

AMSER Case of the Month

September 2022

21-year-old female with right lower quadrant pain

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AMSER

Patient Presentation

- **HPI:** 21-year-old G2P1 female at 7w4d presented to the ED for abdominal pain with nausea/vomiting. Pain poorly localized, but worse in the lower abdomen.
- **ROS:** No fever, vaginal bleeding, dysuria, diarrhea
- **PMHx:** Obesity (BMI 37)
- **SHx:** Cholecystectomy, cesarean section
- **Vitals:** BP 86/49, HR 102, RR 19, SpO2 100%, 98 F
- **Exam:** Tired, pale, anxious appearing. Diffuse abdominal tenderness with rebound and guarding. Low transverse cesarean scar.

Pertinent Labs

- **CBC**

- WBC 17.5
- HGB 10.5
- HCT 32.0
- MCV 90

- **hCG quantitative**

- 14,453
- Expected for gestational age
~15,000

- **CMP**

- BUN 11
- Cr 0.62

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 3: Pregnant woman. Right lower quadrant pain, fever, leukocytosis. Suspected appendicitis. Initial imaging.

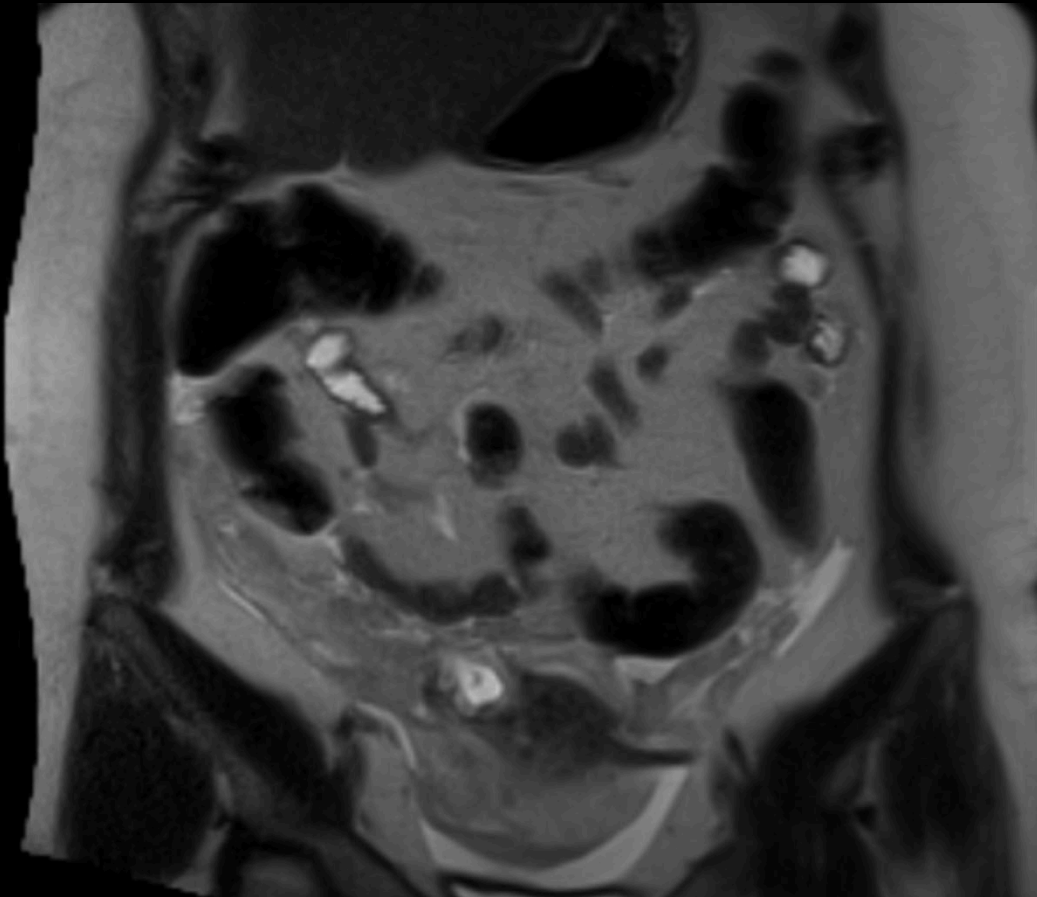
Procedure	Appropriateness Category	Relative Radiation Level
US abdomen	Usually Appropriate	0
MRI abdomen and pelvis without IV contrast	Usually Appropriate	0
US pelvis	May Be Appropriate	0
CT abdomen and pelvis with IV contrast	May Be Appropriate	⊕⊕⊕
CT abdomen and pelvis without IV contrast	May Be Appropriate	⊕⊕⊕
CT abdomen and pelvis without and with IV contrast	Usually Not Appropriate	⊕⊕⊕⊕
MRI abdomen and pelvis without and with IV contrast	Usually Not Appropriate	0
WBC scan abdomen and pelvis	Usually Not Appropriate	⊕⊕⊕⊕
Radiography abdomen	Usually Not Appropriate	⊕⊕
Fluoroscopy contrast enema	Usually Not Appropriate	⊕⊕⊕

