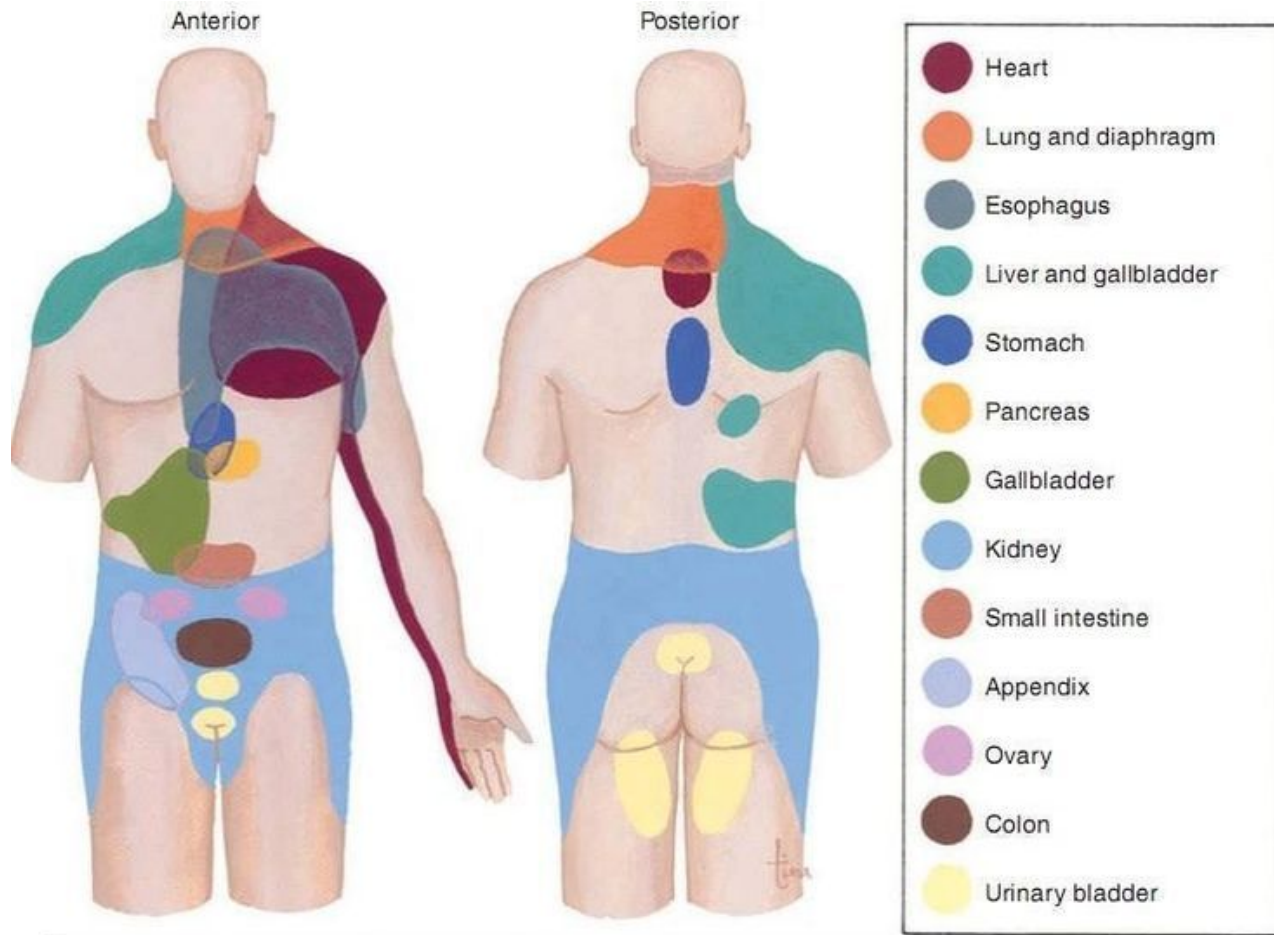
- ◆ overlying parietal peritoneum
- ◆ precise localization of the pain

