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INTRODUCTION — The most frequently encountered causes of acute abdominal pain in children presenting for emergency or primary care evaluation will be discussed in this review. The emergency evaluation of children with acute abdominal pain and the evaluation and management of children with chronic abdominal pain are discussed separately. (See "Emergency evaluation of the child with acute abdominal pain" and "Chronic abdominal pain in children and adolescents: Approach to the evaluation".)

BACKGROUND — Abdominal pain is one of the most common complaints in childhood and one that frequently requires urgent evaluation in the office or emergency department. The cause is typically a self-limited minor condition, such as constipation, gastroenteritis, or viral syndrome [1]. The challenge for the clinician is to identify those few patients with abdominal pain who have potentially life-threatening conditions (table 1). The diagnosis is often suggested by the child's age and clinical features (ie, associated symptoms and physical examination findings). (See 'Life-threatening causes' below.)

NEUROLOGIC BASIS OF ABDOMINAL PAIN — Pain receptors in the abdomen include visceral receptors (located on serosal surfaces, within the mesentery, and within the walls of hollow viscera) and mucosal receptors. Visceral receptors respond to mechanical and chemical stimuli whereas mucosal receptors respond primarily to chemical stimuli.

Visceral pain is usually poorly localized. Most visceral digestive tract pain is perceived in the midline because of bilaterally symmetric innervation. In some conditions, such as appendicitis, precise localization of the pain may develop once the overlying parietal peritoneum (which is somatically innervated) becomes inflamed.

Pain originating in the viscera may sometimes be perceived as originating from a site distant from the affected organ. Referred pain usually is located in the cutaneous dermatomes sharing the same spinal cord level as the visceral inputs (figure 1).

The neurologic basis of abdominal pain is reviewed in detail separately. (See "Causes of abdominal pain in adults", section on 'Pathophysiology of abdominal pain'.)

EVALUATION — The most frequently encountered causes of acute abdominal pain in children presenting for emergency or primary care evaluation and their clinical manifestations are discussed below. The evaluation of acute abdominal pain in children and adolescents, including the role of laboratory studies and imaging is provided separately. (See "Emergency evaluation of the child with acute abdominal pain".)

LIFE-THREATENING CAUSES

Trauma — Children with abdominal pain who have sustained trauma must be carefully evaluated for intraabdominal injuries. Mechanisms typically associated with significant injury (ie, solid organ laceration or perforated viscus) include motor vehicle collisions, pedestrian struck by a motor vehicle, falls, sports-related injuries, and child abuse. Clinical manifestations of serious injury include abdominal bruising (eg, "seat belt sign"), abdominal distension, abdominal tenderness, and peritoneal signs (eg, abdominal wall rigidity, rebound, or guarding), or shoulder pain referred from diaphragmatic irritation. (See "Overview of blunt abdominal trauma in children".)

Appendicitis — The three most predictive clinical features of appendicitis are pain in the right lower quadrant, guarding, and migration of periumbilical pain to the right lower quadrant. However, at least one of these manifestations is frequently absent, particularly in younger children. Clinicians should therefore consider the diagnosis of appendicitis in children who have a history of abdominal pain and vomiting, with or without fever or focal abdominal tenderness. (See "Acute appendicitis in children: Clinical manifestations and diagnosis", section on 'Clinical manifestations'.)

Intussusception — Intussusception (invagination of a part of the intestine into itself, causing obstruction) typically occurs among children two months to two years of age. Although rare, intussusception may occur in older children, and is typically associated with a "lead-point" such as a Meckel's diverticulum.

Children most commonly present with characteristic pain that develops suddenly, is intermittent, severe, and classically accompanied by inconsolable crying with drawing up of the legs toward the abdomen. Bilious emesis may develop as the obstruction progresses.

Between the painful episodes, the child may behave normally. Initial symptoms can be confused with gastroenteritis. Lethargy or altered consciousness can be the primary symptom of intussusception, especially in infants. Although few children will have gross blood or currant jelly stool, most will have fecal occult blood. Presentations may be variable, however, with some children having no apparent pain or blood in the stool. (See "Intussusception in children", section on 'Clinical manifestations'.)