This imaging modality was ordered by the ER physician

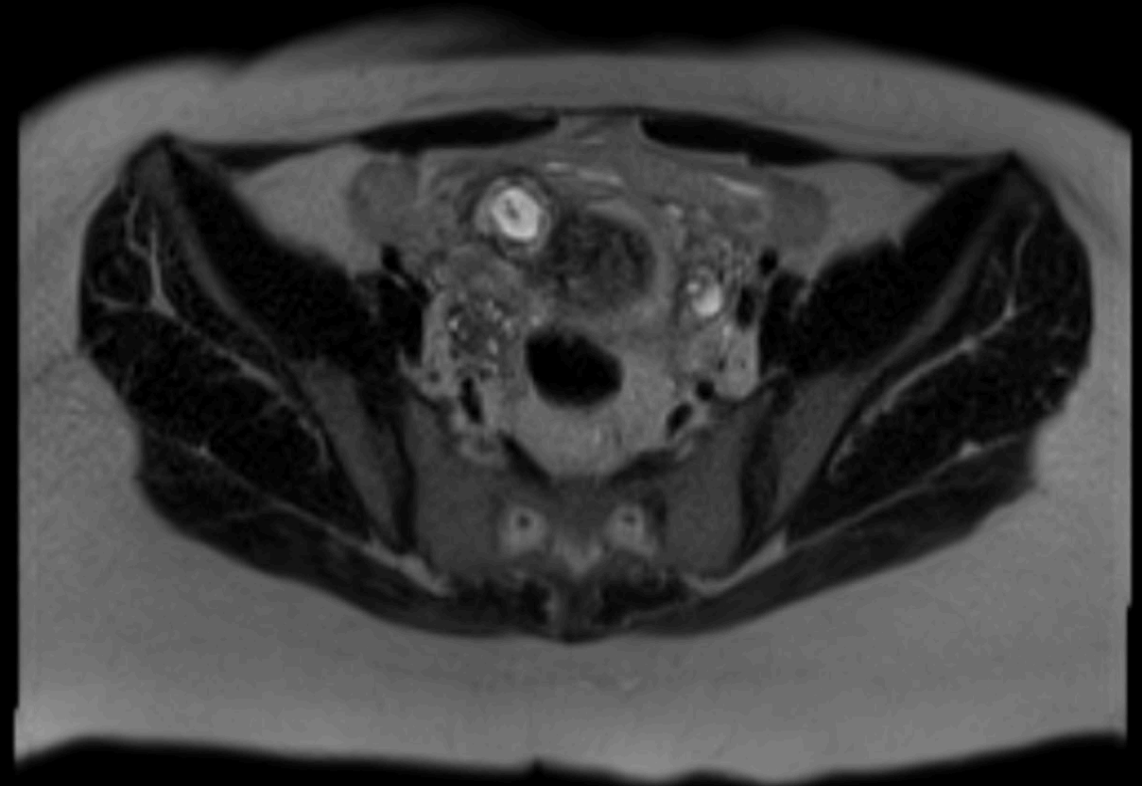


MRI findings: (unlabeled)

