

non-obstetric surgical emergency in pregnant patients, it is a critical diagnosis to exclude.³

MRI has a reported sensitivity of 100% and specificity of 93.6% for diagnosing acute appendicitis in the pregnant patient, without exposure to ionizing radiation.⁴ Described MR imaging features of acute appendicitis include an appendiceal diameter greater than 7 mm, an appendiceal wall thickness > 2mm, increased T2 signal representing fluid within the lumen of the appendix, and periappendiceal soft tissue inflammation.⁴ The retrocecal location of the appendix likely accounts for the somewhat atypical location of the right-sided abdominal pain in this patient.

Finally, MRI not only confidently diagnoses or excludes appendicitis, but can simultaneously evaluate other com-

mon, potential causes of abdominal pain in pregnant patients such as gallstones, choledocholithiasis and nephrolithiasis. At our institution, MRI is currently available at all times to diagnose or exclude the presence of appendicitis in pregnant patients during any trimester without the need for IV contrast.

REFERENCES

1. Anderson B, TF N. Appendicitis in Pregnancy: diagnosis, management, and complications. *Acta Obstet Gynecol Scand.* 1999;78:758-762.
2. Cappell MS, Friedel D. Abdominal pain during pregnancy. *Gastroenterol Clin North Am.* Mar 2003;32(1):1-58.
3. Tracey M, Fletcher HS. Appendicitis in pregnancy. *Am Surg.* Jun 2000;66(6):555-559; discussion 559-60.
4. Pedrosa I, Levine D, Eyvazzadeh AD, Siewert B, Ngo L, Rofsky NM. MR imaging evaluation of acute appendicitis in pregnancy. *Radiology.* Mar 2006;238(3):891-9.

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Pediatric Omental Infarction

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AN 11 YEAR OLD MALE PRESENTED TO THE pediatric emergency department with acute onset abdominal pain worsening over 24 hours. He denied trauma, nausea, vomiting, or diarrhea. He had no significant medical history, including no prior surgeries, medications or hospitalizations.

Upon arrival to the pediatric emergency department, he was noted to be awake, alert and uncomfortable. His initial vital signs were: temperature 38.3°C, blood pressure 115/69 mm Hg, pulse 113 beats per minute, respiratory rate 20

per minute and oxygen saturation 100% while breathing room air. His weight, height and **Body Mass Index (BMI)** were 52 kg (115 lbs), 142 cm (56 inches) and 25.8, respectively. Physical examination revealed tenderness to palpation in the right lower quadrant without rebound, guarding, masses or peritoneal signs. Laboratory analyses demonstrated a white blood cell count of 15.9×10^3 per microliter, hemoglobin of 13.6 grams per deciliter, and platelet count of 317×10^3 per microliter. Lipase and liver function tests were normal. **Sonography (US)** of

the abdomen, pelvis and appendix was performed given clinical concern for acute appendicitis. The abdominal and pelvic US were normal and the appendix US was inconclusive.

Given persistent pain, leukocytosis, and continued clinical concern for acute appendicitis, pediatric appendix **Magnetic Resonance Imaging (MRI)** without contrast was performed in accordance with the imaging algorithm for suspected appendicitis at Hasbro Children's Hospital. The MRI demonstrated the patient's normal appendix, without dilation, mural



Figure 1. Coronal 3D T2-weighted TSE SPACE sequence from MRI. Omental infarct with adjacent inflammation (large arrow). Normal appendix (small arrow).

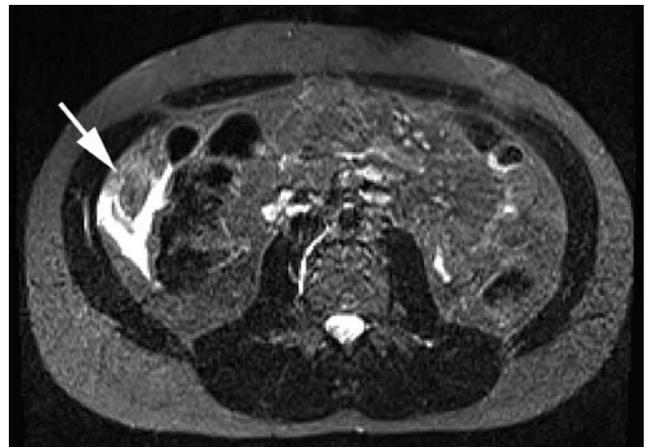


Figure 2. Axial STIR image from MRI. Omental infarct with surrounding inflammation and fluid (arrow).

thickening, intraluminal fluid, appendicolith or periappendiceal edema (Figure 1). The MRI demonstrated a focal region of heterogeneous fat with surrounding inflammation and fluid in the right side of the abdomen between the ascending colon and the abdominal wall (Figure 2). The adjacent right kidney, colon and small intestine were normal. The findings on MRI represent omental infarction.

The patient underwent conservative management with overnight hospital admission to the pediatric surgery service for pain control and observation. On the subsequent morning, the patient was tolerating a normal diet, ambulating, and had adequate pain control for discharge.

Omental infarction is a rare cause of pediatric right lower quadrant pain.¹⁻³ Children with omental infarction often present with acute pain localized to the right side of the abdomen.¹ It is typically a benign, self-limited condition, although it may heal with fibrosis and adhesions

leading to subsequent small bowel obstruction.¹ While the precise etiology is uncertain, omental torsion and venous thrombosis are potential causes.⁴ Obesity is a reported risk factor in the pediatric population.⁵ Therapy is typically conservative pain management, but controversy exists regarding the need for surgical resection given the potential for fibrosis and adhesions.⁵ While US may detect omental infarction, it is relatively insensitive.⁶ While **computed tomography (CT)** is sensitive for omental infarction and its appearance on CT is well known,²⁻⁴ MRI can exclude the presumptive clinical diagnosis of acute appendicitis and demonstrate omental infarction as well without the theoretical risks of radiation. Given the diagnostic capabilities of MRI and its lack of ionizing radiation, the utilization of MRI in pediatric patients with suspected appendicitis and inconclusive appendix US is likely to increase.

REFERENCES

1. Grattan-Smith JD, Blews DE, et al. Omental infarction in pediatric patients: sonographic and CT findings. *AJR*. 2002; 178(6):1537-9.
2. Helmrath MA, Dorfman SR, et al. Right lower quadrant pain in children caused by omental infarction. *Am J Surg*. 2001; 182(6):729-32.
3. Loh MH, Chui HC, et al. Omental infarction—a mimicker of acute appendicitis in children. *J Pediatr Surg*. 2005; 40:1224-6.
4. Puylaert JB. Right-sided segmental infarction of the omentum: clinical, US, and CT findings. *Radiology*. 1992; 185:169-72.
5. Sung T, Callahan MJ, et al. Clinical and Imaging Mimickers of Acute Appendicitis in the Pediatric Population. *AJR*. 2006; 186:67-74
6. Schlesinger AE, Dorfman SR, Braverman RM. Sonographic appearance of omental infarction in children. *Pediatr Radiol*. 1999; 29:598-601

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