AMSER Case of the Month August 2020

37-year-old G2P0010 at 15 weeks gestation with abdominal pain.

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Patient Presentation

- HPI: 37-year-old G2P0010 at 15 weeks gestation with no prenatal care (EDD via bedside ultrasound in the ED 9 days prior) presented with abdominal pain and presyncope. Pt denies vaginal bleeding or cramping.
- PMH: IV heroin use (last use ~2 yrs ago) now on suboxone
- PSH: dilation & curettage in 2014
- Pregnancy history: 1 previous spontaneous abortion
- Vitals: Temp: 36.5˚C (97.7˚F), BP: 89/56, HR: 92, RR: 18
- Physical exam:
  - Distended abdomen with guarding and rebound tenderness
  - No vaginal bleeding or discharge

Pertinent Labs

- Hgb= 4.6 g/dL
- Hematocrit= 14.5%
- Lactate= 1.8 mmol/L
- Platelets wnl

What Imaging Should We Order?

ACR Appropriateness Criteria

Clinical Condition: **Acute Pelvic Pain in the Reproductive Age Group**

Variant 1: **Gynecological etiology suspected, serum β-hCG positive.**

Radiologic Procedure	Rating	Comments	RRL*
US pelvis transvaginal	9	Both transvaginal and transabdominal US should be performed if possible.	O
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US duplex Doppler adnexa	8		O
MRI pelvis without IV contrast	6	This procedure can be performed if US is inconclusive or nondiagnostic. See the Summary of Literature Review and *ACR Manual on Contrast Media* for the use of contrast media.	O
MRI abdomen and pelvis without IV contrast	6	This procedure can be performed if US is inconclusive or nondiagnostic. See the Summary of Literature Review and *ACR Manual on Contrast Media* for the use of contrast media.	O
MRI pelvis without and with IV contrast	1		O
MRI abdomen and pelvis without and with IV contrast	1		O
CT pelvis without IV contrast	1		☢☢☢
CT pelvis with IV contrast	1		☢☢☢