Coronal

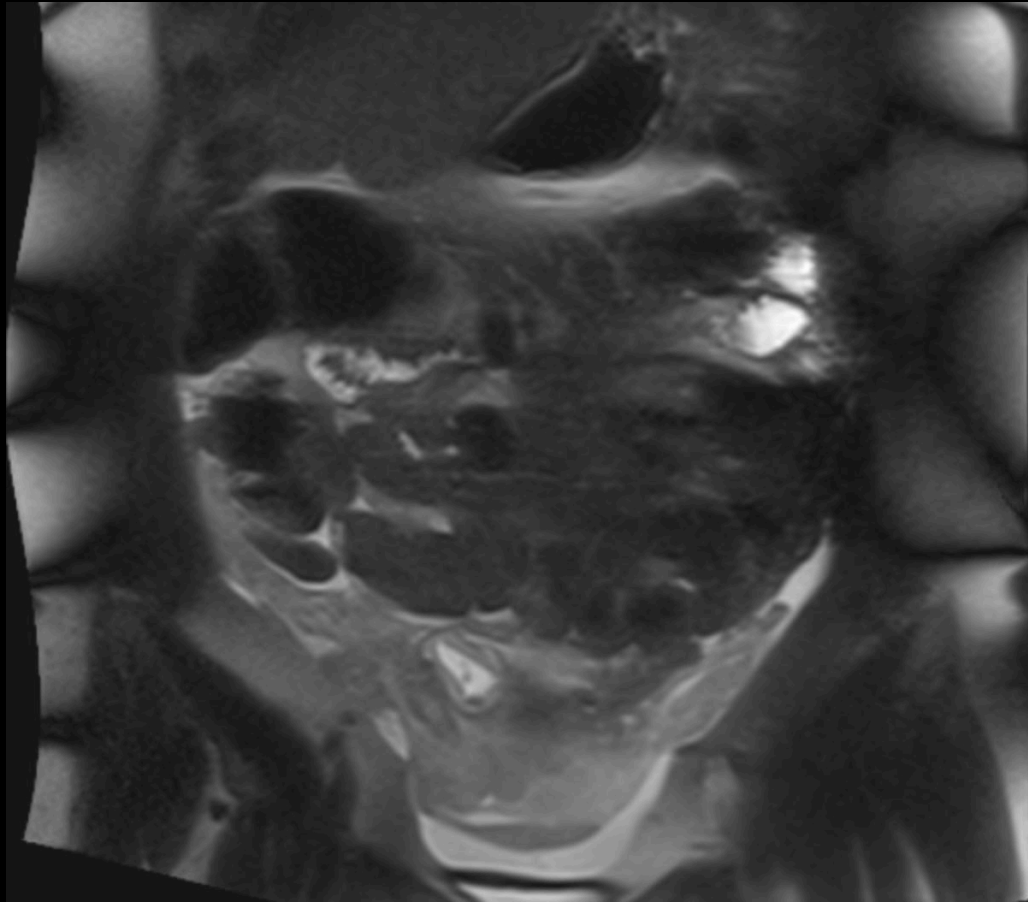


Axial

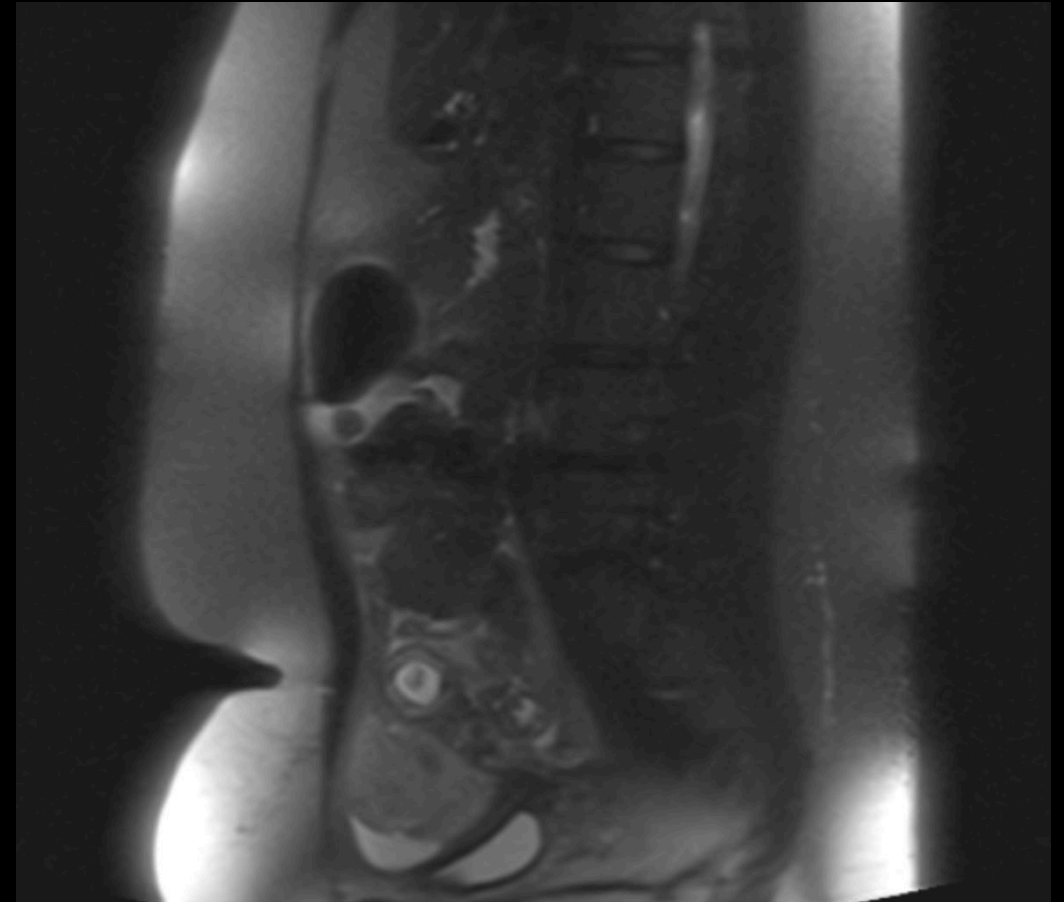


MRI findings: (unlabeled)

