Kemi Babagbemi, MD, and Keith D. Hentel, MD

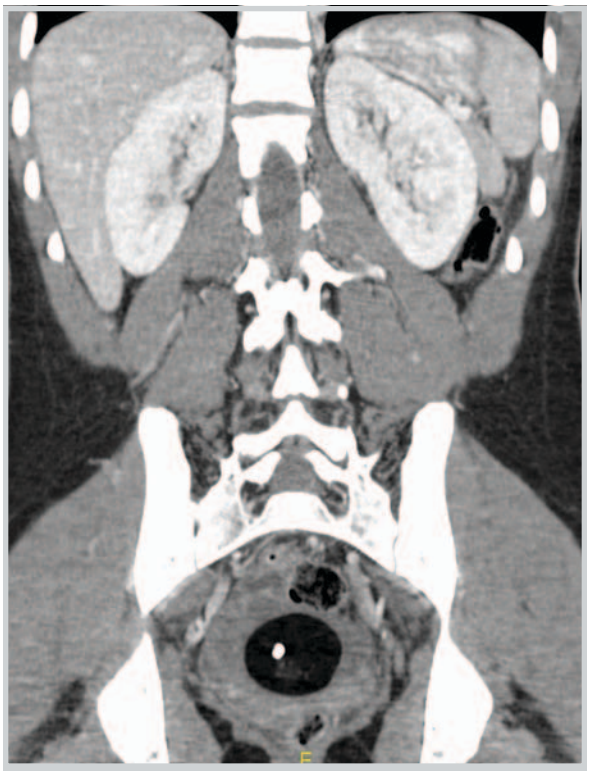

Figure 1

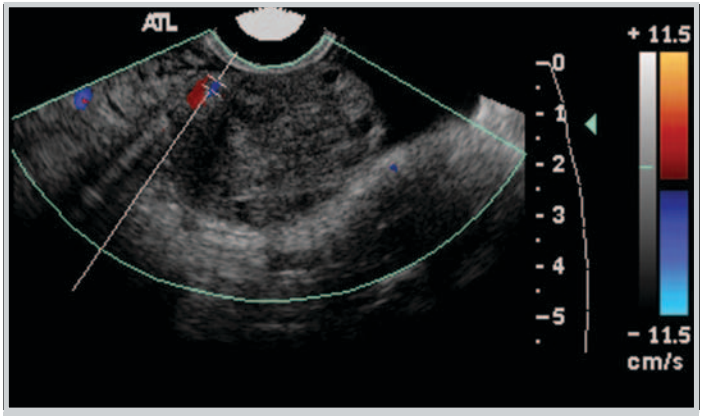

Figure 2

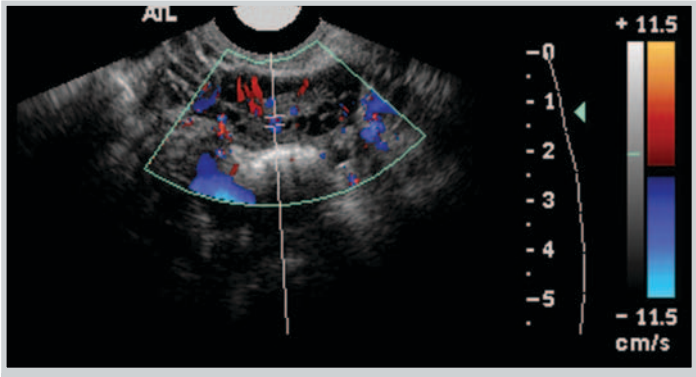

Figure 3

A 19-year-old woman presents to the emergency department with right lower quadrant abdominal pain. Physical examination reveals right lower quadrant/pelvic tenderness. A CT examination is ordered to evaluate for appendicitis. Figure 1 is an image from that examination. Because of an abnormality seen on the CT images, pelvic sonography is performed. Figure 2 is an image of the right ovary and Figure 3 is an image of the left ovary from the sonographic examination.

What is your diagnosis?