This imaging modality was initially ordered by the ER physician

This was an appropriate choice for initial imaging

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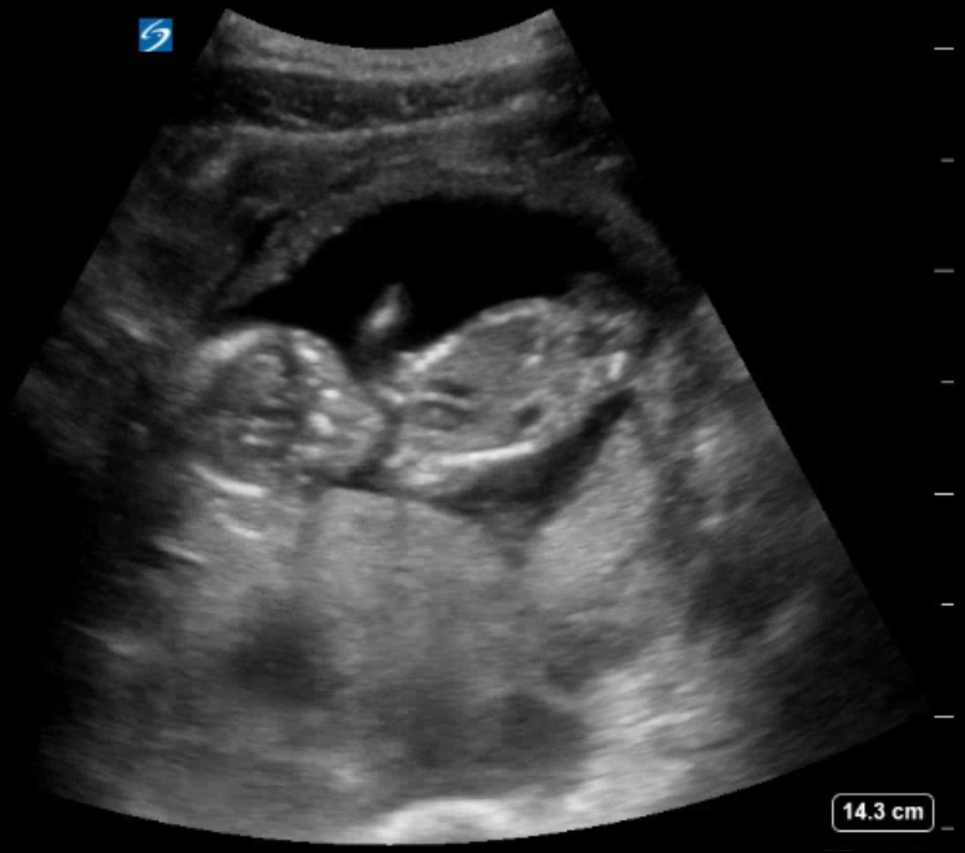
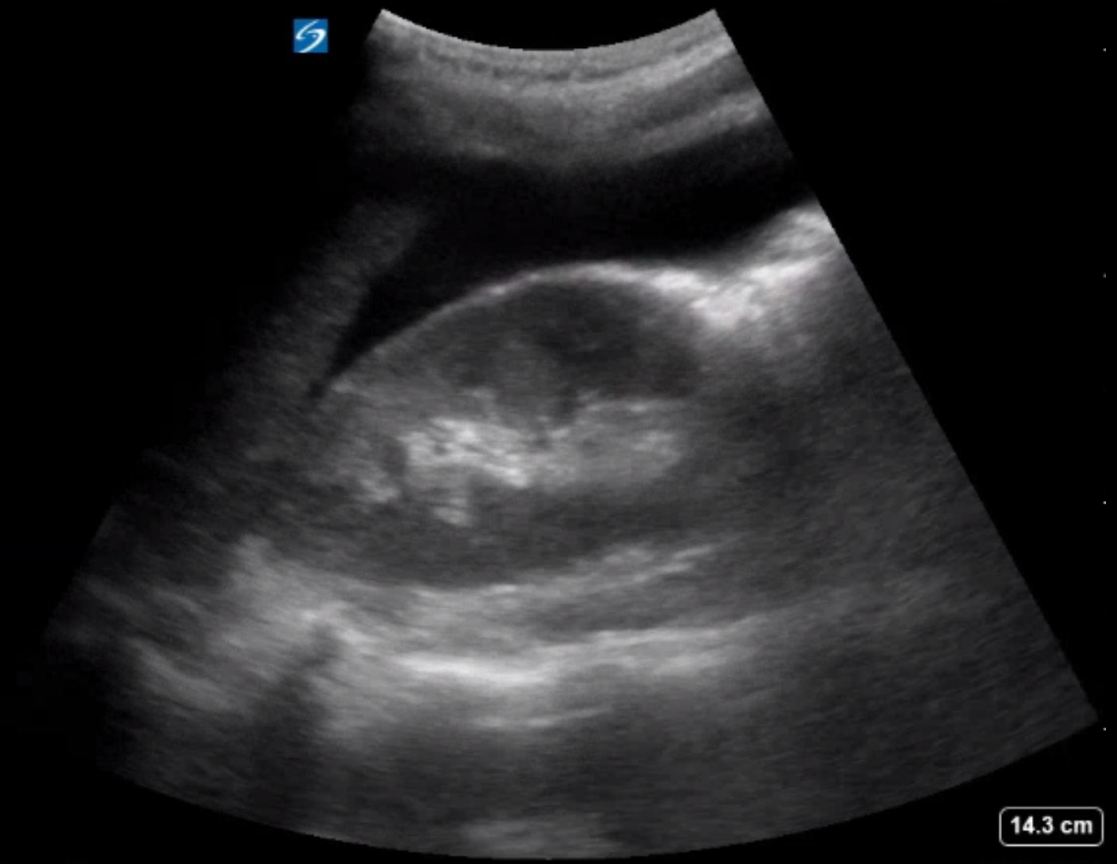
Ultrasound Findings: Unlabeled