Malrotation with midgut volvulus — Neonates may have emesis (bilious or nonbilious) with apparent abdominal discomfort as the result of midgut volvulus (figure 2). Over 50 percent of children with malrotation present before one month of age with this life-threatening condition. Among older children with volvulus from malrotation, the onset of symptoms is usually acute, but some children present with more chronic patterns of episodic vomiting and abdominal pain. (See "Intestinal malrotation in children", section on 'Clinical presentation'.)

Incarcerated inguinal or umbilical hernia — Infants with incarcerated inguinal hernias are usually irritable and crying. Vomiting and abdominal distention may develop, depending on the duration of incarceration and whether or not intestinal obstruction has occurred. On physical examination, a firm, discrete inguinal mass, which may extend to the scrotum or labia majora, can be palpated in the groin. (See "Inguinal hernia in children", section on 'Incarcerated mass'.)

Umbilical hernias are common in young infants but rarely become incarcerated. (See "Care of the umbilicus and management of umbilical disorders", section on 'Umbilical hernia'.)

Adhesions with intestinal obstruction — Children with abdominal pain and/or vomiting who have had previous abdominal surgery may have a small bowel obstruction (SBO) as the result of adhesions. Ischemic bowel injury may cause shock due to hypovolemia and/or sepsis.

In retrospective series describing children who had abdominal surgery, 1 to 5 percent developed adhesions within five years of surgery [2,3]. Factors associated with the development of adhesions in these series included multiple procedures, peritonitis, and surgery involving the ileum.

Necrotizing enterocolitis — Newborns who develop necrotizing enterocolitis (NEC), a syndrome of intestinal necrosis, typically have vomiting, abdominal distention, and tenderness. Systemic signs include apnea, respiratory failure, lethargy, poor feeding, temperature instability, or hypotension resulting from septic shock in the most severe cases. Although the majority of affected infants are born prematurely, rarely normal term infants may develop NEC. (See "Clinical features and diagnosis of necrotizing enterocolitis in newborns", section on 'Clinical presentation'.)

Peptic ulcer disease — Peptic ulcer disease (PUD) occurs less commonly in children than in adults, and may be complicated by severe hemorrhage or perforation. The clinical manifestations of PUD vary by age. Vomiting, hemorrhage, and perforation are more commonly seen in young children, while older children and

teenagers have a presentation similar to adults consisting of epigastric pain, often occurring several hours after eating. Some cases of PUD are related to Helicobacter pylori infection, although this is also less common in children compared with adults [4]. Peptic ulcers among children less than 10 years of age are often due to medications (corticosteroids or nonsteroidal antiinflammatory drugs [NSAIDs]) or major stresses. Approximately half of PUD cases are idiopathic in nature [5,6].

The clinical manifestations and management of peptic ulcer disease in adults is discussed separately. (See "Peptic ulcer disease: Clinical manifestations and diagnosis" and "Peptic ulcer disease: Management".)

Ectopic pregnancy — Ectopic pregnancy must be considered in the diagnosis of abdominal pain for postmenarchal girls, as it may be associated with life-threatening hemorrhage. Risk factors include previous genital infection and previous ectopic pregnancy (table 2). Abdominal pain, amenorrhea, and vaginal bleeding are the classic symptoms, with or without rupture. The vaginal bleeding associated with ectopic pregnancy is typically preceded by amenorrhea. However, some adolescents may misinterpret bleeding as normal menses, and may not realize they are pregnant prior to developing symptoms associated with ectopic pregnancy. This is particularly true in adolescents who have irregular menses or who do not keep track of menstrual cycles. (See "Ectopic pregnancy: Clinical manifestations and diagnosis".)

