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1. Clinical History

14 years old female patient with acute left lower quadrant abdominal pain.

2. Figures

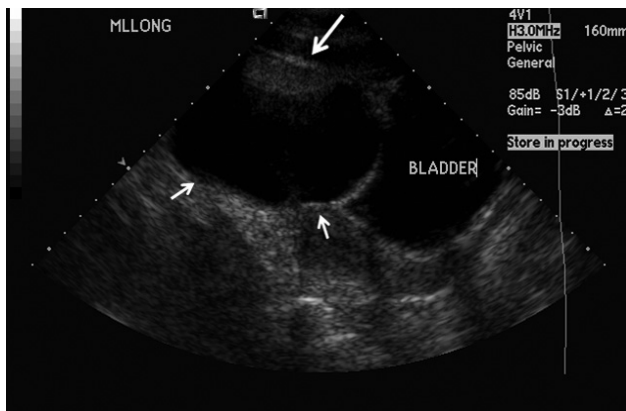


Figure 1A

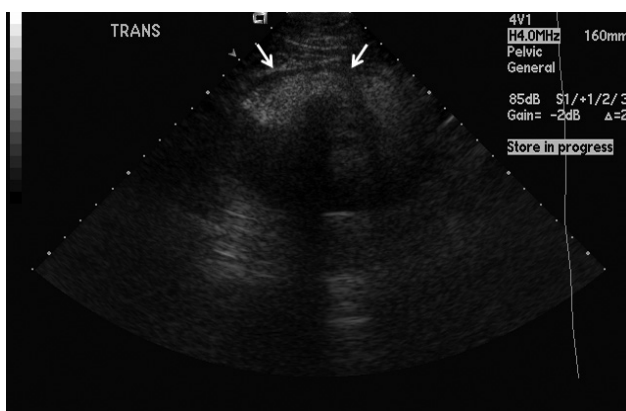


Figure 1B

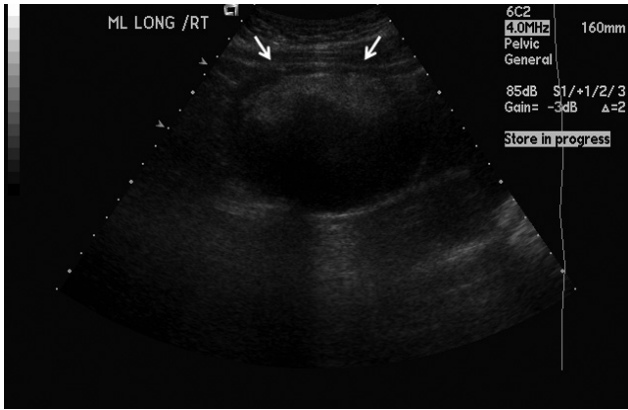


Figure 1C

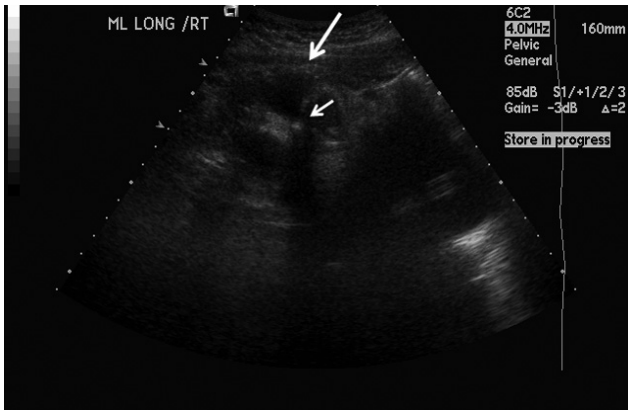


Figure 1D

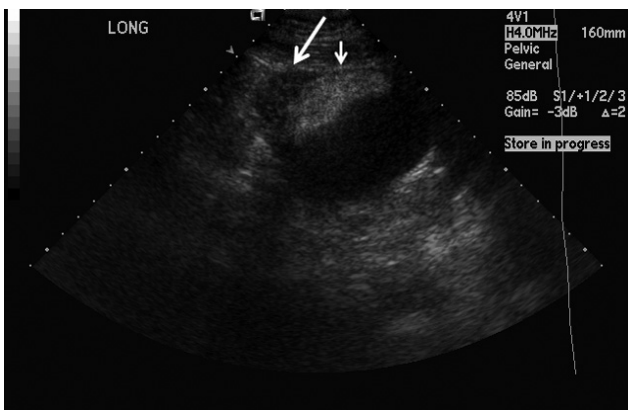


Figure 1E

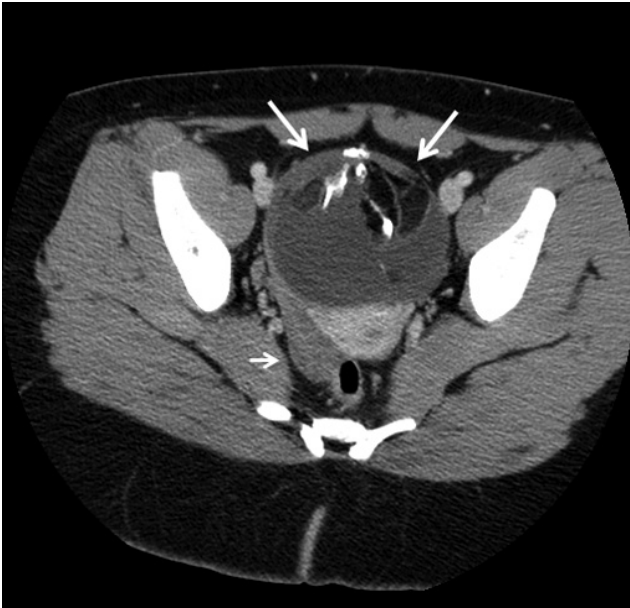


Figure 2A



Figure 2B

3. Figure Legends

Figure 1. A, Longitudinal ultrasound image of the pelvis shows a cystic mass (small arrows) with solid internal component (large arrow) located superior to the urinary bladder. Transverse (B) and longitudinal (C) views of the mass demonstrate an echogenic region with posterior

shadowing within the mass (arrows). D, Another longitudinal view of the mass (large arrow) shows an echogenic focus with posterior acoustic shadowing in the mass (small arrow). E, Another longitudinal view of the mass shows the complex solid component in the anterior aspect of the mass composed of areas with different echogenicity. The right ovary appeared normal and the left ovary was not seen (not shown).

Figure 2. Axial (A) and coronal (B) views of the pelvis show a large cystic mass containing fat and calcification (large arrows). A normal right ovary is seen (2A, short arrow). The left ovary was not seen.

4. Diagnosis

Mature ovarian cystic teratoma (dermoid cyst).

5. Discussion

Mature cystic teratoma (also known as dermoid cyst) is the most common germ cell neoplasm and also the most common ovarian neoplasm [1]. It is usually unilateral, but 10% to 20% are bilateral. [2] The mean patient age is 30 years. Most dermoid cysts are asymptomatic. Abdominal pain or other nonspecific symptoms occur in the minority of patients [1]. These masses contain a variety of internal components consisting of fat, skin, teeth, and hair [3].

Most mature cystic teratomas can be diagnosed at US. Three manifestations occur most commonly. The most common manifestation is a cystic lesion with a densely echogenic tubercle (Rokitansky nodule) projecting into the cyst lumen. The second manifestation is a diffusely or partially echogenic mass with the echogenic area usually demonstrating sound attenuation owing to sebaceous material and hair within the cyst cavity. The third manifestation consists of multiple thin, echogenic bands caused by hair in the cyst cavity. Fluid-fluid levels result from sebum floating above aqueous fluid. The dermoid plug is echogenic, with shadowing due to adipose tissue or calcifications within the plug or to hair arising from it [1, 2, 4].