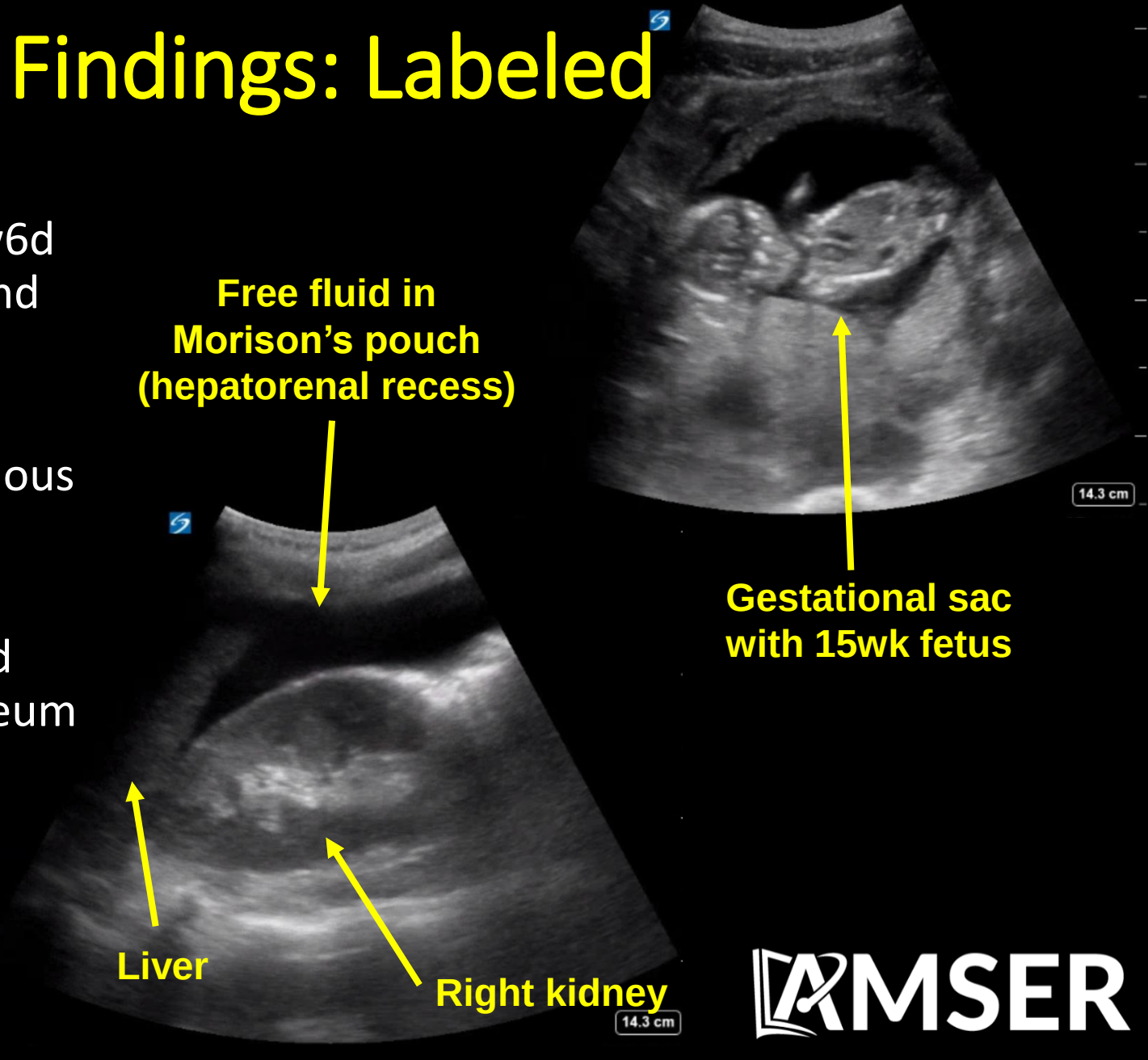




Ultrasound Findings: Labeled

- Fetus measuring approximately 15w6d by biparietal diameter with +FHTs and fetal movement
- Gestational sac *appears* to be intrauterine (US findings c/w 2 previous bedside US performed 5 and 9 days prior)
- Large volume of intraperitoneal fluid noted, concerning for hemoperitoneum given low hgb and hypotension

***Given unclear etiology of the patient's presentation and high degree of concern for hemoperitoneum, the ED physician ordered a CTA abdomen/pelvis w/IV contrast for further evaluation**



