Is That a Tooth I See? Ovarian Teratoma on POCUS

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ABSTRACT

Ovarian teratomas (OT) are rarely first diagnosed in the emergency department (ED) setting. They are less likely to present with acute symptoms unless associated with more serious pathological conditions, such as ovarian torsion, which is considered a gynecological emergency that patients with OT are at risk of developing. We present a patient who complained of abdominal pain, and was diagnosed with an OT using Point-of-care ultrasound (POCUS).

KEYWORDS: Point-of-care ultrasound; POCUS; Teratoma; Ovarian Torsion

INTRODUCTION

Ovarian teratomas (OT), a germ cell tumor affecting younger women, are notable for their unique composition, containing tissues from all three germ layers. OTs have an estimated incidence between 1.2–14.2 cases per 100,000 people per year in the United States.[1-3] These tumors, while typically benign, have potential for complications such as ovarian torsion and teratoma rupture.[4-6] Malignant transformation is rare, estimated at less than 2%, but those with tumors >10cm or ascites are more likely to have metastatic disease.[7] Generally they are asymptomatic until they become quite large, and then they can be diagnosed on ultrasound, computer tomography or magnetic resonance imaging. Ultrasonographic evidence of OTs is highly variable. "Dots and lines" representing hair in a cystic lesion is the most common findings and echogenic white balls are also very common. They can be either unilocular or multilocular with mixed cystic contents.[8] In this case, we made the diagnosis of an OT using Point-of-care ultrasound (POCUS).

CASE PRESENTATION

A 19-year-old female with no past medical history, presented to the emergency department (ED) with one day of right lower quadrant (RLQ) abdominal pain. The pain progressed throughout the evening and night, and woke her from sleep. She states she had similar pain a month ago, while menstruating, and it resolved spontaneously.

On arrival at the ED, she endorsed 9/10 pain, associated with nausea and vomiting. The pain was stabbing in nature and worse with movement and defecation. In the ED, she received morphine, ketorolac and acetaminophen. She denied fever, chills, chest pain, shortness of breath, constipation, diarrhea, dysuria, or abnormal vaginal discharge.

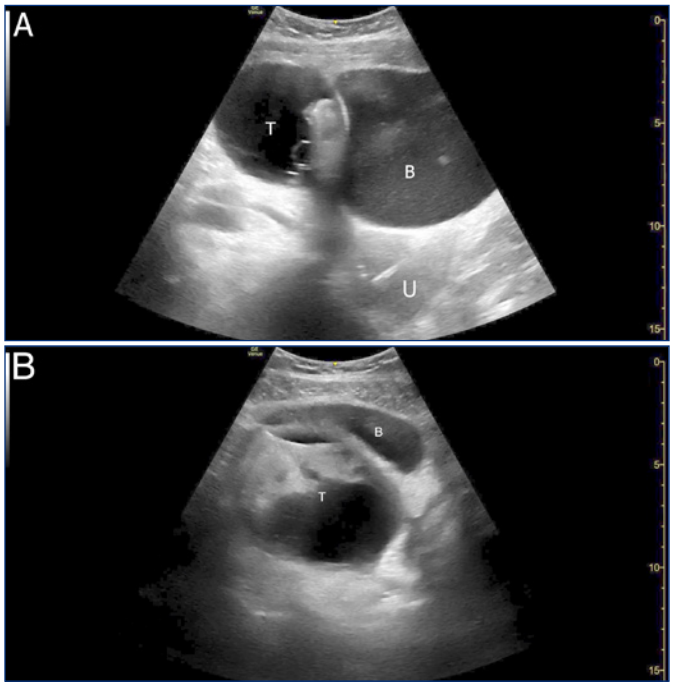
The patient had an intrauterine device placed two years prior to ED presentation and denied any current sexual activity or chance of pregnancy.

Physical examination was significant only for abdominal tenderness in the RLQ. Vital signs were within normal limits, and the patient appeared uncomfortable but not in acute distress.

Laboratory investigations, including beta-human chorionic gonadotropin (b-hCG), complete blood count (CBC), and chemistry panel, were unremarkable except for an elevated white blood cell count of 14.2 x109/L.

