AMSER Case of the Month August 2025

49-year-old female with right lower quadrant pain

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Patient Presentation

- History of Present Illness: 49-year-old female presented to the emergency department complaining of sharp, intermittent right lower quadrant pain that started two hours prior. Pain onset was sudden, pain worsened with standing and improved with sitting. Patient reported current pain was not as severe as pain from prior kidney stones. Last menstrual period was 4 weeks ago and subsequent abnormal vaginal spotting 2 weeks ago. Patient currently denies dysuria, hematuria, vaginal discharge.
- Past Medical History: Breast cancer in remission, prior ectopic pregnancy on the right, kidney stones.
- Past Surgical History: Partial removal of right fallopian tube for treatment of ectopic pregnancy.

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Patient Presentation

- Physical Exam: RLQ tenderness to palpation with slight guarding, no right flank pain, +McBurney's.
- Vitals: HR 70 bpm, RR 14, BP 146/86, temp 37°C
- Differential diagnosis: Appendicitis, renal stone, ureteral stone, UTI, pyelonephritis, ectopic pregnancy, ovarian cyst.
- Labs:
  - Urine β-hCG: negative
  - Hemoglobin 7.3 (low) (baseline)
  - WBC: 5.4 (normal)
  - UA: no evidence of infection or blood

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What Imaging Should We Order?

ACR Appropriateness Criteria

Variant 4: **Acute pelvic pain in the reproductive age group. Nongynecological etiology suspected, β-hCG negative (either urine or serum). Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
US abdomen and pelvis transabdominal	Usually Appropriate	O
US duplex Doppler pelvis	Usually Appropriate	O
US pelvis transvaginal	Usually Appropriate	O
CT abdomen and pelvis with IV contrast	Usually Appropriate	☢☢☢
CT abdomen and pelvis without IV contrast	Usually Appropriate	☢☢☢
MRI abdomen and pelvis without and with IV contrast	May Be Appropriate (Disagreement)	O
MRI abdomen and pelvis without IV contrast	May Be Appropriate	O
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	☢☢☢☢

Given broad differential diagnosis for right lower quadrant pain, and history of malignancy, pelvic surgery for ectopic pregnancy, and kidney stones, CT abdomen and pelvis without IV contrast was ordered.

