

AMSER Case of the Month

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14-year-old female with acute left lower quadrant pain

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Patient Presentation

- 14-year-old G0 female with bilateral sensorineural hearing loss (R: complete, L: partial), s/p cochlear implant who presented to ED with acute, progressively worsening left lower quadrant pain
 - Pain onset: began while moving furniture, sharp, worsened with movement
 - Associated with decreased oral intake and one episode of emesis
- Past surgical history: No relevant past surgical history
- Medications prior to transfer: IV morphine, ondansetron, diphenhydramine
- Physical Exam: Left lower quadrant tenderness; pelvic exam deferred
- Urine hCG: Negative

Pertinent Labs

CMP (05/22/26)

Sodium:	135 (L)
Potassium:	3.9
BUN:	11
Creatinine:	0.6
Glucose:	73
Calcium:	9.5
Total Bilirubin:	1.6 (H)
Total Protein:	7.7
Albumin:	4.3
AST / ALT:	19 / 7
Lipase:	16

CBC (05/22/26)

WBC:	21.99 (H)
Hemoglobin:	13.1
Hematocrit:	38.6
Platelet Count:	457 (H)
Neutrophils %:	78.9 (H)
Lymphocytes %:	13.8 (L)
ANC:	17.33 (H)
Monocytes #:	1.44 (H)
Urine hCG:	Negative

BMI: 27.29 (H)

(H) = Abnormally High (L) = Abnormally Low

What Imaging Should We Order?

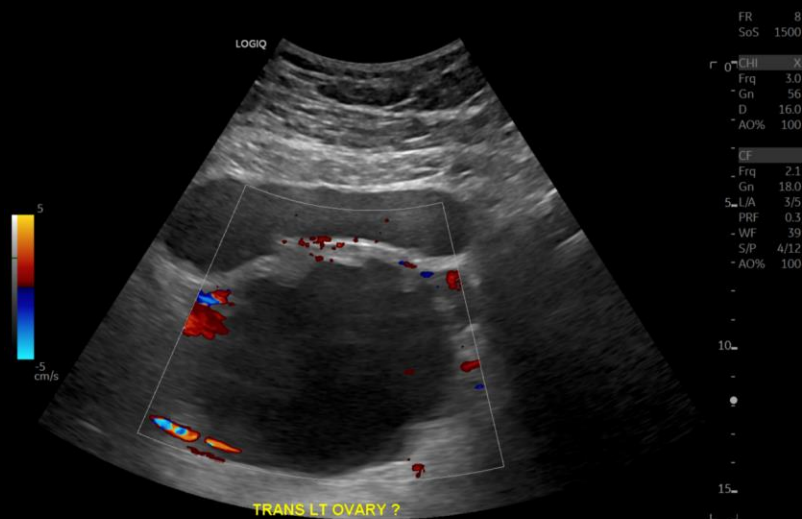
ACR Appropriateness Criteria

Variant: Acute pelvic pain in the reproductive age group. Gynecological etiology suspected, β -hCG negative (either serum or urine). Initial imaging⁹

