

CLINICAL PRESENTATION AND RADIOLOGY QUIZ QUESTION

A 32 year old woman comes to her gynecologist for her annual physical examination. The patient reports that she has had several bouts of relatively severe left lower quadrant pain accompanied by flank pain. She has a history of renal stone disease during a prior pregnancy. The gynecologist orders a CT-KUB which shows a left pelvic lesion, as seen here:



Which imaging study is now most appropriate for this patient?

- (a) plain films of the abdomen
- (b) ultrasound of the pelvis
- (c) repeat computed tomography of the abdomen and pelvis with oral and intravenous contrast material
- (d) magnetic resonance imaging of the abdomen and pelvis

RADIOLOGY QUIZ QUESTION, ANSWER, AND EXPLANATION

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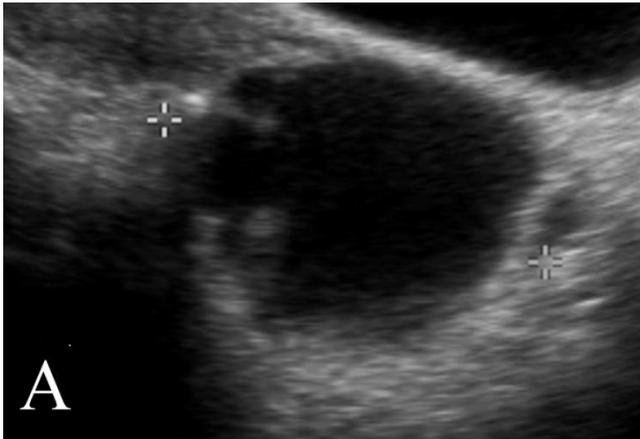
Answer: (b), ultrasound of the pelvis. The patient has a low-density structure in the left adnexa (arrows):



The next logical step is to determine if this low density structure represents a solid mass or a cyst, and the relationship of this structure to the ovary. These features are best determined by an ultrasound examination.

Plain films of the abdomen are generally of little utility in the evaluation abnormalities initially seen on a CT study. Occasionally, metallic foreign bodies are more readily identified on plain films. Low density adnexal structures are virtually always invisible on plain films. Therefore, (a) is incorrect. Repeat computed tomography with oral and intravenous contrast is often the best method of further evaluation of ambiguous findings seen on CT studies, but in this case, where the structure is likely cystic and in the adnexa, ultrasound is a better study, and (c) is incorrect. Magnetic resonance imaging of the pelvis is usually reserved for evaluation of problem patients when CT is nondiagnostic, but ultrasound should almost always be done prior to MR when evaluating adnexal lesions, and (d) is incorrect.

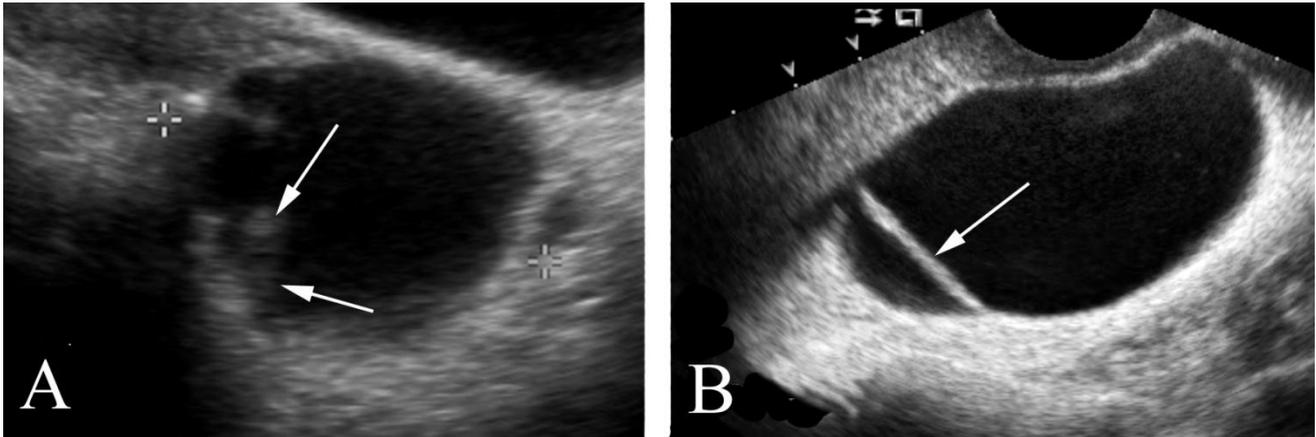
IMAGING STUDY AND QUESTIONS



Imaging questions:

- 1) What type of study is shown?
- 2) Are there any abnormalities?
- 3) What is the most likely diagnosis?
- 4) What is the next step in management?