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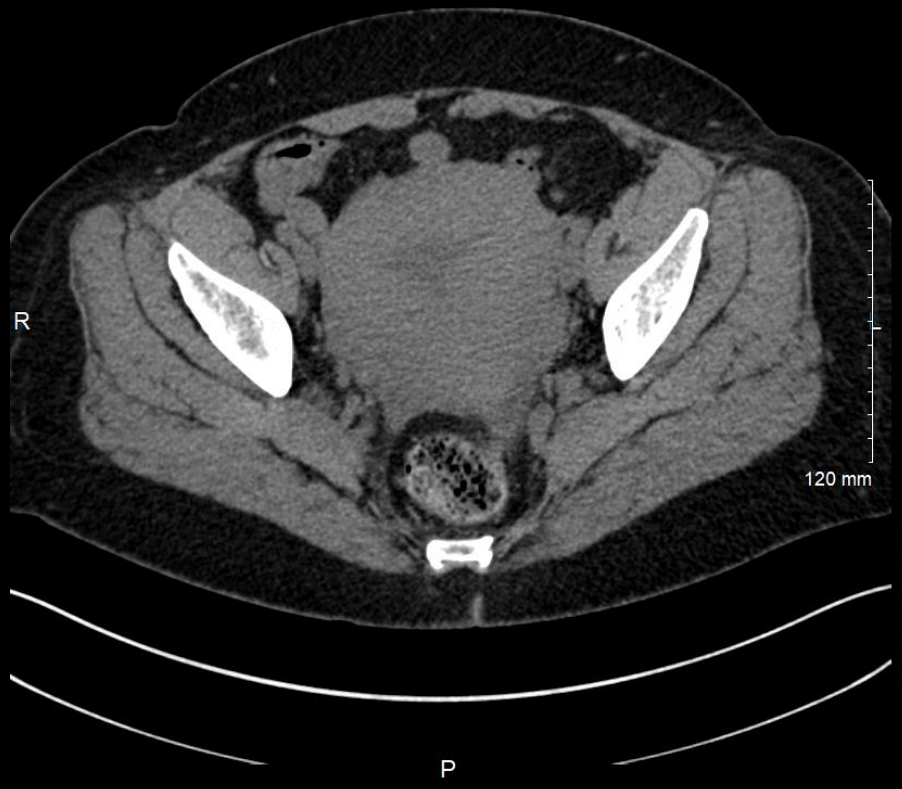
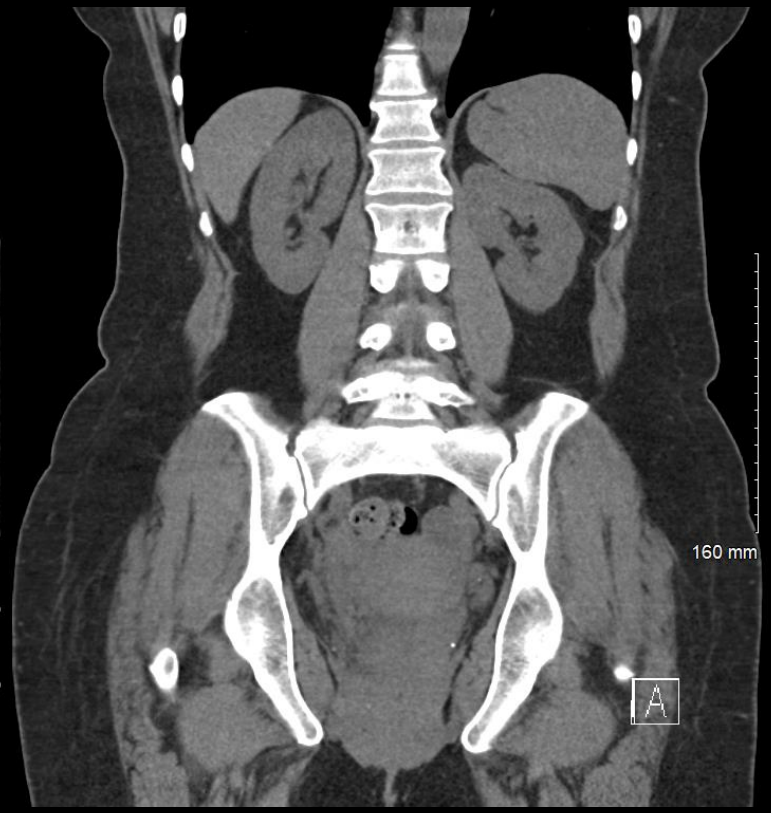
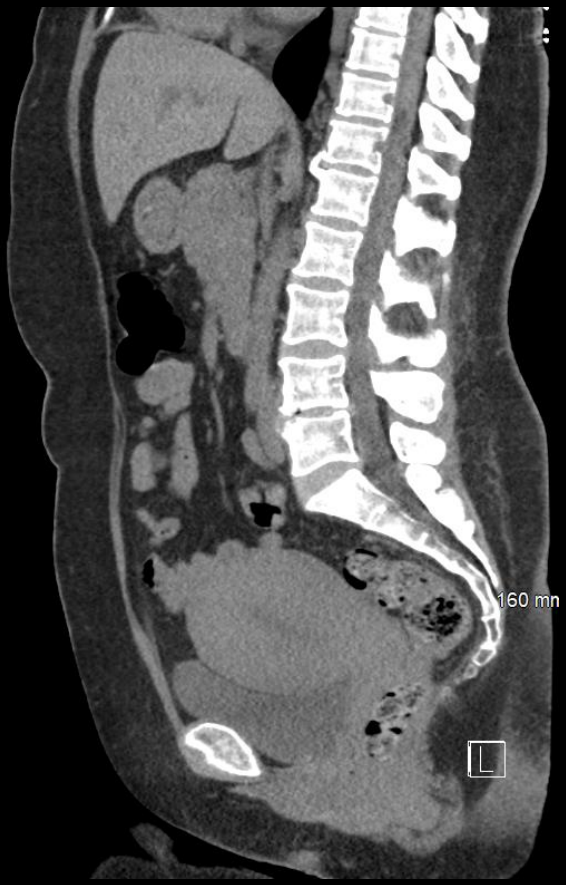
Findings (unlabeled)