Coronal



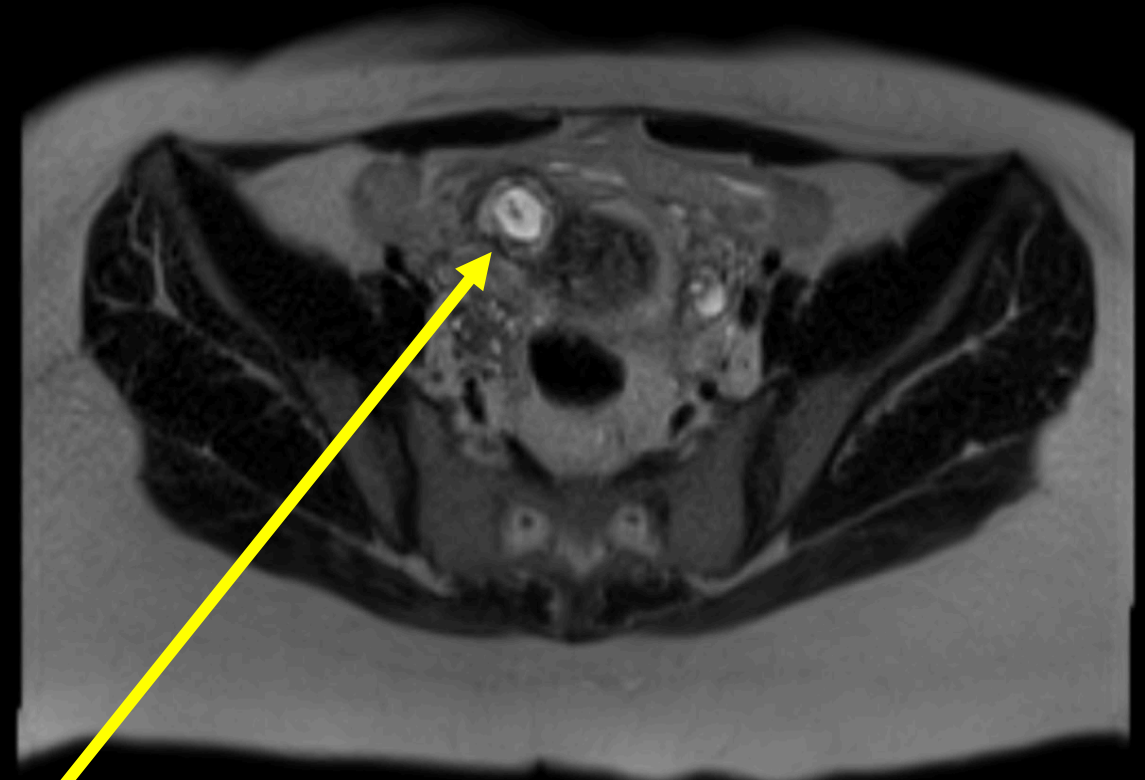
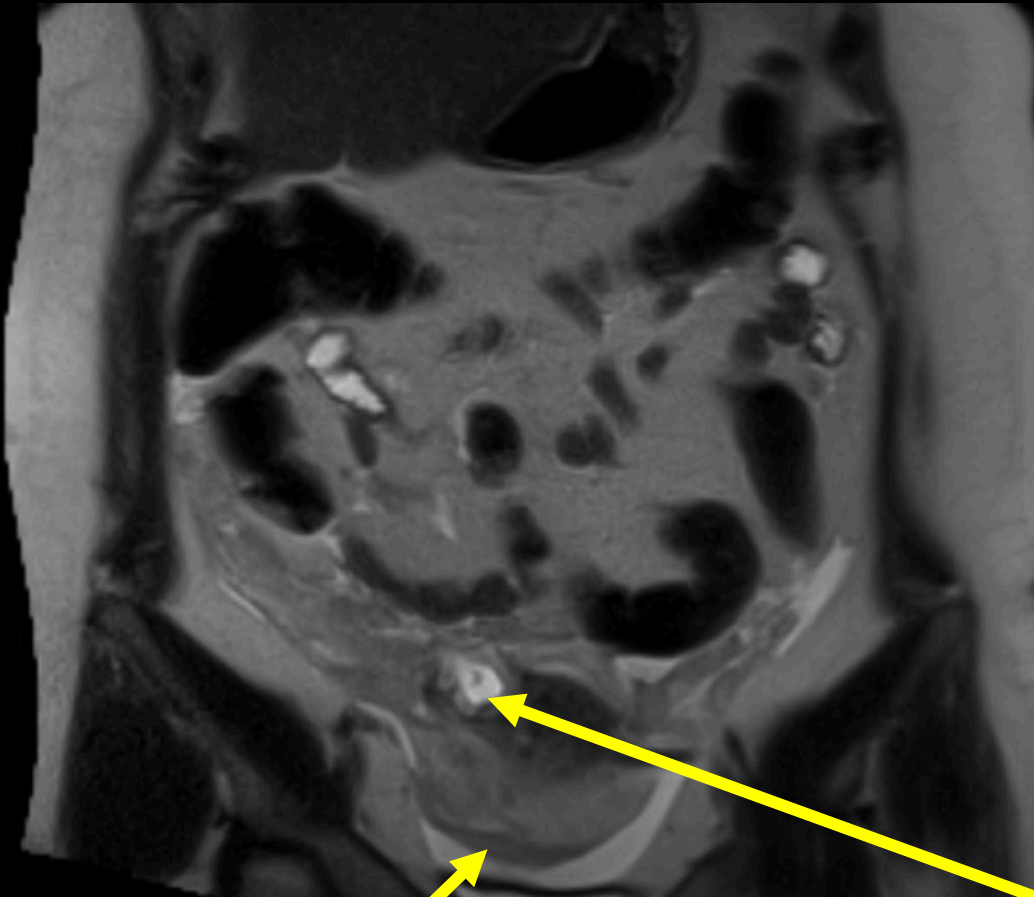
Sagittal