The diagnosis of mature cystic teratoma at CT is fairly straightforward because this modality is more sensitive for fat. At CT, fat attenuation within a cyst, with or without calcification in the wall, is diagnostic for mature cystic teratoma. A floating mass of hair can sometimes be identified at the fat–aqueous fluid interface [1].

Mature cystic teratoma can be associated with complications from rupture, malignant degeneration, or most commonly torsion. Mature cystic teratomas affected by torsion are larger than average (mean diameter, 11 cm versus 6 cm). Findings suggestive of torsion include deviation of the uterus to the twisted side and engorged blood vessels on the twisted side [1].

The tumors can rupture, causing leakage of the liquefied sebaceous contents into the peritoneum and resulting in granulomatous peritonitis. However, this is a rare complication, occurring in less than 1% of cases. Malignant transformation of mature cystic teratoma is a rare complication. It

has an imaging appearance of a sebaceous lipid component as well as a heterogeneous solid component protruding into the cavity or extending transmurally into adjacent organs [1].

MRI may also be utilized to characterize the mass without risk of radiation to the patient.

6. References

1. Outwater EK, Siegelman ES, Hunt JL. Ovarian teratomas: Tumor types and imaging characteristics. *Radiographics*. 2001; 475-490.
2. Female pelvis. In: Siegel MJ. *Pediatric sonography* 4th Ed. Philadelphia: Lippincott Williams & Wilkins, 2011: 509-553.
3. Gynecologic sonography. In: Fleischer AC, Toy EC, Lee W, Manning FA, Romero R. *Sonography in obstetrics and gynecology: Principles and practice* 7th Ed. New York: McGraw-Hill, 2010: 889.
4. Patel MD, Feldstein VA, Lipson SD, Chen DC, Filly RA. Cystic teratomas of the ovary: Diagnostic value of sonography. *AJR*. 1998; 1061-1065.

7. Authors

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8. Institution

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