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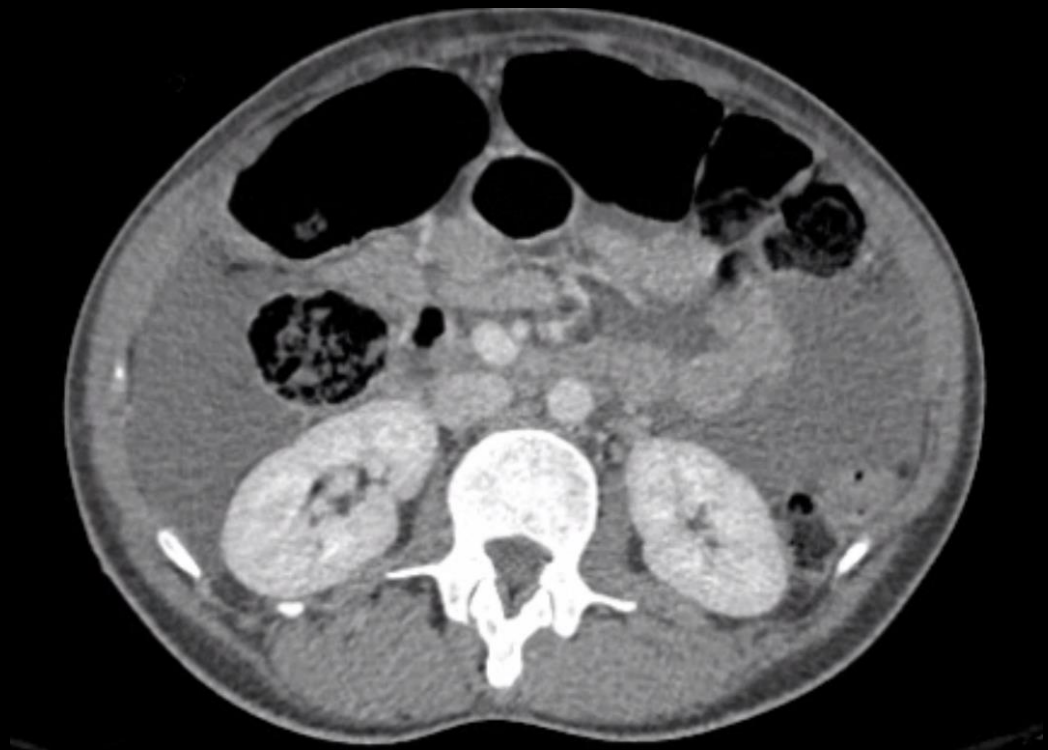