Uncommon life-threatening causes — The following unusual life-threatening causes of abdominal pain generally have other distinguishing clinical features:

- **Diabetic ketoacidosis** – Diabetic ketoacidosis (DKA) is a life-threatening condition that usually presents with polyuria, polydipsia, and glycosuria, but may also present with abdominal pain and vomiting, especially in young children. Patients with severe DKA may have altered mental status, Kussmaul breathing, and an appearance of marked dehydration. (See "Clinical features and diagnosis of diabetic ketoacidosis in children and adolescents", section on 'Signs and symptoms'.)

- **Hirschsprung disease** – Hirschsprung associated enterocolitis (HAEC) is an uncommon, fulminant complication of Hirschsprung disease. Children typically have explosive diarrhea, fever, and abdominal pain. HAEC can occur prior to surgical intervention, in the immediate postoperative period, or more than two years after definitive repair. (See "Emergency complications of Hirschsprung disease", section on 'Enterocolitis'.)

- **Hemolytic uremic syndrome** – Hemolytic uremic syndrome (HUS) typically develops after an infection with Shiga toxin-producing enterohemorrhagic E. coli (EHEC) or Shigella (figure 3). HUS has also been associated with pneumococcal infection, HIV, and genetic factors. Clinical and laboratory features of HUS include bloody diarrhea, hemolytic anemia, thrombocytopenia, and acute renal injury manifested by elevated blood urea nitrogen. (See "Clinical manifestations and diagnosis of Shiga toxin-producing Escherichia coli (STEC) hemolytic uremic syndrome (HUS) in children" and "Complement-mediated hemolytic uremic syndrome".)

- **Primary bacterial peritonitis** – Primary bacterial peritonitis, usually caused by gram-negative bacteria such as E. coli or *Streptococcus pneumoniae*, is a life-threatening infectious complication of nephrotic syndrome and occasionally other conditions that cause ascites (eg, cirrhosis of the liver). (See "Complications of nephrotic syndrome in children", section on 'Bacterial infection'.)

- **Myocarditis** – Myocarditis may cause abdominal pain as the result of passive hepatic congestion from heart failure or referred pain caused by pericarditis. (See "Clinical manifestations and diagnosis of myocarditis in children".)

- **Magnet ingestion** – Case reports have described children who have developed volvulus and bowel perforation following ingestion of small rare-earth magnets. Injury occurs when objects become magnetically attached to each other across bowel wall. Symptoms are nonspecific and typically include abdominal pain. (See "Foreign bodies of the esophagus and gastrointestinal tract in children", section on 'Magnets'.)

COMMON CAUSES

Constipation — Children with constipation can present with colicky abdominal pain, which at times, may be severe. In a series of 83 children presenting to primary care providers or an emergency department with acute abdominal pain, acute or chronic constipation was the most common underlying cause, occurring in 48 percent of subjects [7]. In many cases, rectal examination was a key step in establishing the diagnosis.

Constipation is likely in children with at least two of the following characteristics: fewer than three stools weekly, fecal incontinence (usually related to encopresis), large stools palpable in the rectum or on abdominal examination, retentive posturing, or painful defecation [7]. Parents may not recognize the relationship of constipation to the child's abdominal pain. (See "Constipation in infants and children: Evaluation" and "Functional fecal incontinence in infants and children: Definition, clinical manifestations and evaluation".)

Gastrointestinal infection — Children with acute gastroenteritis may develop fever, severe cramping abdominal pain, and diffuse abdominal tenderness before diarrhea begins [8]. In the absence of diarrhea, the diagnosis of gastroenteritis should be considered a diagnosis of exclusion. (See "Approach to diarrhea in children in resource-rich countries" and "Acute viral gastroenteritis in children in resource-rich countries: Clinical features and diagnosis".)

Yersinia enterocolitica gastroenteritis can cause focal right lower quadrant pain and peritoneal signs that may be clinically indistinguishable from appendicitis. (See "Clinical manifestations and diagnosis of Yersinia infections", section on 'Pseudoappendicitis'.)