Type of Pain			
	Somatic Pain	Visceral Pain	Neuropathic Pain
Location	Localized	Generalized	Radiating or specific
Patient Description	Pinprick, or stabbing, or sharp	Ache, or pressure, or sharp.	Burning, or prickling, or tingling, or electric shock-like, or lancinating
Mechanism of Pain	A-delta fiber activity Located in the periphery ¹	C Fiber activity Involved deeper innervation ¹	Dermatomal ² (peripheral), or non-dermatomal (central)
Clinical Examples	<ul style="list-style-type: none"> • Superficial laceration • Superficial burns • Intramuscular injections, venous access • Otitis media • Stomatitis • Extensive abrasion 	<ul style="list-style-type: none"> • Periosteum, joints, muscles • Colic and muscle spasm pain* • Sickle cell • Appendicitis • Kidney stone 	<ul style="list-style-type: none"> • Trigeminal • Avulsion neuralgia • Post-traumatic neuralgia • Peripheral neuropathy (diabetes, HIV) • Limb amputation • Herpetic neuralgia
Most Responsive Treatments	<ul style="list-style-type: none"> • Acetaminophen • Cold packs • Corticosteroids • Local anesthetic either topically or by infiltration • NSAIDs • Opioids • Tactile stimulation 	<ul style="list-style-type: none"> • Corticosteroids • Intraspinal local anesthetic agent • NSAIDs • Opioid via any route 	<ul style="list-style-type: none"> • Anticonvulsants • Corticosteroids • Neural blockade • NSAIDs • Opioids (via any route) • Tricyclic antidepressants

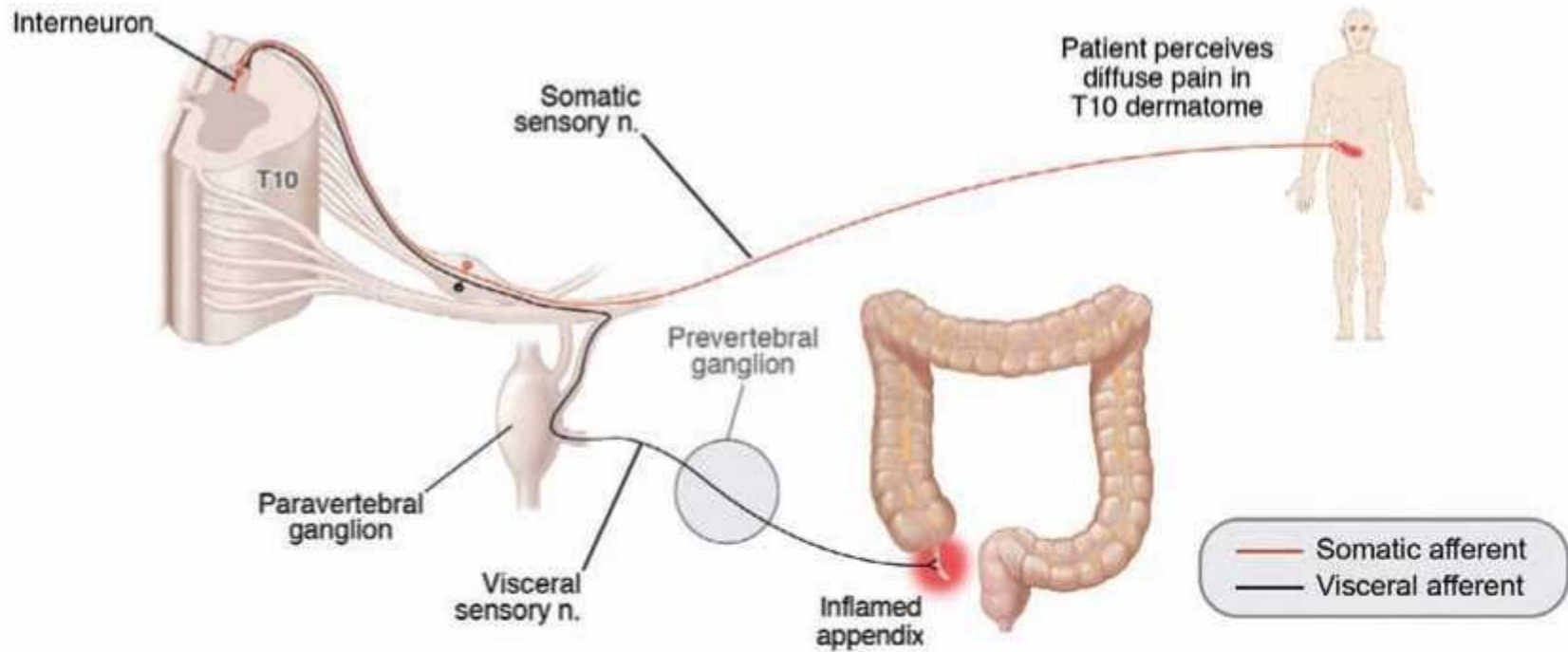


A Sympathetic nervous system.