MRI findings: (labeled)

Coronal

Axial



Hemoperitoneum

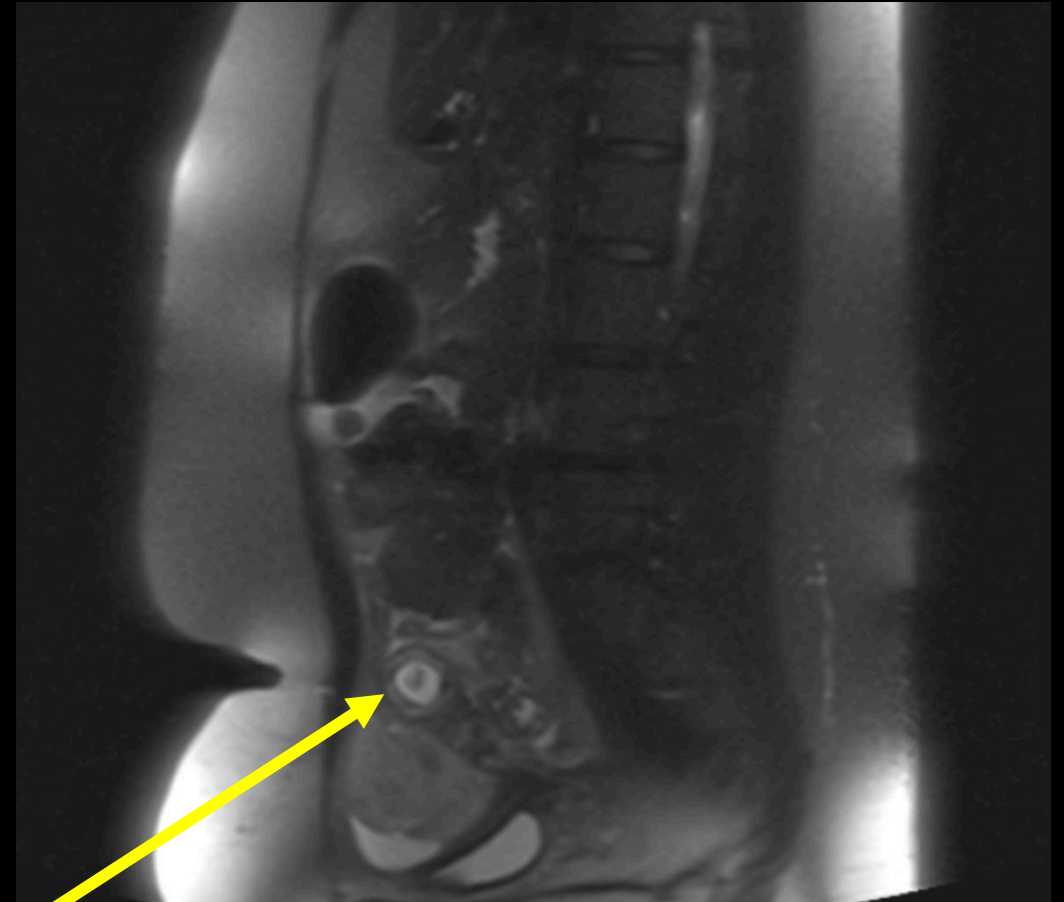
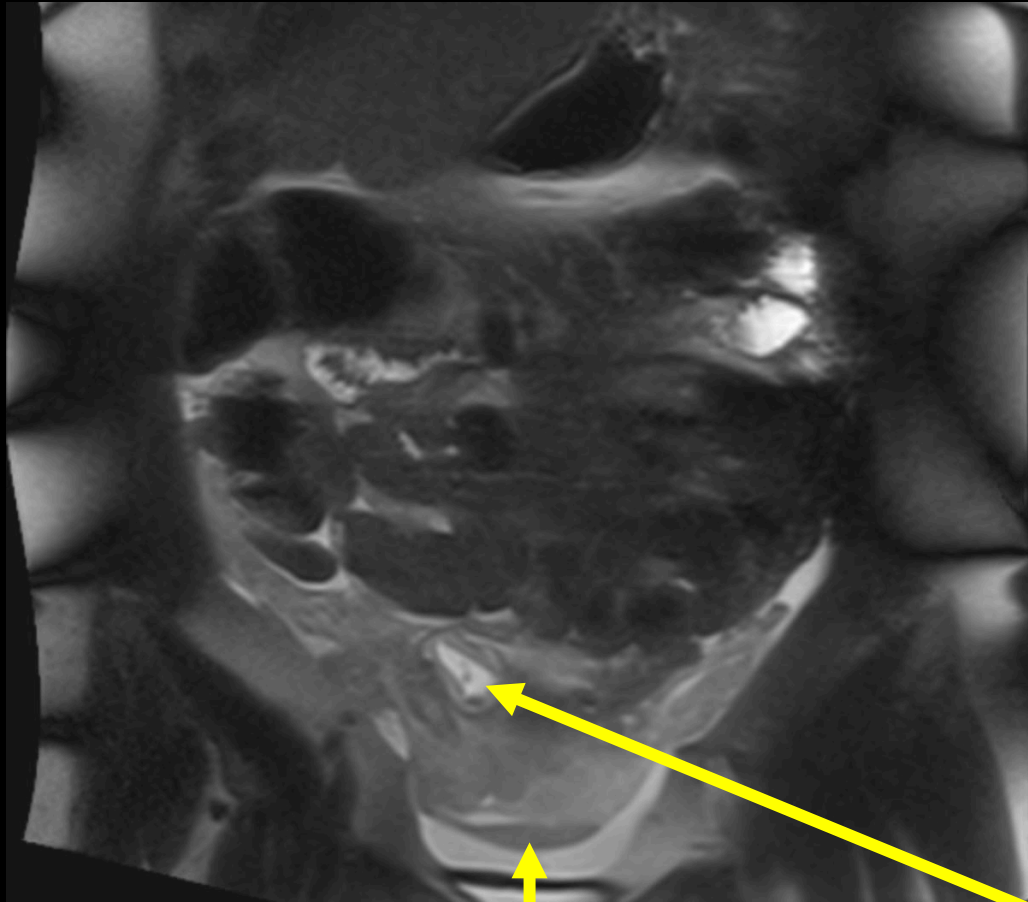
Gestational sac in the proximal fallopian tube (interstitial ectopic)