Other infections

Urinary tract infections — Abdominal pain and fever are the most common presenting symptoms of urinary tract infection for children two to five years of age [9]. Infants may also have vomiting or anorexia, while children >5 years of age are more likely to have classic symptoms, such as dysuria, frequency, and/or flank discomfort. (See "Urinary tract infections in infants and children older than one month: Clinical features and diagnosis", section on 'Clinical presentation'.)

Streptococcal pharyngitis — Children with group A beta hemolytic streptococcal (GABHS) pharyngitis may have abdominal pain in addition to fever and exudative pharyngitis.

Patients with pharyngitis from causes other than GABHS can also have abdominal pain. This was demonstrated in one observational series describing children presenting to an emergency department with suspected GABHS pharyngitis in which 25 percent of those with throat cultures positive for GABHS and 34 percent of those with negative throat cultures had abdominal pain [10].

Pneumonia — Children with pneumonia, particularly in the lower lobes, may complain of abdominal pain [11]. Associated symptoms usually include fever, tachypnea, and/or cough. Auscultation of the lungs may demonstrate focal abnormalities (ie, decreased breath sounds or crackles), although some children with pneumonia may have normal breath sounds on examination. (See "Community-acquired pneumonia in children: Clinical features and diagnosis", section on 'Clinical presentation'.)

Viral illnesses — Viral illnesses other than gastroenteritis (ie, viral pharyngitis and upper respiratory tract infection) may also be associated with abdominal pain [12,13]. History of fever, cough, sore throat, and/or rhinorrhea may also be reported.

Pelvic inflammatory disease — Pelvic inflammatory disease (PID), an acute infection of the upper female genital tract, may be the cause of lower abdominal pain in sexually active girls. Pain often begins during or shortly after menses. There may be vaginal discharge. Rarely, sepsis and tuboovarian abscess are life-threatening complications of PID. (See "Pelvic inflammatory disease: Clinical manifestations and diagnosis" and "Epidemiology, clinical manifestations, and diagnosis of tubo-ovarian abscess".)

Mesenteric lymphadenitis — Mesenteric lymphadenitis is an inflammatory condition of the mesenteric lymph nodes that can present with acute or chronic abdominal pain. Because the nodes are usually in the right lower quadrant, mesenteric lymphadenitis sometimes mimics appendicitis. In one series of 70 children with clinically suspected acute appendicitis, 16 percent had a final diagnosis of mesenteric lymphadenitis established by ultrasound, clinical course, or surgery [14].

Mesenteric lymphadenitis is diagnosed by an ultrasound that shows abdominal lymph nodes greater than 10 mm. The presence of enlarged lymph nodes on diagnostic imaging does not, by itself, exclude a diagnosis of appendicitis; it is necessary to demonstrate a normal appendix as well [15]. Etiologies of mesenteric lymphadenitis include viral and bacterial gastroenteritis (eg, Yersinia enterocolitica), Group A Streptococcal pharyngitis, inflammatory bowel disease, and lymphoma; viral infection is most common. (See "Clinical manifestations and diagnosis of Yersinia infections" and "Acute appendicitis in children: Clinical manifestations and diagnosis", section on 'Other nonsurgical diagnoses'.)

Ruptured ovarian cyst — Acute severe pain simulating appendicitis or peritonitis may result from rupture of an ovarian cyst. Rarely, life-threatening hemorrhage develops. (See "Ovarian cysts and neoplasms in infants, children, and adolescents".)

Foreign body ingestion — Young children commonly ingest small, smooth, nonfood objects that are usually eliminated without difficulty once they have passed through the pylorus. Abdominal pain in children who have ingested foreign bodies, particularly objects that are sharp (which may perforate the bowel) or >5 cm in length (which may cause obstruction), multiple magnets (which may lead to entrapment of a piece of bowel wall between two magnets that are attracted to each other), or button batteries (which may release caustic material) warrant emergent evaluation for obstruction or perforation. (See "Button and cylindrical battery ingestion: Clinical features, diagnosis, and initial management" and "Foreign bodies of the esophagus and gastrointestinal tract in children".)