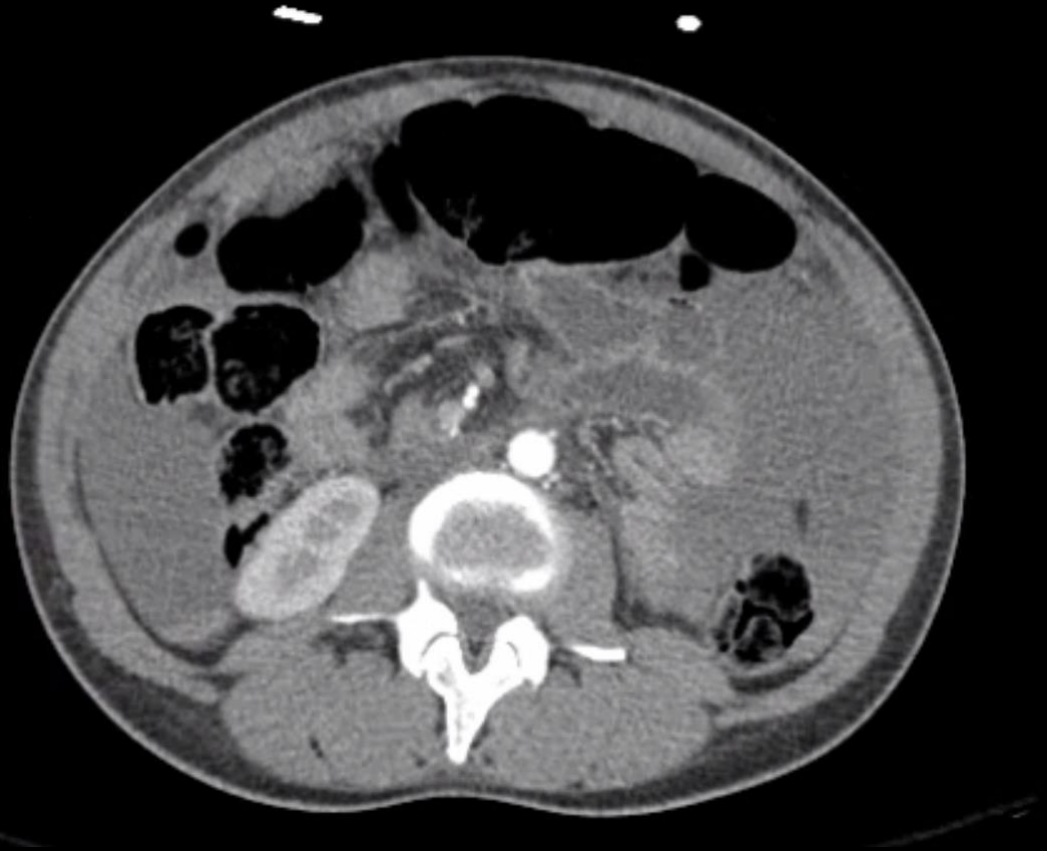
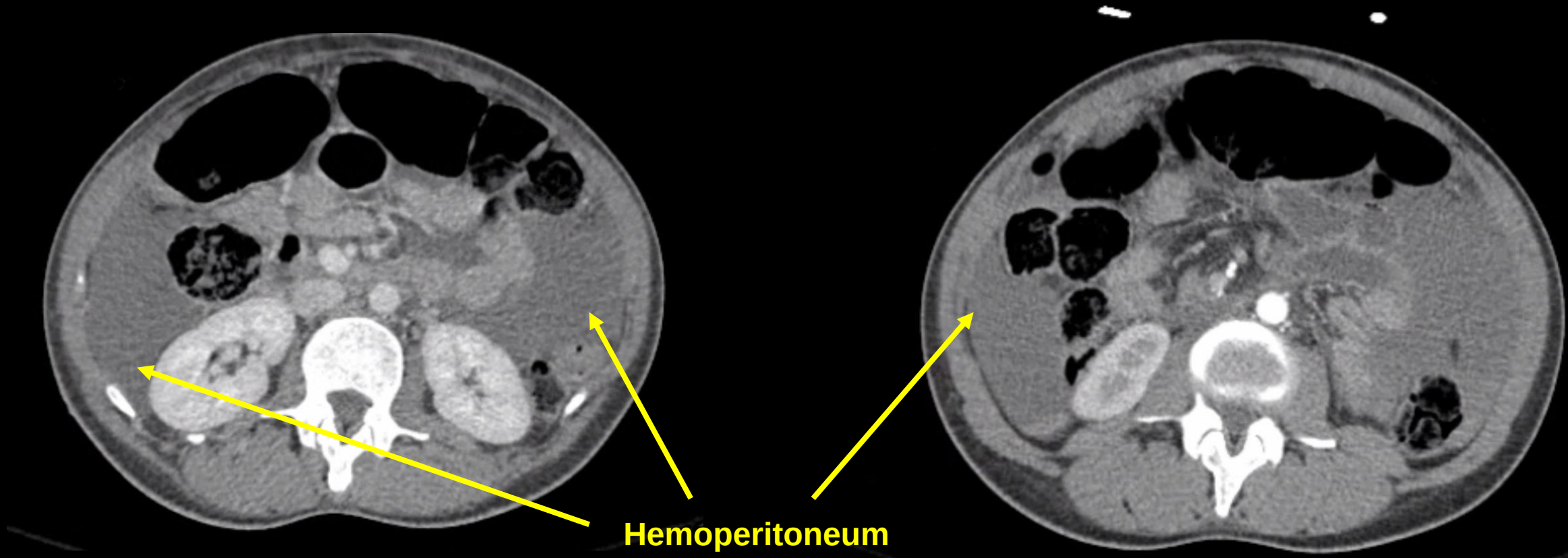
CTA Findings: Unlabeled