IMAGING STUDY QUESTIONS AND ANSWERS



Imaging questions:

- 1) What type of study is shown? A pelvic ultrasound study. Like many ultrasound studies, it is relatively easy to identify that this is an ultrasound study, but difficult to tell which body part is being scanned. A is a transabdominal ultrasound (obtained through the abdominal wall with the transducer on the skin surface) and B is a transvaginal (also known as endovaginal) ultrasound study, performed with a transducer placed in the vagina.
- 2) Are there any abnormalities? Yes. In A, there is an anechoic structure with some peripheral echoes along one wall (arrow). In B, there is an anechoic structure with a single well-defined septum (arrow).
- 3) What is the most likely diagnosis? The imaging features are not specific, but are compatible with a cyst. In the setting of an adnexal lesion, a cystic structure could represent a “simple” cyst (with a single septum), a resolving hemorrhagic cyst (with a seroma), a cystadenoma of the ovary, or any of multiple less commonly seen abnormalities. On the scan, it was not possible to see the ovary, and the relationship of this lesion to the ovary could not be documented.
- 4) What is the next step in management? While “small” incidentally discovered cysts of the ovaries may be followed, lesions associated with symptoms are typically further evaluated with laparoscopic surgery (although there is variable evaluation and treatment of such lesions). Referral to a gynecologist would be appropriate in this case; note that, as good fortune would have it, the patient was already seeing a gynecologist.

PATIENT DISPOSITION, DIAGNOSIS, AND FOLLOW-UP
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Laparoscopic surgery was performed. At surgery, a large 5-6 cm paratubal cyst, which was obviously torsed, was identified and resected. The left tube and ovary were otherwise unremarkable. A smaller, subcentimeter right paraatubal cyst was also identified and resected.

The pathologic diagnosis was a benign papillary serous cystadenoma and paratubal cyst for the tissue resected from the left adnexa, and was a simple paratubal cyst for the tissue resected from the right adnexa.

The patient had an uneventful recovery with complete resolution of her intermittent spells of left lower quadrant and left flank pain.

SUMMARY

Presenting symptom: The patient's left flank pain and left lower quadrant pain were suggestive of renal colic, particularly considering that she had a history of prior renal stones.

Imaging work-up: CT-KUB is the study of choice for evaluation of suspected renal colic, and was appropriately ordered in this case. As happens not infrequently, CT found a possible alternative cause for the patient's pain. The report from the CT-KUB noted that the lesion was likely cystic, but that an ultrasound was required for further evaluation. The ultrasound showed a predominantly cystic lesion. Since it was felt that this lesion was likely the cause of the patient's symptoms, laparoscopic surgery followed. If surgery had not been performed, sequential imaging of the lesion with ultrasound would likely have been necessary to establish the stability (and therefore the benign nature) of the lesion.

Establishing the diagnosis: Paratubal cystic lesions are unusual. They typically mimic ovarian or paraovarian cysts at imaging. Approximately 25% of paratubal cystic lesions represent benign neoplasms (as occurred in this case), either cystadenomas or cystadenofibromas. While imaging studies can identify that a lesion is present, it usually cannot offer a definitive histologic diagnosis which relies on resection and pathologic evaluation. In this case, the lesion was undergoing intermittent torsion causing the patient's pain.

Take-home message: CT-KUB is the study of choice for evaluation of possible renal colic, but in women with pelvic pain and abnormal but ambiguous CT findings, ultrasound may be necessary for further evaluation.

FURTHER READING

Hoffman MS. Differential diagnosis of the adnexal mass. UpToDate, accessed 6/3/2011.

Renfrew, DL. Female pelvis and male scrotum. Chapter 2 of *Symptom Based Radiology*, Symptom Based Radiology Publishing, Sturgeon Bay, WI, 2010.

Renfrew, DL. "Second step" imaging of gastrointestinal symptoms. Chapter 7 of *Symptom Based Radiology*, Symptom Based Radiology Publishing, Sturgeon Bay, WI, 2010, available for no charge at www.symptombasedradiology.com.