Point-of-care ultrasound (POCUS) was performed on the patient to assess for appendicitis. However, the POCUS showed a large cyst-like structure over the bladder with internal echogenicity and septation [**Figure 1**].

Figure 1. Point-of-care ultrasound showing cystic lesion which contains fat and calcifications typical of ovarian teratoma. [**A**] Sagittal view of the pelvis shows the teratoma superior to the bladder and uterus. Intrauterine device also visualized in the endometrium. [**B**] Axial view. [T-Teratoma, B-Urinary bladder, U-Uterus]



A computed tomography (CT) scan was obtained. The CT confirmed the diagnosis of teratoma measuring 7.4 x 8.1 x 9.2 cm with areas of fat and calcification [**Figure 2**].

A comprehensive ultrasound was performed, and revealed a mixed solid and cystic lesion, with fat and calcifications, typical of ovarian teratoma. Doppler imaging revealed that there was no internal blood flow and an apparent twisting of the vascular pedicle along the right pelvic sidewall giving an impression of an ovarian torsion caused by a cystic teratoma [**Figure 3**].

The patient was taken to the operating room and underwent a laparoscopic oophorectomy of the right ovary. The post-operative note reported a 13 cm dermoid cyst with torsion to the right ovary.

DISCUSSION

This case report shows the diagnosis of a right ovarian teratoma with ovarian torsion in a patient undergoing work-up for potential appendicitis. While ovarian teratomas are rare, they can present with abdominal pain from complications such as torsion of the ovary or rupture of the teratoma.

Figure 2. Computed-tomography (CT) scan showing complex pelvic mass of a cystic component (Teratoma) related to the right ovary with areas of fat and calcification. [**A**] Coronal view demonstrating the large sized mass sitting across the midline and superior to the bladder. [**B**] Sagittal view. Calcifications can be seen within the teratoma, anterosuperior to the uterus. Redemonstration of intrauterine device in the uterus.
[T-Teratoma, B-Urinary bladder, U-Uterus]

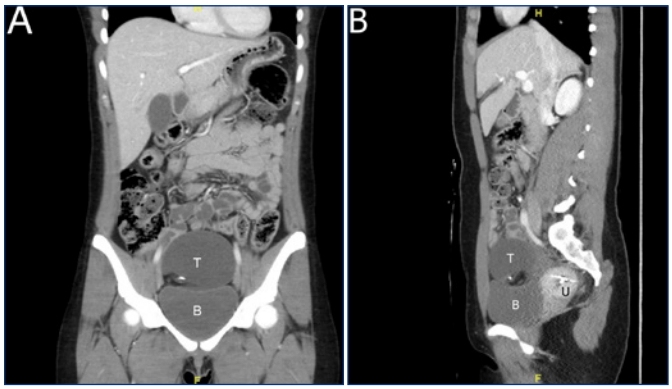
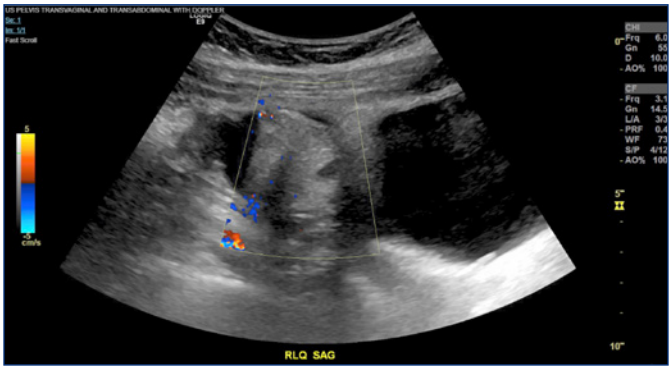


Figure 3. Comprehensive ultrasound (US). No flow is visualized to the right ovary using color doppler.



A teratoma can be identified on bedside ultrasound and appear as a complex mass with both cystic and solid components, including areas of fat, calcifications, and varying echogenicity. In addition, if the ovary is identified on POCUS, ovarian torsion, a surgical emergency, can be identified by lack of color flow with the potential to expedite disposition to the operating room. Early diagnosis encourages the commencement of treatment, which is known to have significant implications for the outcomes of patients.

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