Colic — Infants with colic, may present with irritability, crying, or appear to have abdominal pain (table 3). (See "Infantile colic: Clinical features and diagnosis", section on 'Colic'.)

Other clinical features that suggest the diagnosis of colic include:

- A typical pattern of paroxysmal crying lasting at least three weeks
- Crying usually in the evening
- Crying relieved with the passage of flatus or stool
- Normal feeding
- No associated symptoms
- Normal physical examination

OTHER CAUSES

Gastrointestinal

- **Inflammatory bowel disease** – Inflammatory bowel disease (more often Crohn disease than ulcerative colitis) can present with intermittent abdominal pain. Associated features may include diarrhea and weight loss. Although the onset of symptoms for children with ulcerative colitis is usually subacute, a fulminant presentation with severe abdominal pain, bloody diarrhea, tenesmus, and fever can occur. (See "Clinical manifestations of Crohn disease in children and adolescents", section on 'Presenting symptoms' and "Management of mild to moderate ulcerative colitis in children and adolescents", section on 'Clinical manifestations'.)

- **Pancreatitis** – Pancreatitis generally causes acute upper abdominal pain (usually in the mid-epigastrium or right upper quadrant) at the onset, which may radiate to the back. Vomiting (that may be bilious) and fever also occur commonly. Causes of pancreatitis among children include trauma, infection, structural anomalies, and some medications (ie, tetracycline, L-asparaginase, valproic acid, and steroids) [16,17]. (See "Clinical manifestations and diagnosis of acute pancreatitis".)

- **Acute cholecystitis** – Acute cholecystitis typically causes pain in the right upper quadrant or epigastrium. Pain may radiate to the right shoulder or back. Associated complaints include nausea, vomiting, and anorexia. Cholecystitis is uncommon among children, and most have predisposing conditions, such as hemoglobinopathies or cystic fibrosis. (See "Acute cholecystitis: Pathogenesis, clinical features, and diagnosis".)

- **Intraabdominal abscess** – Intraabdominal abscess can cause abdominal pain. Children are typically febrile and may have histories of prior intraabdominal disease or abdominal surgery. (See "Fever of unknown origin in children: Etiology", section on 'Intraabdominal abscess'.)

- **Food allergy** – Dietary protein allergy can be associated with irritability that parents may interpret as abdominal pain. Infants typically pass blood-tinged stools and mucus, but do not have diarrhea. (See "Food protein-induced proctocolitis of infancy".)

- **Malabsorption** – Malabsorption (such as occurs with celiac disease and carbohydrate malabsorption) may cause recurrent abdominal pain. Children with celiac disease typically have chronic diarrhea, anorexia, and weight loss. Some may also have vomiting. (See "Epidemiology, pathogenesis, and clinical manifestations of celiac disease in children", section on '"Classical" gastrointestinal symptoms' and "Chronic abdominal pain in children and adolescents: Approach to the evaluation", section on 'Organic disorders'.)

- **Meckel's diverticulum** – Meckel's diverticulum usually presents with painless rectal bleeding. Abdominal pain may develop as the result of mucosal ulceration (from ectopic gastric tissue) with perforation or from bowel obstruction [18]. (See "Lower gastrointestinal bleeding in children: Causes and diagnostic approach", section on 'Meckel's diverticulum'.)

- **Abdominal migraine** – Abdominal migraine (included in childhood periodic syndromes) often presents with acute onset of abdominal pain that is periumbilical (78 percent), or occasionally more diffuse (16 percent). It is more common after age seven years. The pain is often incapacitating, with or without vomiting and headache. A family history of migraine is common. Since this condition is a recurrent problem, there may be a history of similar presentations. The first episode must be differentiated from gastrointestinal and other non-gastrointestinal causes of acute onset abdominal pain. Physical examination may be normal or reveal mild abdominal discomfort. Blood work and imaging studies are usually normal. (See "Classification of migraine in children", section on 'Abdominal migraine'.)

