Infected Urachal Cyst Masquerading as Acute Appendicitis on Point-of-care Ultrasound

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CASE PRESENTATION: A seven-year-old male presented to the pediatric emergency department with one day of abdominal pain. His physical exam was significant for rebound, guarding, and tenderness in the right lower quadrant, and his labs demonstrated a leukocytosis. Both a point-of-care ultrasound and radiology-performed ultrasound were concerning for acute appendicitis with a periappendiceal abscess, but on emergent laparoscopy the patient was found to have an infected urachal cyst.

DISCUSSION: Infected urachal remnants are a rare but important cause of pediatric abdominal pain. In this case, inflammation surrounding the patient’s midline urachal cyst triggered a serositis that involved the appendix and pulled the cyst to the right. This created a clinical and radiologic presentation similar to appendicitis. This atypical presentation of an already rare anomaly highlights the importance of maintaining a broad differential during the work-up of pediatric abdominal pain. [Clin Pract Cases Emerg Med. 2022;6(2):186–188.]

KEYWORDS: urachal cyst; point-of-care ultrasound (POCUS); appendicitis; case report.
DISCUSSION

Urachal remnants arise when the urachus, an embryonic tract between the allantois and the bladder, does not involute. The most common result is a urachal cyst, which forms when either end of the urachus seals off but the middle remains patent, fills with fluid, and can become infected with urologic flora. Most cysts are asymptomatic and go undiagnosed until they become infected or appear incidentally on imaging. Several case series have highlighted the utility of sonography as a screening modality for uncomplicated urachal remnants, but the diagnostic sensitivity and specificity, especially for infected remnants, remains undefined. To our knowledge, there is only one other report demonstrating the utility of point-of-care ultrasound to diagnose infected urachal cysts.

A urachal cyst typically appears on ultrasound and computed tomography as a non-communicating, fluid-filled pocket between the umbilicus and the bladder. When infected, these cysts are associated with a variety of sonographic and clinical findings based on their size, effect on surrounding tissue, and location of patient pain. While infected urachal cysts typically present with periumbilical pain because they are midline, surrounding inflammation can trigger a serositis that moves the cyst from midline. As demonstrated in this case, the resulting parietal peritonitis caused adhesion of the cyst to the tip of the appendix that pulled the cyst right, presented as right lower quadrant pain, and created sonographic findings that are more typically associated with appendicitis. This case demonstrates the importance of adequately imaging structures in multiple planes, as well as the importance of maintaining a broad differential during the work-up of pediatric abdominal pain to evaluate for common etiologies and rare congenital anomalies.
**Video:** Point-of-care ultrasound performed with a high-frequency linear probe demonstrating a heterogeneous collection superior and to the right of the urinary bladder, closely approximated with the distal tip of the appendix, and surrounded by significant inflammatory change and posterior acoustic enhancement.

This case, including its video and images, was presented at the Pediatric Emergency POCUS Educational Collaborative Virtual Session on February 25, 2021.

The authors attest that their institution requires neither Institutional Review Board approval, nor patient consent for publication of this case report. Documentation on file.

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**REFERENCES**