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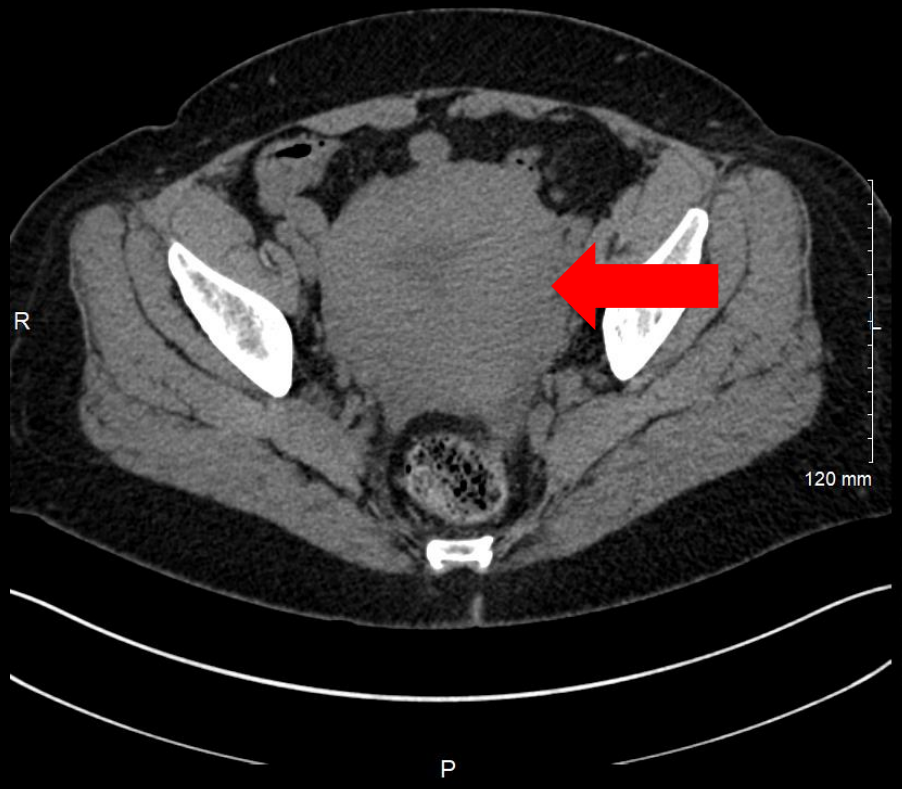