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ANSWER

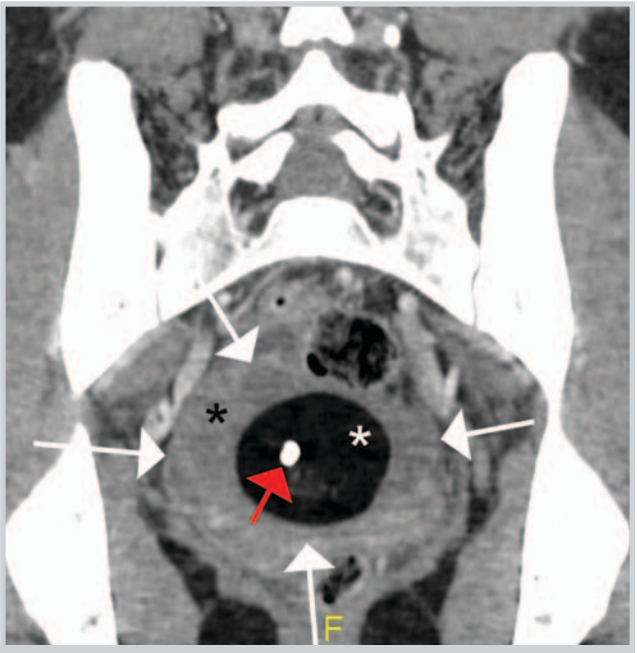

Figure 4

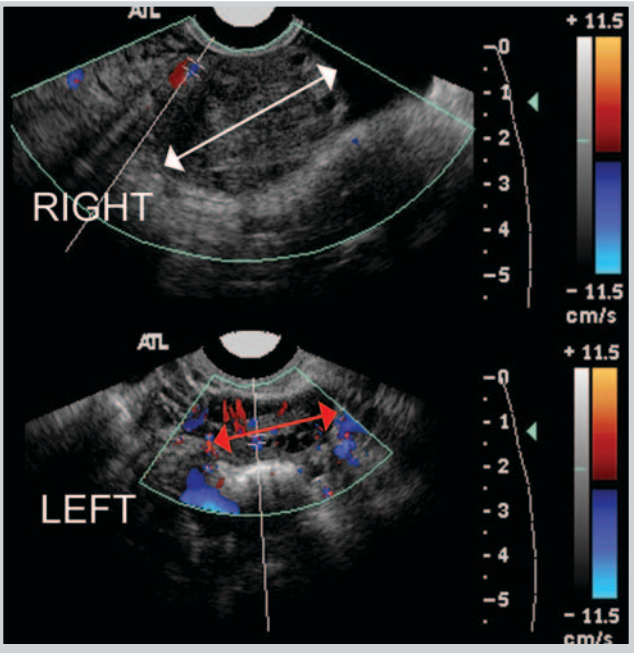

Figure 5

Although the appendix was normal (not shown in the image provided), CT reveals a mass lesion in the pelvis (white arrows, Figure 4) that has soft tissue (black asterisk), fat (white asterisk), and calcific (red arrow) components. The presence of these different tissue types in a single mass indicates that this is an ovarian teratoma (also known as *ovarian dermoid cyst*), a typically benign tumor of the ovary. In a patient with an ovarian mass and acute right lower quadrant/pelvic pain, ovarian torsion must be excluded.

When viewing the ultrasound image of the abnormal right ovary and the image of the normal left ovary (Figure 5), it is clear that the right ovary is enlarged (white arrow) compared to the left (red arrow) and that there is no vascular flow within the right ovary as no foci of color are seen on these color Doppler images. These ultrasound findings confirm the diagnosis of ovarian torsion.

Ovarian torsion essentially occurs as a result of twisting of the ovary and/or the adnexa around its vascular pedicle. This leads to a compromise of arterial and venous flow and can lead to infarction of the ovary. Ovarian torsion, therefore, represents a surgical gynecologic emergency. In fact, it is the fifth most common surgical gynecologic emergency,[1] and its prompt diagnosis is critical for preservation of the affected ovary. The classic clinical presentation of ovarian torsion is sharp, sometimes intermittent, and usually localizable pain in either the left or right pelvis that is associated with nausea and vomiting.[2] Clinically, however, the presentation of this process is variable and nonspecific, and often torsion cannot be differentiated from other causes of pelvic or lower abdominal pain. In a female patient with these symptoms, the differential diagnosis may include appendicitis, ureteral calculi, pelvic inflammatory disease, and even ectopic pregnancy. Ovarian torsion is characteristically associated with cysts or masses that act as the lead point for the rotation. The most common mass is a mature cystic teratoma,[3,4] as in this case. The associated masses are almost always benign.[3,4]

Ultrasound is the primary modality for assessment of the ovaries. However, due to the variability of the clinical findings and the overlap in the clinical presentation of other entities included in the differential diagnosis in a patient with pelvic pain, CT may in fact be the initial

test to be ordered in many patients. When this is the case, CT may demonstrate an enlarged, often edematous ovary, with or without an underlying mass.[5] CT performed with intravenous contrast may also show absent ovarian enhancement, deviation of the uterus to the affected side, engorged vessels, and thickening of the fallopian tube on the same side as the torsion.[6-8]

On ultrasound, the most reliable sign of ovarian torsion is asymmetric enlargement of the affected ovary. Other findings include peripheralization of the follicles and a coexistent mass. Lack of ovarian blood flow—particularly venous blood flow—is a sensitive and specific indicator of the presence of torsion.[5] It should be emphasized, however, that the presence of flow does not reliably exclude torsion,[5] and this finding should not be used to decide against surgical intervention when clinical suspicion for torsion is high.

The treatment of ovarian torsion involves emergent intraoperative detorsion. In order to prevent recurrence, unilateral, contralateral, or bilateral oophoropexy may be performed. **EM**

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