

Lower Abdominal Pain



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KEYWORDS

- Review • Appendicitis • Diverticulitis • Crohn's disease • Ulcerative colitis
- Inflammatory bowel disease

KEY POINTS

- Diseases of the lower abdominal tract usually cause lower abdominal pain but, because of the path of the colon, can cause pain throughout the abdomen.
- Computed tomography (CT) is useful for evaluating lower abdominal tract disease; because of radiation and contrast risks, its use should be avoided when alternatives exist.
- Ultrasonography and MRI may be alternatives to CT, but have drawbacks including variable sensitivity (ultrasonography) and availability (MRI and sometimes ultrasonography).
- Appendicitis generally requires admission and operative intervention.
- Diverticulitis and inflammatory bowel disease can frequently be managed on an outpatient basis, but may require admission and surgical consultation.

It is important for the emergency physician to have a sound understanding of diseases of the lower intestinal tract. Although most frequently presenting with lower abdominal pain, appendicitis, colitis, and diverticulitis can cause pain throughout the abdomen as the colon runs through all 4 quadrants. The track of the colon also means that these diseases cause both peritoneal and retroperitoneal symptoms. This article focuses on the key diagnostic and management issues pertaining to appendicitis, inflammatory bowel disease, and diverticulitis. Infectious and ischemic colitis are discussed elsewhere.

ACUTE APPENDICITIS

Epidemiology

Acute appendicitis shows significant variability in age, race, gender, and seasonality. The peak incidence occurs between 10 and 19 years of age.^{1,2} The incidence is lowest

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between 0 and 4 years and older than 50 years.^{1,2} Appendicitis affects both men and women with a slight predominance in men^{1,2} and is more common in Caucasians and Hispanics than it is in African Americans or Asians.² Appendicitis has seasonal variability as well, with a higher incidence in summer months.¹⁻⁵

Perforation rates are greatest at the extremes of age; patients less than 4 years old and greater than 60 years old develop perforation in 60% to 70% of cases. In comparison, perforation rates are 20% to 30% between 5 and 29 years of age.²

The incidence of negative appendectomy has decreased significantly with the advent of computed tomography (CT). Although the classically accepted negative appendectomy rate was 15% to 25%, recent negative appendectomy rates are as low as 1.7%.⁶ The dependence on CT to drive operative intervention means the rate of imaging has increased significantly. At one institution, between 1990 and 2007 the percentage of patients undergoing CT before appendectomy went from 1% to 97.5%.⁶

Disparities

Racial and economic disparities are common in acute appendicitis. However, causes for these disparities have not been determined and may be due to accelerated disease progression, delayed presentation to medical care, and/or provider bias. A retrospective review of approximately 1.6 million appendectomies performed in the United States between 2003 and 2011 showed that African American patients were more likely to have acute complications than Caucasian patients. Also, patients with public insurance were more likely to have acute complications than those with private.⁷

A pediatric retrospective study that adjusted for age, perforation, hospital type, use of laparoscopy, insurance status, household income, and time from admission to appendectomy showed that African American children were more likely than Caucasian children to experience a complication.⁸ African American and Hispanic children were more likely than Caucasian children to present with perforation (27% and 31% vs 23%).⁸

Symptoms

Classic appendicitis

Approximately 50% of acute appendicitis cases demonstrate the classic presentation of poorly localized periumbilical pain migrating to the right lower quadrant associated with anorexia, low-grade fever, and leukocytosis.⁹ Rebound (69.5%), guarding (47.6%), psoas sign (12.6%), and obturator sign (7.7%) may or may not be present.^{10,11} No single historical component or examination finding is sufficient for ruling in or out appendicitis. Migrating pain, rigidity, and the psoas sign are most specific for appendicitis.¹⁰

Atypical appendicitis

Unusual locations of the appendix within the abdomen may lead to atypical findings on examination. Retrocecal and retroileal appendicitis does not cause the classic migratory pain. Retrocecal appendicitis may present with right-sided low back pain. Tenderness and guarding may be decreased or absent because of protection from the overlying colon. Psoas sign may be present.⁹ Uncomplicated appendicitis causing hip pain and a limp owing to psoas irritation have also been reported.¹² Retroileal appendicitis may present with nonspecific and hard to localize discomfort. Because of ileal irritation, vomiting and diarrhea may predominate.⁹ Pelvic appendicitis may cause pain in the left lower quadrant. If the appendix abuts the bladder or ureter, it

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