- **Wandering or accessory spleen** – Wandering spleen refers to acquired laxity or congenital underdevelopment or absence of the primary ligamentous attachments of the spleen in the left upper quadrant [19]. As a result, patients are at increased risk of splenic torsion and infarction. Wandering spleen is most commonly seen in children and is associated with congenital diaphragmatic hernia, prune-belly syndrome, renal agenesis, and gastric volvulus. It typically presents with acute, diffuse, severe abdominal pain. Patients may also have an abdominal mass which is mobile to the left upper quadrant and may have an indented border. Ultrasound is most helpful in establishing a preoperative diagnosis and can assess adequacy of splenic perfusion. According to case series, approximately two-thirds of patients require splenectomy. Early diagnosis permits splenopexy and preservation of splenic function.

  Accessory spleens arise from incomplete fusion of the spleen during embryonic development and may occur in up to 30 percent of patients. Although typically asymptomatic, torsion of the accessory spleen on its blood supply can be associated with acute, acute intermittent, or chronic abdominal pain [20].

Ultrasound or computed tomography of the abdomen with intravenous contrast can establish the diagnosis.

Non-gastrointestinal

- **Immunoglobulin A vasculitis (IgAV; Henoch-Schönlein purpura [HSP])** – IgAV (HSP) is a systemic vasculitis affecting small vessels in skin, gut, and glomeruli that may present with colicky abdominal pain (presumably due to local vasculitis). Pain typically develops after the appearance of a characteristic purpuric rash involving predominantly the lower extremities and buttocks (picture 1A-B). Stool often contains gross or occult blood. Rare complications of HSP (IgAV) that can cause abdominal pain include intussusception (typically in the ileum), pancreatitis, and cholecystitis. (See "IgA vasculitis (Henoch-Schönlein purpura): Clinical manifestations and diagnosis".)

- **Hepatitis** – Hepatitis typically causes jaundice, mild abdominal pain, and fever, but young children in particular may be afebrile and/or anicteric. The incidence of hepatitis A and B infections among children has declined since the introduction of effective vaccines. (See "Overview of hepatitis A virus infection in children" and "Overview of hepatitis B virus infection in children and adolescents" and "Approach to the patient with abnormal liver biochemical and function tests".)

- **Sickle cell vasoocclusive crisis** – Sickle cell syndromes are typically associated with acute painful episodes that may manifest as abdominal pain. Patients must always be carefully evaluated for other causes of abdominal pain, including life-threatening diagnoses. (See "Overview of the clinical manifestations of sickle cell disease", section on 'Acute painful episodes' and "Overview of variant sickle cell syndromes".)

- **Neoplasms** – Malignant solid tumors may present with abdominal pain and abdominal mass. Wilms' tumor and neuroblastoma occur more commonly in infants, whereas leukemic or lymphomatous involvement of the liver, spleen, or retroperitoneal lymph nodes occurs more often in older children. Other causes include hepatic tumors, ovarian tumors, Burkitt lymphoma, and soft tissue sarcomas. (See "Clinical assessment of the child with suspected cancer", section on 'Abdominal masses'.)

- **Urolithiasis** – Nonspecific abdominal pain is typical as a presenting feature of urolithiasis among young children. In comparison, adolescents are more likely to experience colicky flank pain [21,22]. Hematuria and urinary tract infection are other frequent manifestations of urolithiasis among children.

- **Testicular torsion** – Testicular torsion causes scrotal pain that may radiate to the abdomen. Patients may have associated nausea, vomiting, and fever. The affected testis usually is tender, swollen, and slightly elevated because of shortening of the cord from twisting. It may be lying horizontally, displacing the epididymis from its normal posterolateral position. A careful genitourinary examination should be performed in all males with abdominal pain, as the pain is often referred, and a history of scrotal pain may not always be disclosed by the patient. (See "Causes of scrotal pain in children and adolescents", section on 'Testicular torsion'.)