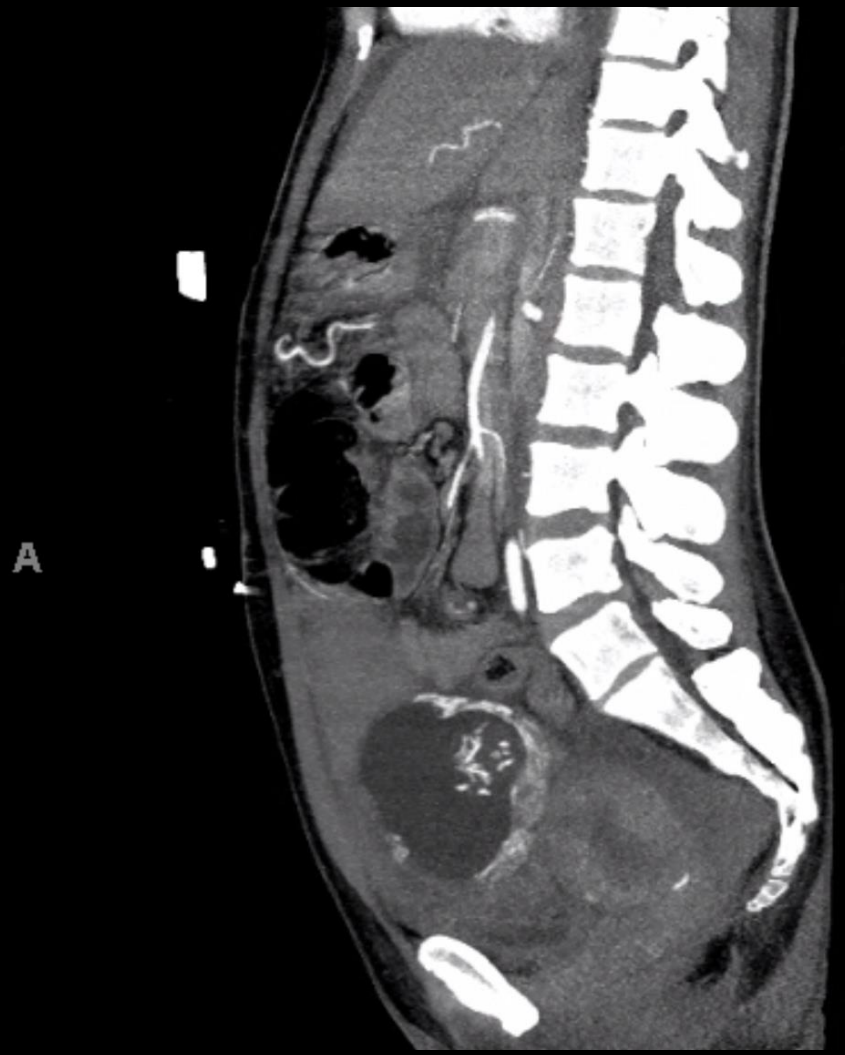


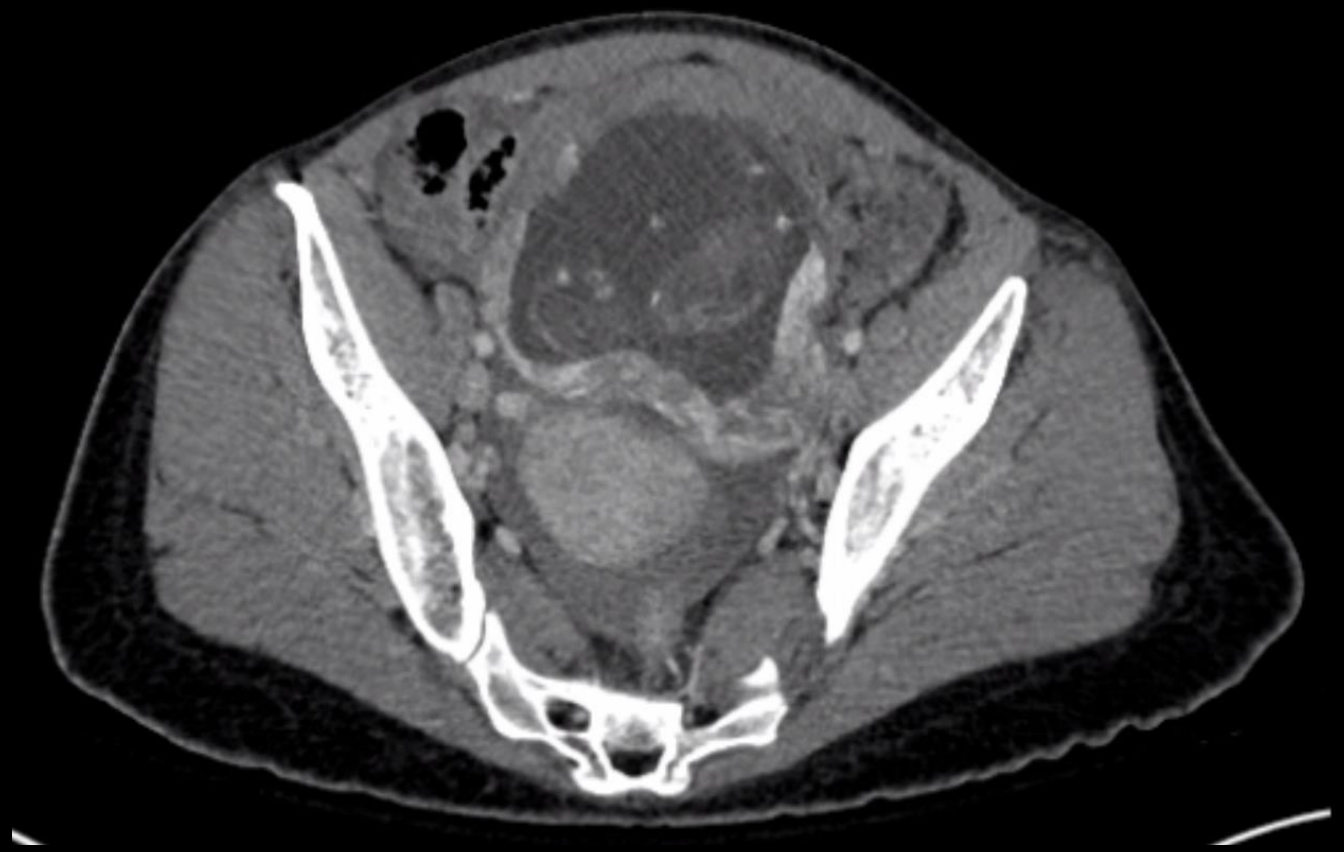


CTA Findings: Labeled

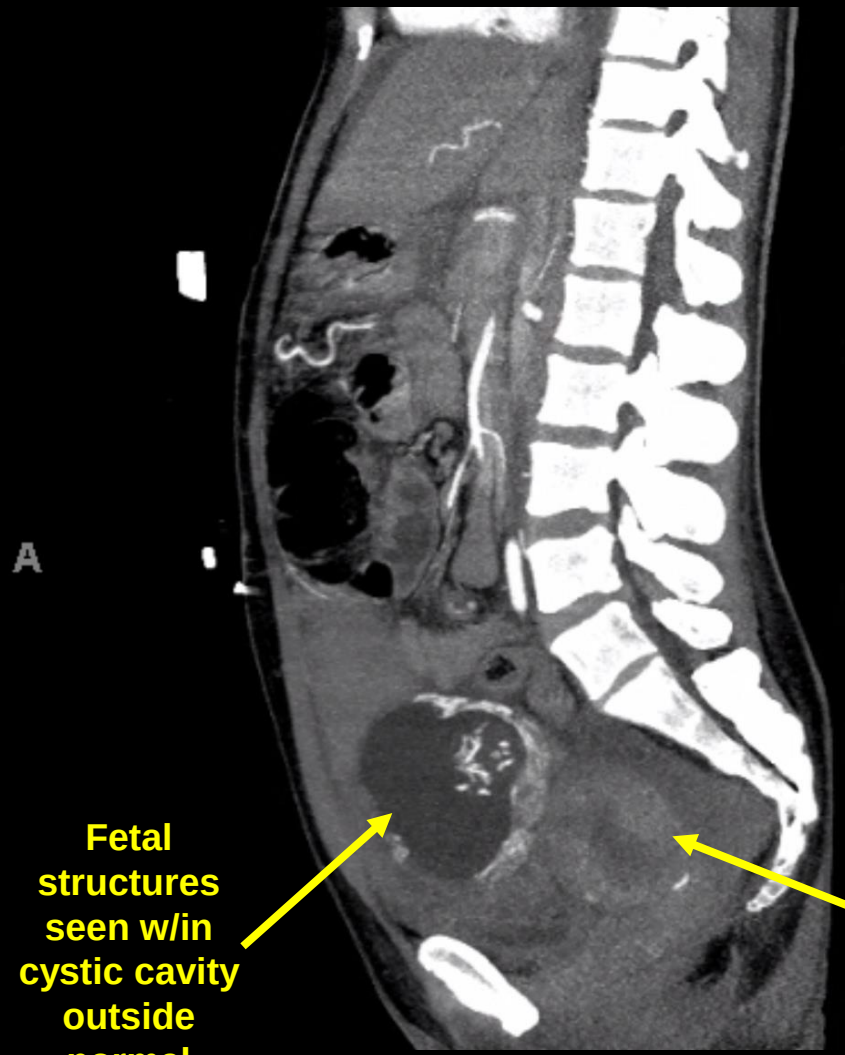


CTA Findings: Unlabeled



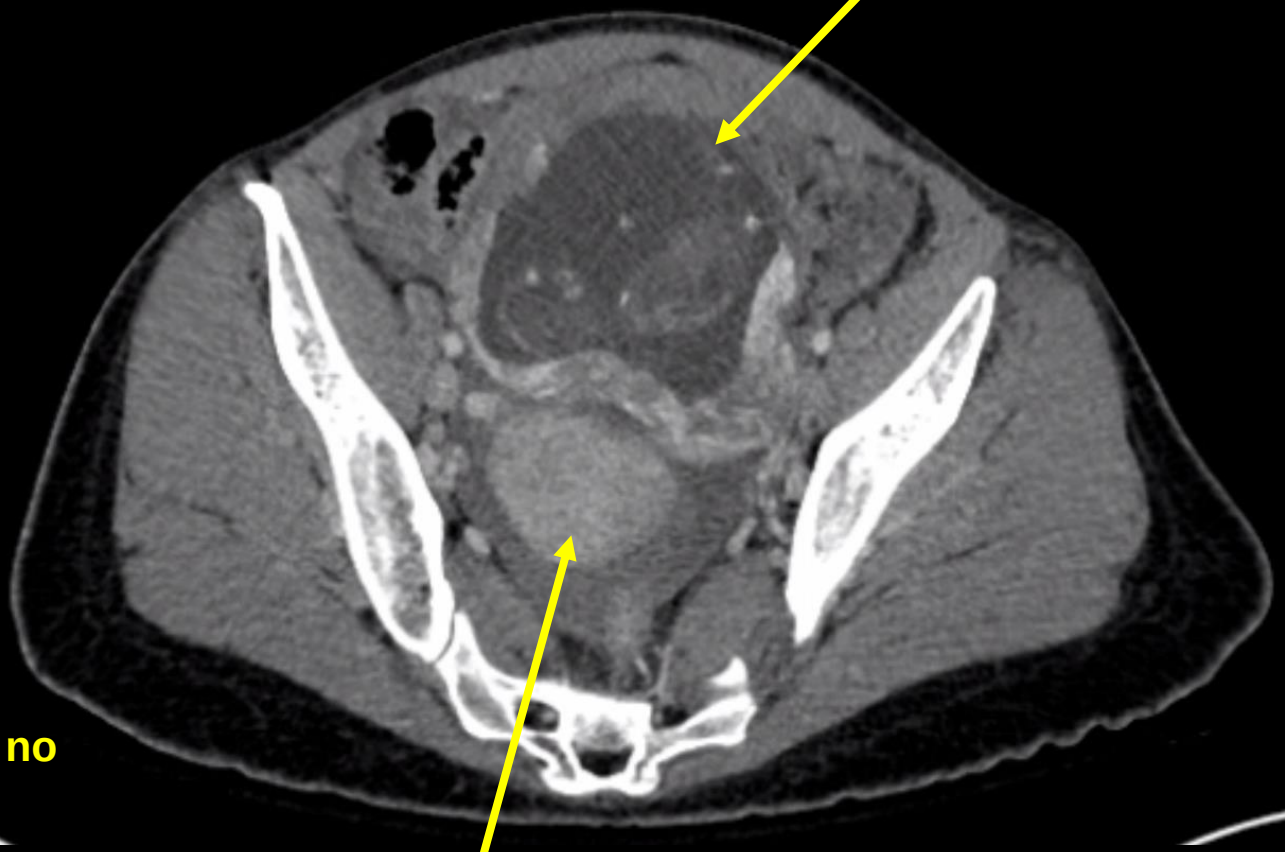


CTA Findings: Labeled



Fetal structures seen w/in cystic cavity outside normal uterus

Uterus (with no intrauterine pregnancy)



Cystic cavity containing fetal parts, clearly outside of normal uterus

Top of uterus

Final Dx:

Ruptured Ectopic Pregnancy at 15 wks

***Note: after CTA was read, which revealed concern for ruptured ectopic pregnancy, patient was rushed to the OR with OBGYN where she had an ex-lap with evacuation of the hemoperitoneum (~2L evacuated) and removal of the ruptured ectopic