B Parasympathetic nervous system.



Referred pain. The sites for referred pain from various organs are shown.



How can you classify abdominal pain?

Mention 5 ways

According to age

Newborns

Infants

Toddlers

Preschool

School age

Older children

According to gender

Male

Female

DSDs

According to time

Acute

Chronic

Acute on top of chronic

According to mode of management

Surgical

Non-surgical

According to system involved

GI

Non-GI

- Urological
 - Genital
 - Autoimmune
 - Metabolic
 - Vascular
 - Musculoskeletal
 - Neurocutaneous
 - Tumors
 - Cardiac
 - Respiratory
-

According to stimulus

Inflammatory

Ischemia

Perforation

Chemical

Mechanical

Functional

According to threat to life

Life-threatening

Non life-threatening

A close-up photograph of a child's midsection. The child is wearing a light blue long-sleeved shirt under a grey cardigan. Their hands are clasped together and pressed against their stomach, indicating abdominal pain or discomfort. The background is plain white.

one of the most common complaints in childhood

typically a self-limited minor condition..

as constipation..

gastroenteritis..

or viral syndrome

—

1. COMMON CAUSES

2. Common LIFE-THREATENING CAUSES

3. Uncommon LIFE-THREATENING CAUSES

Common Causes

- **Constipation**
- **Gastrointestinal infection**
 - acute gastroenteritis
 - Yersinia enterocolitica gastroenteritis
- **Other infections**
 - Urinary tract infections
 - Streptococcal pharyngitis
 - Pneumonia
 - Viral illnesses
 - Pelvic inflammatory disease
 - Mesenteric lymphadenitis
- **Ruptured ovarian cyst**
- **Foreign body ingestion**
- **Infantile colic**