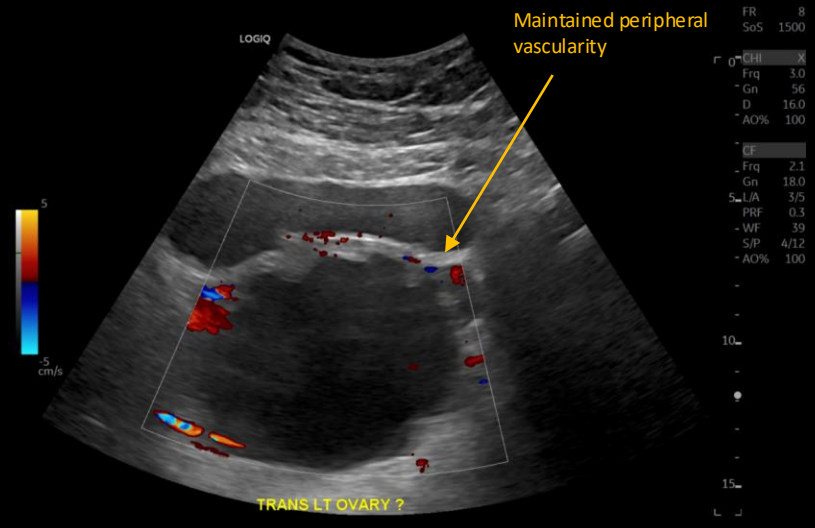
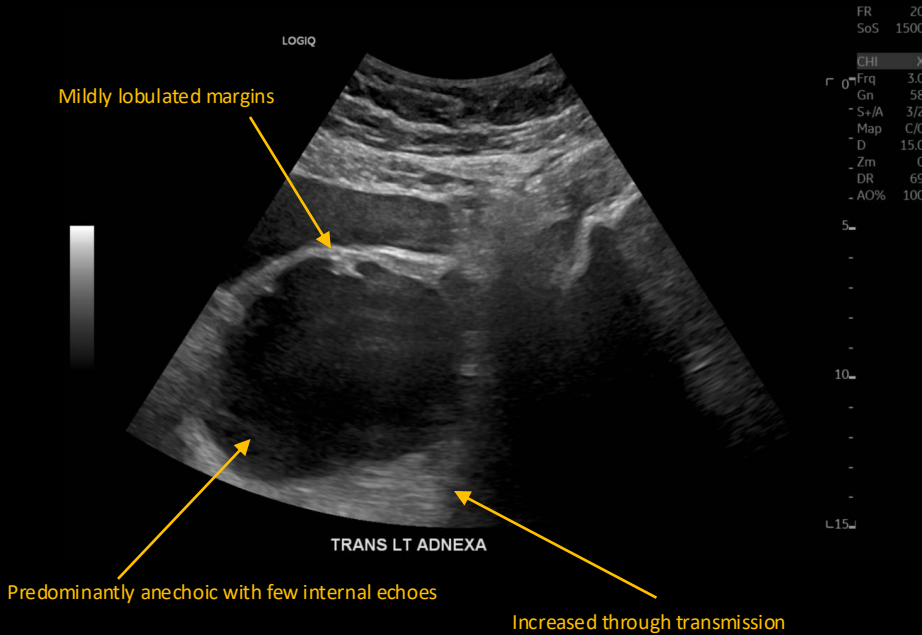
Procedure	Appropriateness Category
US duplex Doppler pelvis	Usually Appropriate
US pelvis transabdominal	Usually Appropriate
US pelvis transvaginal	Usually Appropriate
MRI pelvis without and with IV contrast	May Be Appropriate
MRI pelvis without IV contrast	May Be Appropriate
CT abdomen and pelvis with IV contrast	May Be Appropriate
MRI abdomen and pelvis without and with IV contrast	Usually Not Appropriate
MRI abdomen and pelvis without IV contrast	Usually Not Appropriate
CT abdomen and pelvis without IV contrast	Usually Not Appropriate
CT pelvis with IV contrast	Usually Not Appropriate
CT pelvis without IV contrast	Usually Not Appropriate
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate
CT pelvis without and with IV contrast	Usually Not Appropriate

Ordered by ED physician in this case: Pelvic US (first-line) followed by CT abdomen/pelvis with contrast (problem-solving)

Findings (unlabeled)



Findings (labeled)



Final Diagnosis

Benign Hemorrhagic Paratubal Cyst with Adnexal Torsion

Intraoperative Findings — Diagnostic Laparoscopy

- Detorsion of left paratubal cyst confirmed at laparoscopy
- Drainage of hemorrhagic cyst contents
- Excision of distal fallopian tube and cyst
- **Final pathology: Benign hemorrhagic paratubal cyst**

Case Discussion

Epidemiology & Prevalence

- Adnexal masses in adolescents are predominantly benign; functional and paratubal cysts are among the most common etiologies¹
- Paratubal (paraovarian) cysts arise from embryologic remnants of the Wolffian duct or paramesonephric structures along the fallopian tube²
- Muolokwu et al. (2011) reported paratubal cysts in 4.3% of pediatric/adolescent patients undergoing surgery for adnexal pathology, accounting for up to 16% of cases in some series³
- From et al. found that paratubal cysts are significantly associated with adnexal torsion and are more prevalent in younger, higher-BMI patients⁴

Hemorrhagic Complication

- Hemorrhage is a recognized but infrequently reported complication of paratubal cysts; a dedicated prevalence estimate is not established in the literature⁵
- Intracystic hemorrhage may trigger or complicate torsion by increasing cyst mass, altering mobility, and reducing vascular pedicle compliance⁶

