

A 24-year-old man comes to the emergency department with a week of abdominal pain. It is localized in the right lower quadrant and exacerbated somewhat by motion. Over the past 2 days, the pain has radiated to the back. The patient initially had 2 episodes of vomiting and now has decreased appetite. He has no increased urinary frequency. His other medical problems include mild intermittent asthma and gastroesophageal reflux disease. One month ago, he traveled to Mexico for 5 days; he had no gastrointestinal symptoms during his stay. His mother was diagnosed with colon cancer at age 49. His temperature is 38.2 C (100.8 F), blood pressure is 122/77 mm Hg, and pulse is 109/min and regular. Physical examination shows moderate tenderness in the right lower quadrant, without rebound. Passive extension of the right hip with the patient in the left lateral decubitus position elicits significant abdominal pain. Laboratory results are as follows:

White blood cells	16,000/ $\mu$ L
Hemoglobin	14.2 g/dL
Platelets	520,000/ $\mu$ L
Potassium	4.5 mEq/L
Creatinine	1.0 mg/dL

Which of the following is the most likely diagnosis?

- ☐ A. Appendiceal abscess
- ☐ B. Colonic malignancy
- ☐ C. Complicated pyelonephritis
- ☐ D. Inflammatory bowel disease
- ☐ E. Parasitic colitis

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Which of the following is the most likely diagnosis?

- ☒ A. Appendiceal abscess [90%]  
☐ B. Colonic malignancy [0%]  
☐ C. Complicated pyelonephritis [1%]  
☐ D. Inflammatory bowel disease [1%]  
☐ E. Parasitic colitis [7%]

Proceed to Next Item

Explanation:

User Id: [redacted]

Most patients with acute appendicitis will seek medical care within the first 24-48 hours of symptoms. Typical features include migratory (vague periumbilical to sharp right lower) abdominal pain, fever, nausea, vomiting, and anorexia. These patients may have signs of irritation of the parietal peritoneum (ie, rebound tenderness, involuntary guarding, abdominal rigidity) due to increasing inflammation and rupture, or associated purulent



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Patients who have a delayed presentation with a longer duration of symptoms (>5 days, as in this patient) often have appendiceal rupture with a **contained abscess**. These patients will generally have significant fever and leukocytosis, but findings on anterior palpation of the abdomen may be unrevealing. In such cases, **maneuvers that assess the deep abdominal spaces** (eg, **psoas sign**, obturator sign, rectal examination) may be more informative. In particular, the psoas sign suggests the presence of an abscess posterior to the appendix adjacent to the psoas muscle (or possibly an unruptured retrocecal appendix). Computed tomography imaging can confirm the diagnosis in these cases. Patients with a contained appendiceal abscess have a very high complication rate from immediate surgery due to the mass of inflamed, infected, and friable debris and adhesions. If they are otherwise clinically stable, these patients should be managed with intravenous antibiotics, bowel rest, and possibly percutaneous drainage of the abscess. They can return in 6-8 weeks for appendectomy on an elective basis ("interval appendectomy").

**(Choice B)** Colonic malignancy is possible given this patient's family history, but is rare in his age group. Colon cancer more typically presents with anemia, constipation, and weight loss.

**(Choice C)** Complicated pyelonephritis typically presents with fever, flank pain, and dysuria. Physical examination usually does not show the psoas sign, which is seen in this patient.

**(Choice D)** Besides fever and abdominal pain, inflammatory bowel disease usually presents with prolonged episodes of diarrhea, which this patient does not have. Patients with ulcerative colitis typically also have gross rectal bleeding.

**(Choice E)** Parasitic colitis typically presents more acutely after travel to an endemic area, with many episodes of diarrhea (the predominant symptom) and fever. The psoas sign is not typically seen in patients with parasitic infection.

**Educational objective:**



Patients who have a delayed presentation with a longer duration of symptoms ( $>5$  days, as in this patient) often have appendiceal rupture with a **contained abscess**. These patients will generally have significant fever and leukocytosis, but findings on anterior palpation of the abdomen may be unrevealing. In such cases, **maneuvers that assess the deep abdominal spaces** (eg, **psoas sign**, obturator sign, rectal examination) may be more informative. In particular, the psoas sign suggests the presence of an abscess posterior to the appendix adjacent to the psoas muscle (or possibly an unruptured retrocecal appendix). Computed tomography imaging can confirm the diagnosis in these cases. Patients with a contained appendiceal abscess have a very high complication rate from immediate surgery due to the mass of inflamed, infected, and friable debris and adhesions. If they are otherwise clinically stable, these patients should be managed with intravenous antibiotics, bowel rest, and possibly percutaneous drainage of the abscess. They can return in 6-8 weeks for appendectomy on an elective basis ("interval appendectomy").

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#### Educational objective:

Patients who present with appendicitis  $>5$  days after the onset of symptoms have a high incidence of perforation with abscess formation. They often have a contained abscess. If the patients are otherwise stable, they may be treated with intravenous hydration, antibiotics, bowel rest, and interval appendectomy.

#### References:

1. [The natural history of appendicitis in adults. A prospective study.](#)
2. [Appendiceal abscess: immediate operation or percutaneous drainage?](#)



Media Exhibit

tion signs in appendicitis

Examination signs in appendicitis		
Sign	Findings	Significance
<b>Peritoneal signs</b> <ul style="list-style-type: none"> <li>• Rebound tenderness</li> <li>• Involuntary guarding</li> <li>• Abdominal rigidity</li> </ul>	<p>Acute increase in pain after removing the hand from applying pressure</p> <p>Tensing of abdominal wall muscles during palpation of abdomen</p> <p>Persistent tension of abdominal wall muscles</p>	Peritoneal irritation (rupture or impending rupture)
<b>Psoas sign</b>	RLQ pain with extension of right thigh	Abscess adjacent to psoas or retrocecal appendix
<b>Obturator sign</b>	RLQ pain with internal rotation of right thigh	Pelvic appendix or abscess
<b>Rovsing's sign</b>	RLQ pain with LLQ palpation & retropulsion of colonic contents	Acute appendicitis
<b>Rectal tenderness</b>	Right pelvic pain during rectal examination, especially with pressure on right rectal wall	Pelvic appendix or abscess

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