LIFE-THREATENING CAUSES



Trauma



Motor vehicle collisions

Motor vehicle pedestrian collisions

Falls

Sports related injuries

Child abuse

Appendicitis

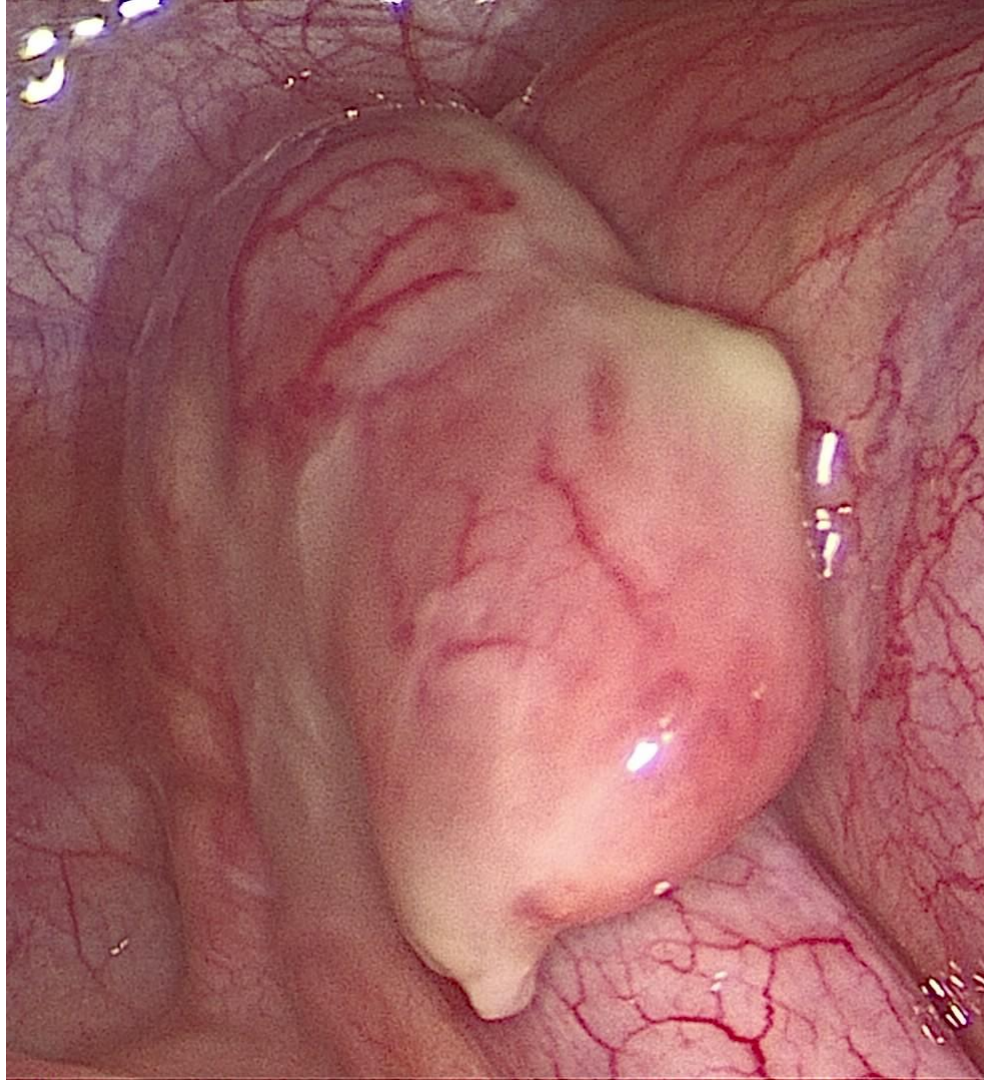
Pain in the right lower quadrant

Guarding

Migration of periumbilical pain to the right lower quadrant

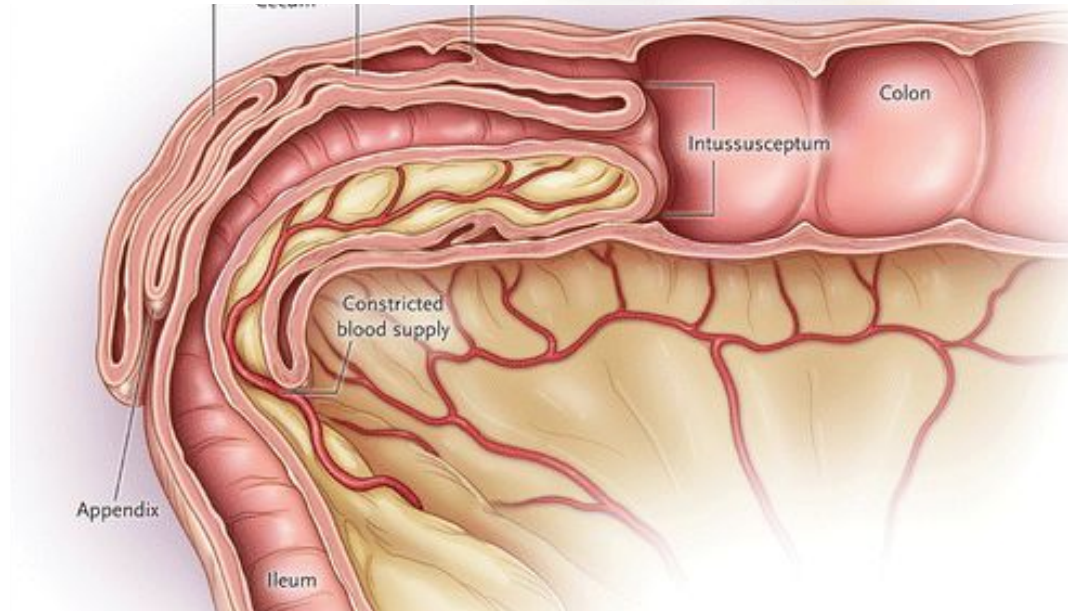
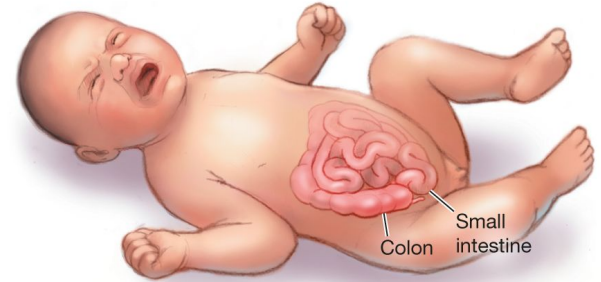
Vomiting