T2 weighted imaging

MRI findings: (labeled)

Coronal

Sagittal



Hemoperitoneum

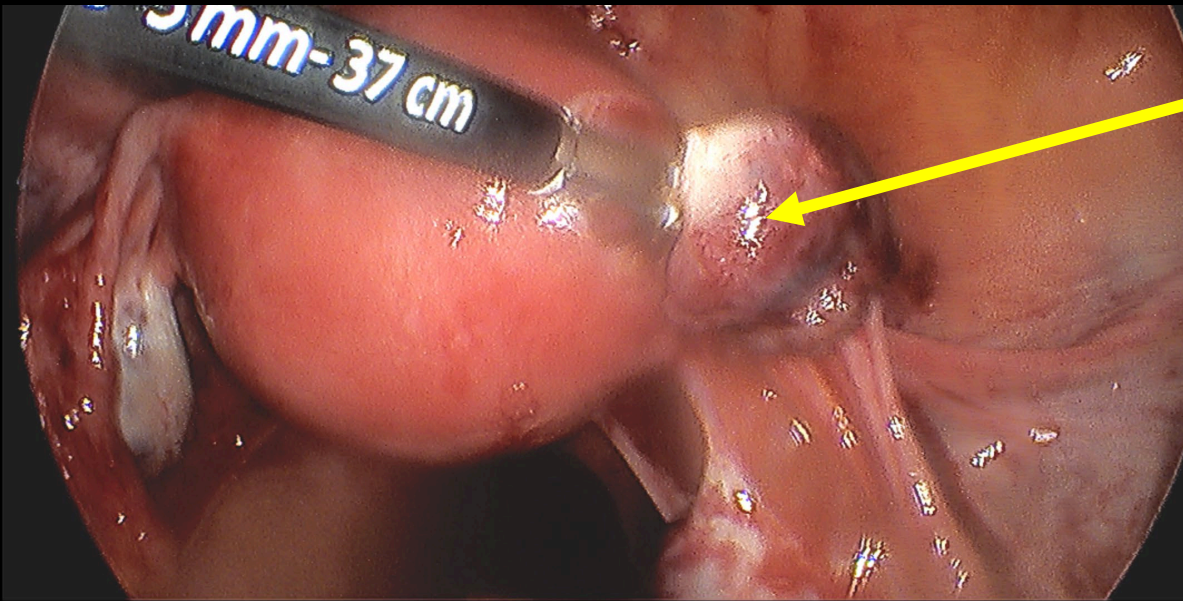
Gestational sac in the proximal fallopian tube (interstitial ectopic)