- **Ovarian torsion** – Ovarian torsion typically develops as the result of an ovarian mass or cyst but may occur in isolation. Although more common in postmenarchal girls, it may be seen in premenarchal girls with an ovarian mass. Nausea and vomiting frequently occur. Partial or intermittent ovarian torsion typically presents as intermittent severe, adnexal abdominal pain associated with an adnexal mass. (See "Ovarian and fallopian tube torsion", section on 'Epidemiology and risk factors' and "Ovarian and fallopian tube torsion", section on 'Clinical presentation'.)

- **Poisoning** – Toxins that are associated with abdominal pain include lead and iron. Lead poisoning is usually the result of chronic ingestion and causes intermittent abdominal pain. By contrast, iron poisoning is typically an acute ingestion with other gastrointestinal symptoms, such as vomiting and diarrhea. (See "Childhood lead poisoning: Clinical manifestations and diagnosis" and "Acute iron poisoning".)

- **Acute porphyrias** – Acute porphyrias present with a variety of nonspecific neurovisceral symptoms (eg, abdominal pain, psychiatric disorders, neurologic symptoms), the most common of which is abdominal pain. These can include potentially life-threatening neurological effects (eg, seizures, coma, bulbar paralysis) and are associated with elevations in the porphyrin precursors delta-aminolevulinic acid (ALA) and porphobilinogen (PBG). Symptoms usually occur as acute attacks, but are sometimes chronic. (See "Pathogenesis, clinical manifestations, and diagnosis of acute intermittent porphyria", section on 'Clinical manifestations'.)

- **Familial Mediterranean fever** – Familial Mediterranean fever is characterized by episodic attacks of fever lasting one to three days and accompanied in most cases by abdominal pain, pleurisy, and arthralgias or arthritis, the result of accompanying serositis and synovitis. Attacks are accompanied by an elevation in peripheral white blood cell count and acute phase markers, while fluid from inflamed joints exhibits a neutrophil-predominant leukocytosis. Persistent inflammation can lead to secondary (AA) amyloidosis. (See "Periodic fever syndromes and other autoinflammatory diseases: An overview".)

INFORMATION FOR PATIENTS — UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword(s) of interest.)

- Basics topics (see "Patient education: Acute abdomen (belly pain) (The Basics)" and "Patient education: Intussusception (The Basics)")

SUMMARY — Abdominal pain is one of the most common complaints in childhood and one that frequently requires urgent evaluation in the office or emergency department. Although the cause is typically a self-limited, minor condition, such as constipation, gastroenteritis, or viral syndrome, potentially life-threatening causes that require urgent treatment, such as appendicitis or bowel obstruction, must be promptly identified (table 1).

- Visceral abdominal pain is generally poorly localized. Once the parietal peritoneum becomes irritated (as occurs in appendicitis when the serosal surface becomes inflamed), pain may become more localized. Referred pain usually is located in the cutaneous dermatomes sharing the same spinal cord level as the visceral inputs. (See "Causes of abdominal pain in adults", section on 'Pathophysiology of abdominal pain'.)

- Life-threatening causes of abdominal pain often result in hemorrhage, obstruction, and/or perforation (such as occurs with trauma, intussusception, volvulus, or appendicitis). Extraabdominal causes (ie, hemolytic uremic syndrome and myocarditis) usually have other distinguishing clinical features. (See 'Life-threatening causes' above.)

- Common causes of abdominal pain include constipation, gastrointestinal (GI) infections, infections outside of the GI tract, and colic. (See 'Common causes' above.)

- Less common GI conditions (ie, inflammatory bowel disease, pancreatitis, cholecystitis, intraabdominal abscess, dietary milk protein allergy, malabsorption, and Meckel's diverticulum) and conditions outside of the GI tract (ie, diabetic ketoacidosis, painful crisis with sickle syndromes, immunoglobulin A vasculitis (Henoch-Schönlein purpura), tumors, urolithiasis, ovarian torsion, testicular torsion, and some toxic ingestions) can present with abdominal pain. (See 'Other causes' above.)

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