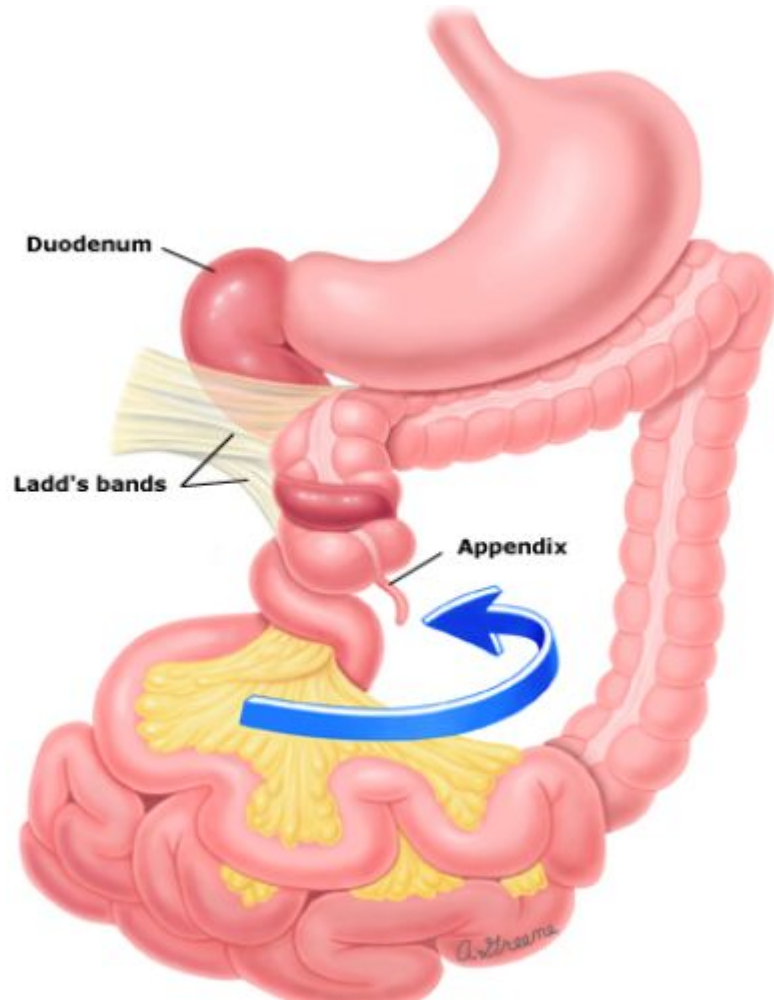
+/- fever



Intussusception

invagination of a part of the intestine into itself, causing obstruction





Malrotation with midgut volvulus

Neonates may have emesis (bilious or nonbilious) with apparent abdominal discomfort

Incarcerated inguinal hernia



Irritable and crying

Vomiting and abdominal distention

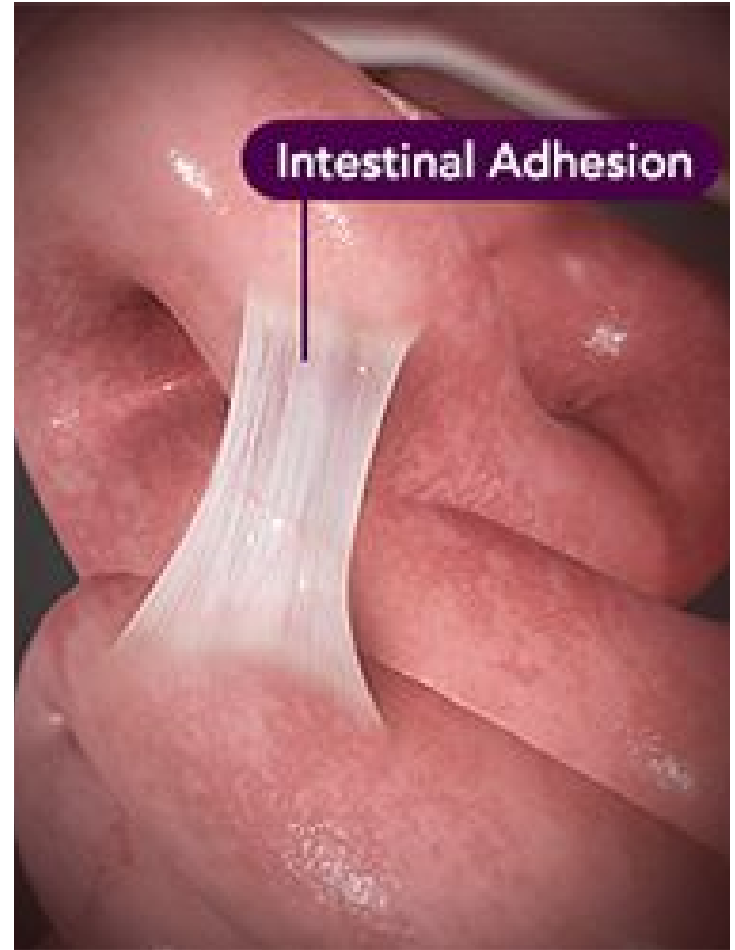
Firm, discrete inguinal mass can be palpated in the groin