Case Discussion

Imaging Approach to Adnexal Torsion in Adolescents

- Pelvic ultrasound is the ACR-recommended first-line imaging modality for suspected adnexal pathology in adolescents due to its lack of ionizing radiation, availability, and diagnostic accuracy¹
- Paratubal and paraovarian cysts appear as smooth-walled, anechoic or hypoechoic structures separate from the ovary; hemorrhagic content may produce low-level internal echoes⁷
- Critically, preserved Doppler flow does NOT exclude torsion — partial or intermittent torsion can coexist with detectable vascularity, as demonstrated in this case¹
- CT is valuable when US is non-diagnostic: rim-enhancing cystic lesions in the cul-de-sac raise concern for TOA, endometrioma, or hemorrhagic cyst; however, CT has limited soft-tissue characterization for adnexal structures compared to MRI¹
- MRI with T2 dark spot sign aids differentiation of endometrioma from hemorrhagic cyst when diagnosis remains uncertain after US and CT⁸

Key Radiologic Pearl

In adolescents with acute pelvic pain and a large adnexal cystic lesion, the inability to identify a normal ipsilateral ovary on US combined with clinical suspicion should prompt urgent surgical evaluation regardless of Doppler findings.

Case Discussion

Clinical Diagnosis Challenges

- Paratubal cysts may be asymptomatic until torsion or rupture occurs; clinical diagnosis is frequently delayed or missed⁵
- Symptoms (acute pelvic pain, nausea, vomiting) overlap significantly with appendicitis, ovarian torsion, TOA, and ectopic pregnancy — necessitating systematic imaging evaluation⁶
- Leukocytosis (WBC 21.99) in this case raised initial concern for infectious etiology (TOA), but was ultimately attributed to physiologic stress response from torsion⁵

Treatment

- Surgical intervention is the definitive treatment for adnexal torsion and symptomatic paratubal cysts³
- Laparoscopic approach is preferred: detorsion, cyst excision/drainage, and fallopian tube-sparing surgery when feasible to preserve fertility³
- In this case, drainage and distal fallopian tube excision were performed with resolution of symptoms

Why This Case Matters

Hemorrhagic paratubal cysts are underrecognized in adolescents. Radiologists should include this entity in the differential of large adnexal cystic lesions in young patients, even in the absence of classic findings of TOA or endometrioma.

References

1. Schallert EK, Abbas PI, Mehollin-Ray AR, et al. Physiologic ovarian cysts versus other ovarian and adnexal pathologic changes in the preadolescent and adolescent population: US and surgical follow-up. *Radiology*. 2019;292(1):172-178. doi:10.1148/radiol.2019182563
2. Barloon TJ, Brown BP, Abu-Yousef MM, Warnock NG. Paraovarian and paratubal cysts: preoperative diagnosis using transabdominal and transvaginal sonography. *J Clin Ultrasound*. 1996;24(3):117-122. doi:10.1002/(SICI)1097-0096(199603)24:3<117::AID-JCU2>3.0.CO;2-K
3. Muolokwu E, Sanchez J, Bercaw JL, et al. The incidence and surgical management of paratubal cysts in a pediatric and adolescent population. *J Pediatr Surg*. 2011;46(11):2119-2123. doi:10.1016/j.jpedsurg.2011.07.010
4. From A, Hirva M, Shapira Zaltsberg G, et al. Para-tubal cysts and their associations with adnexal torsion and obesity. *J Obstet Gynaecol Can*. 2025;47(4):102825. doi:10.1016/j.jogc.2025.102825
5. Kiseli M, Caglar GS, Cengiz SD, Karadag D, Yilmaz MB. Clinical diagnosis and complications of paratubal cysts: review of the literature and report of uncommon presentations. *Arch Gynecol Obstet*. 2012;285(6):1563-1569. doi:10.1007/s00404-012-2304-2
6. Bottomley C, Bourne T. Diagnosis and management of ovarian cyst accidents. *Best Pract Res Clin Obstet Gynaecol*. 2009;23(5):711-724. doi:10.1016/j.bpobgyn.2009.02.001
7. Alpern MB, Sandler MA, Madrazo BL. Sonographic features of parovarian cysts and their complications. *AJR Am J Roentgenol*. 1984;143(1):157-160. doi:10.2214/ajr.143.1.157
8. Corwin MT, Gerscovich EO, Lamba R, Wilson M, McGahan JP. Differentiation of ovarian endometriomas from hemorrhagic cysts at MR imaging: utility of the T2 dark spot sign. *Radiology*. 2014;271(1):126-132. doi:10.1148/radiol.13131394
9. Brook OR, Dadour JR, Robbins JB, et al. ACR Appropriateness Criteria® acute pelvic pain in the reproductive age group: 2023 update. *J Am Coll Radiol*. 2024;21(6S):S207-S226. doi:10.1016/j.jacr.2024.02.010