pregnancy via right salpingoophrectomy. Patient had no major complications from surgery and was discharged on POD4.**

Ruptured Ectopic Pregnancy

- Occurs in 1-2% of all pregnancies
- Approximately 96% of ectopic pregnancies occur in the fallopian tubes
  - 70% of tubal ectopic pregnancies occur in the ampulla
- Presentation: most commonly presents with vaginal bleeding and/or abdominal pain
- Major risk factors:
  - Pelvic inflammatory disease
  - Previous ectopic pregnancy
  - Previous tubal surgery
- Imaging findings:
  - US is the initial modality of choice, with MRI being the next best choice
  - US can confirm the presence of an IUP (embryo or yolk sac within endometrial cavity), which essentially rules out the possibility of an ectopic pregnancy
  - A complex adnexal mass is the most common US finding in ectopic pregnancy

References:

- ACR Appropriateness Criteria https://acsearch.acr.org/list
- Lee R, Dupuis C, Chen B, Smith A, Kim YH. *Diagnosing ectopic pregnancy in the emergency setting.* Ultrasonography. 2018 Jan;37(1):78-87.
- Lin, Edward P., et al. “Diagnostic Clues to Ectopic Pregnancy.” *RadioGraphics*, vol. 28, no. 6, Oct. 2008, pp. 1661–1671, 10.1148/rg.286085506.
- Tulandi, MD, Togas. *Ectopic Pregnancy: Epidemiology, Risk Factors, and Anatomic Sites*. *UpToDate*.
- Tulandi, Togas. *Ectopic Pregnancy: Clinical Manifestations a Diagnosis*. *UpToDate*.

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