T2 fat saturation

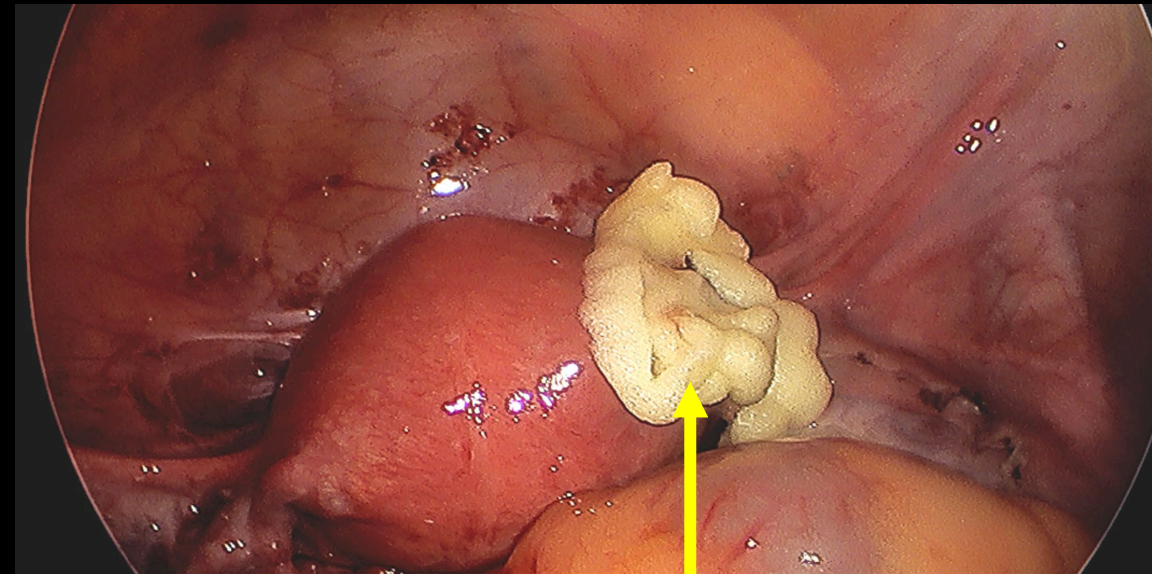
Final Diagnosis:

Ruptured interstitial ectopic pregnancy with
hemoperitoneum

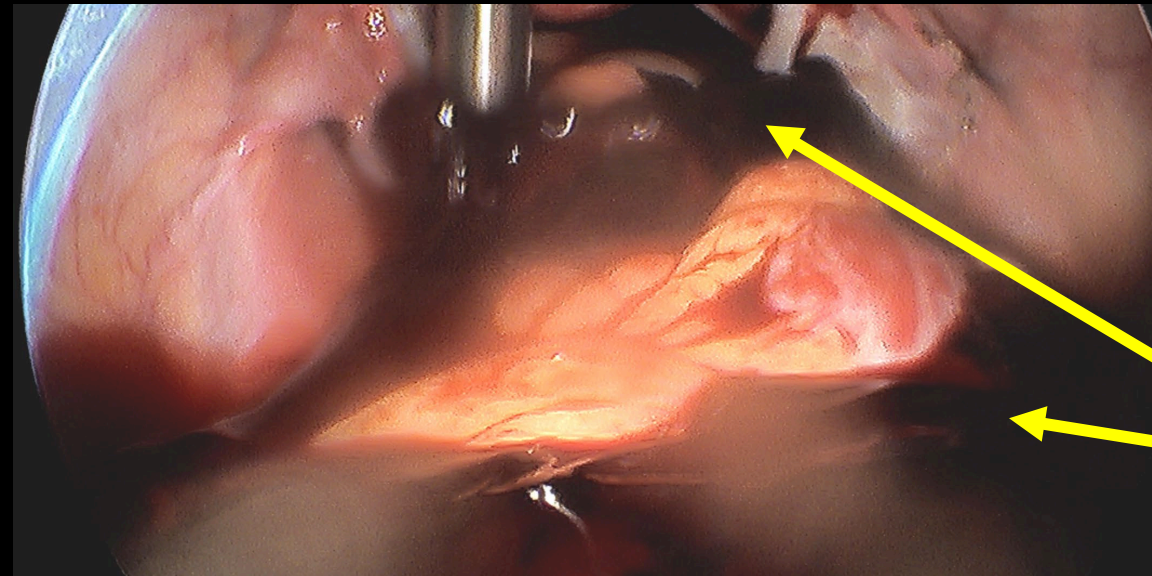
Case discussion: Laparoscopic findings



Interstitial ectopic pregnancy



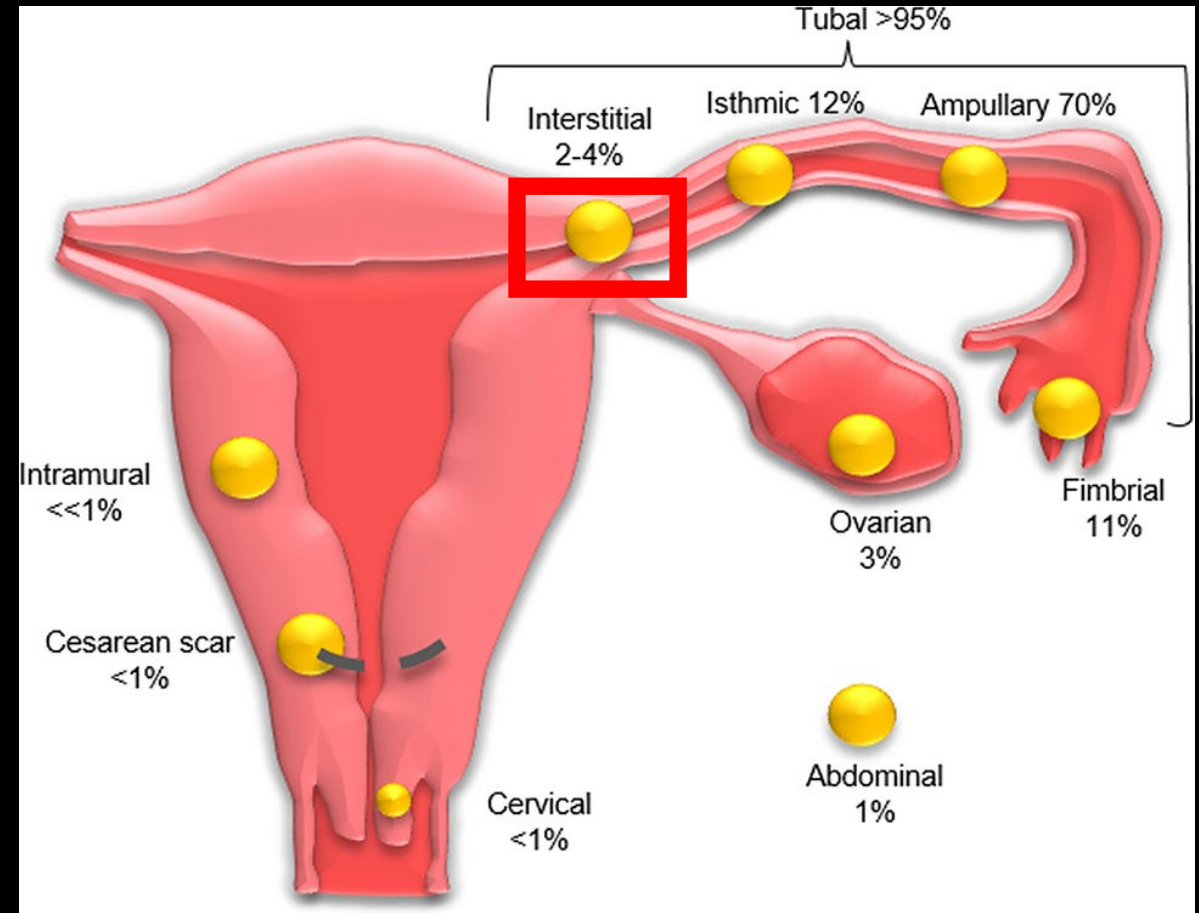
Status post removal and hemostatic matrix



Hemoperitoneum

Case Discussion: Interstitial ectopic pregnancy

- The interstitial portion of the fallopian tube is the most medial aspect of the tube, located where the tube connects to the endometrial cavity
- Interstitial ectopic pregnancies have a higher potential for poor outcomes compared to other locations
- The distensible myometrium can surround a portion of the expanding gestational sac, thus symptoms may not appear until weeks 9-12, at which point there may be rupture with severe hemorrhage
- Immediate surgery and hemostasis is necessary
- **Ultrasound** is typically the first imaging modality of choice in patients with suspected ectopic pregnancy
- MRI was likely chosen as the first imaging modality in this patient (rather than ultrasound) due to acute appendicitis as the primary diagnostic consideration in conjunction with patient body habitus



<https://doi.org/10.1007/s00261-020-02681-6>

References:

- Ucisik-Keser, F.E., Matta, E.J., Fabrega, M.G. *et al.* The many faces of ectopic pregnancies: demystifying the common and less common entities. *Abdom Radiol* **46**, 1104–1114 (2021). <https://doi.org/10.1007/s00261-020-02681-6>
- Ahlschlager, L.M., Mysona, D. & Beckham, A.J. The elusive diagnosis and emergent management of a late-presenting ruptured interstitial pregnancy: a case report. *BMC Pregnancy Childbirth* **21**, 553 (2021). <https://doi.org/10.1186/s12884-021-04026-7>
- Filhastre, M., Dechaud, H., Lesnik, A. *et al.* Interstitial pregnancy: role of MRI. *Eur Radiol* **15**, 93–95 (2005). <https://doi.org/10.1007/s00330-004-2306-4>
- Gaillard, F., Pathania, D. Interstitial ectopic pregnancy. Reference article, Radiopaedia.org. (accessed on 14 Jun 2022) <https://doi.org/10.53347/rID-1510>
- Gaillard, F., Jones, J. Interstitial line sign. Reference article, Radiopaedia.org. (accessed on 15 Jun 2022) <https://doi.org/10.53347/rID-1511>