

Brooks Laselle, MD
Jeremy Seelinger Devey, MD,
MPH
John L. Kendall, MD

From the Department of Emergency Medicine, Denver Health Medical Center, Denver, CO.

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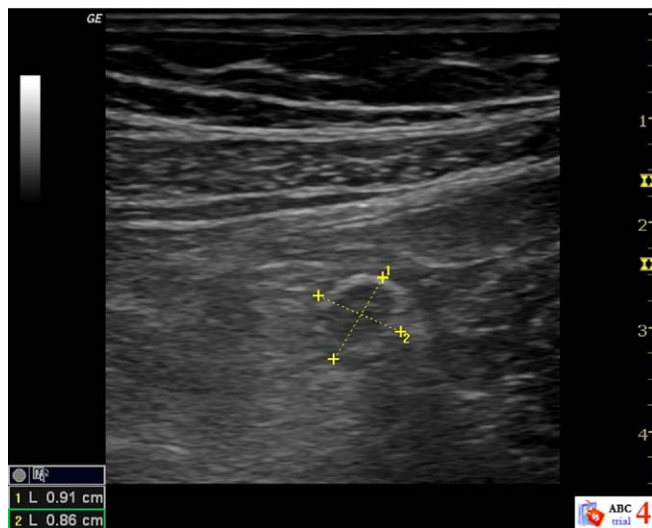


Figure 1. Noncompressible right lower quadrant abdominal structure with surrounding fluid; cross-sectional view.

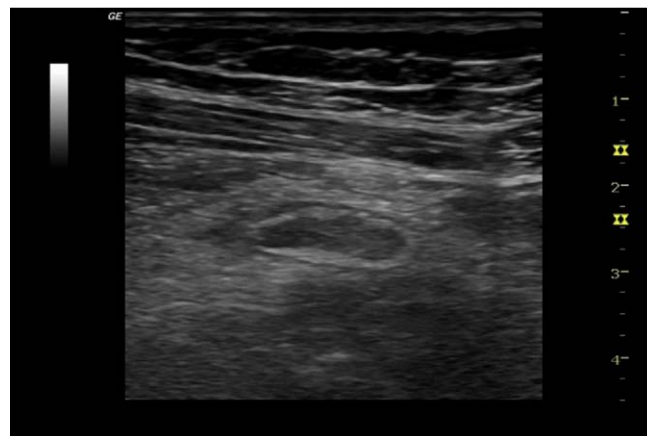


Figure 2. The same structure in longitudinal view. Used with permission of Jeremy Seelinger Devey, MD, MPH, Brooks Laselle, MD, John L. Kendall, MD, Department of Emergency Medicine, Denver Health Medical Center, Denver, CO.

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A 19 year-old woman presented to the emergency department complaining of 20 hours of right-sided lower abdominal pain. Her vital signs were normal. Physical examination was significant for right lower quadrant tenderness that localized to McBurney's point and rebound tenderness without guarding. The pelvic examination was unremarkable. Her laboratory evaluation, including CBC count, basic metabolic levels, hepatic function panel, lipase levels, and urinalysis were notable only for a leukocytosis of 13,100 cells per microliter. A urine pregnancy test result was negative. Ultrasonographic images were obtained (Figures 1 and 2).

*For the diagnosis and teaching points, see page e9.
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DIAGNOSIS:

Acute appendicitis. Sonographic findings consistent with acute appendicitis include visualization of a blind-ended, noncompressible, tubular structure, 6 mm or greater in diameter, that lacks peristalsis. Secondary signs include tenderness over the appendix on compression, wall thickness greater than 2 mm, hyperemia with color-flow Doppler, periappendiceal fluid, and visualization of a shadowing appendicolith.^{1,2} Sensitivity varies greatly for the sonographic diagnosis of appendicitis. In the hands of emergency physicians, sensitivity ranges from 39% to 96%, whereas the radiology literature reports sensitivities of 75% to 90%.³⁻⁷ A meta-analysis of 9,356 children and 4,341 adults demonstrated sensitivities of 88% and 83% and specificities of 94% and 93%, respectively.⁸ The ability to visualize a normal appendix with sonography ranges from 2.4% to 98%.^{9,10}

This patient was treated with a second-generation cephalosporin and promptly taken to the operating room, where an open appendectomy was performed without complications. Diagnosis was confirmed by visual inspection and pathologic analysis. No perforation was noted. The patient had an uneventful postoperative course and was discharged home on the same day.

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