May extend to the scrotum or labia majora

Adhesions with intestinal obstruction

Previous abdominal surgery

Shock (from hypovolemia and/or sepsis) can develop as the result of ischemic bowel injury



Necrotizing enterocolitis (NEC)

Newborns (majority are premature)

A syndrome of intestinal necrosis

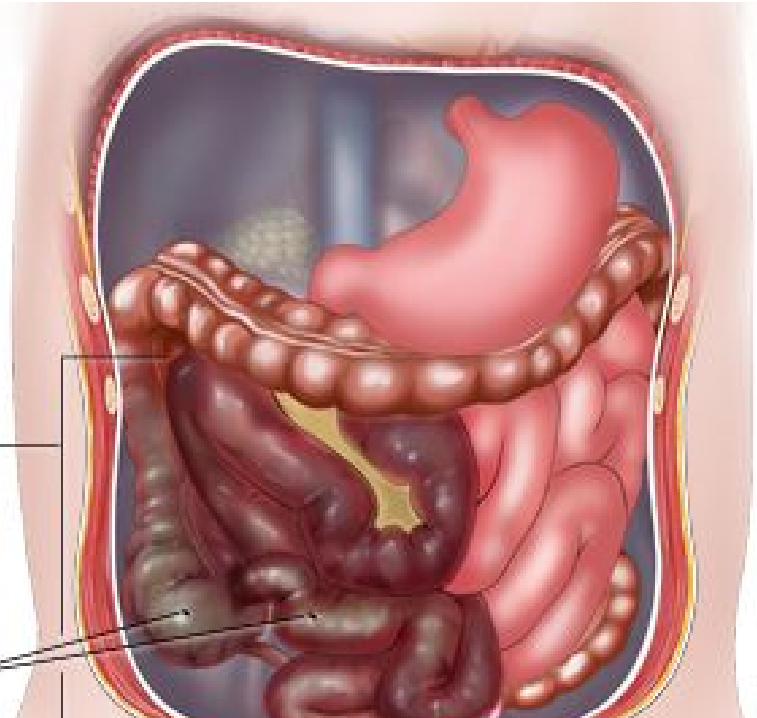
Vomiting, abdominal distention, and tenderness

Systemic signs:

- Apnea,
- Respiratory failure,
- Lethargy,
- Poor feeding,
- Temperature instability,
- Hypotension from septic shock

Necrosis of
ileum and
right colon
including
cecum

Perforation
of cecum and



Other

Life-threatening causes

Peptic ulcer disease

Ectopic pregnancy

Uncommon life-threatening causes:

- Diabetic ketoacidosis (DKA)
- Hirschsprung disease – Hirschsprung associated enterocolitis (HAEC)
- Hemolytic uremic syndrome (HUS)
- Primary bacterial peritonitis
- Myocarditis – passive hepatic congestion from heart failure or referred pain caused by pericarditis
- Magnet ingestion

OTHER GENERAL CAUSES of ABDOMINAL PAIN

GI related:

- Inflammatory bowel disease (more often Crohn disease than ulcerative colitis)
- Pancreatitis
- Acute cholecystitis
- Intraabdominal abscess
- Food allergy – Dietary protein allergy
- Malabsorption (as celiac disease and carbohydrate malabsorption)
- Meckel's diverticulum
- Abdominal migraine
- Wandering or accessory spleen

OTHER GENERAL CAUSES of ABDOMINAL PAIN

Non-GI related:

- Henoch-Schönlein purpura (HSP) (IgA vasculitis) – systemic vasculitis affecting small vessels in skin, gut, and glomeruli
- Hepatitis
- Sickle cell vaso-occlusive crisis
- Neoplasms (Wilms' tumor, neuroblastoma, etc.)
- Urolithiasis
- Testicular torsion
- Ovarian torsion
- Poisoning – lead and iron
- Acute porphyrias – abnormal metabolism of the blood pigment haemoglobin - porphyrins build up, affecting the skin or nervous system
- Familial Mediterranean fever (FMF)