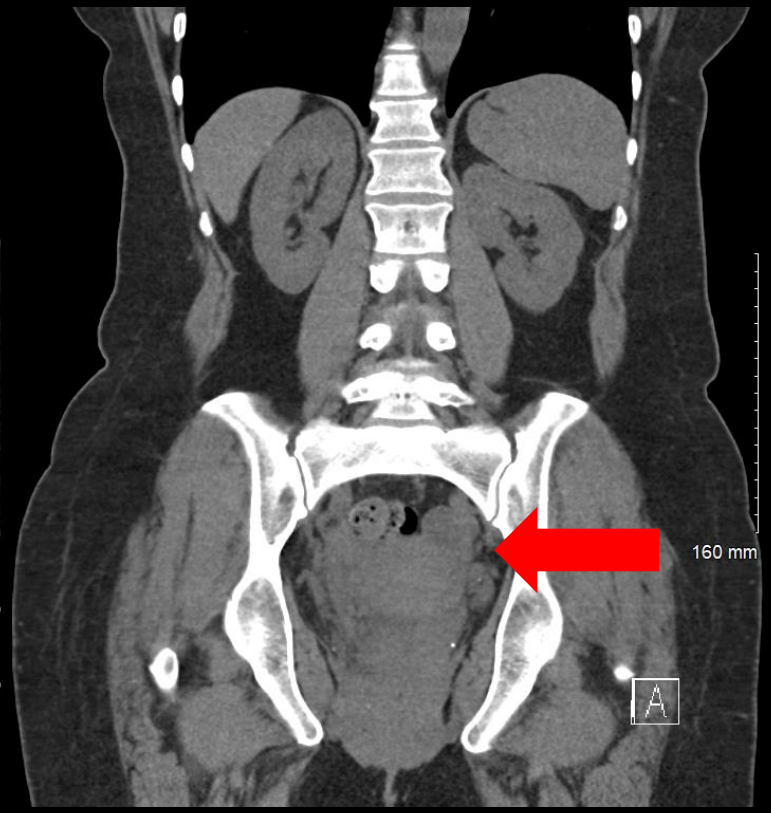

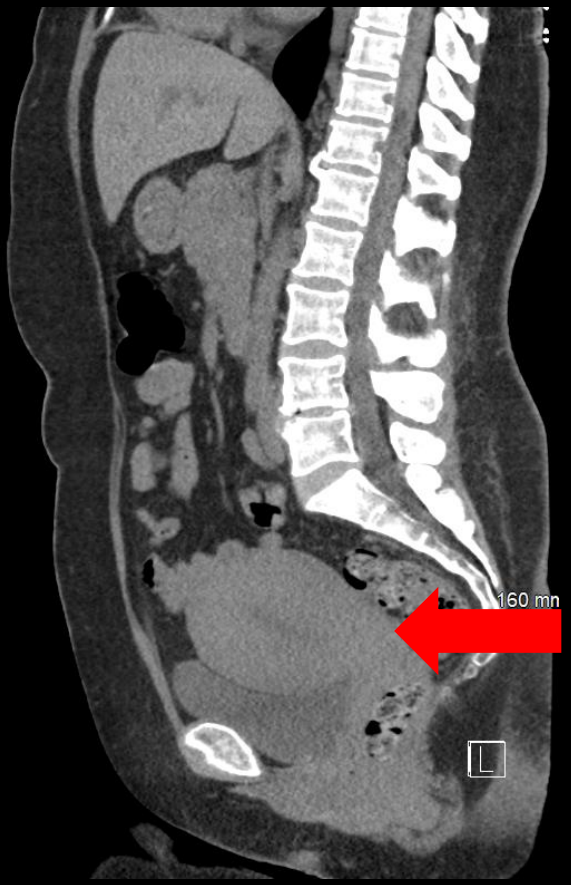

- Diffusely enlarged uterus measuring 12.5 x 7.5 x 10.0 cm
- No evidence of appendicitis, kidney stone, or other acute pathology.

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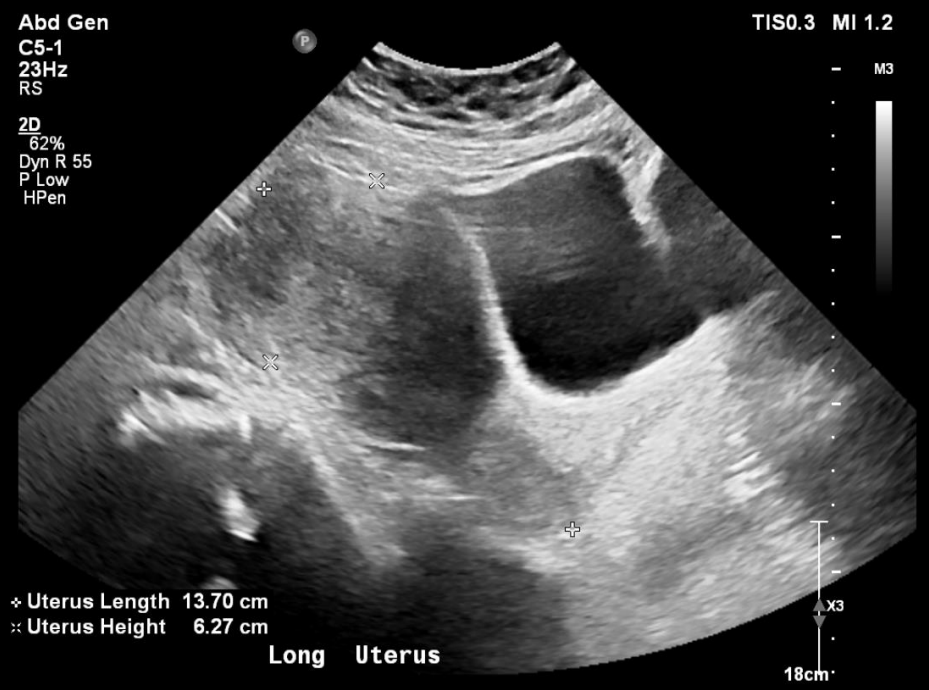
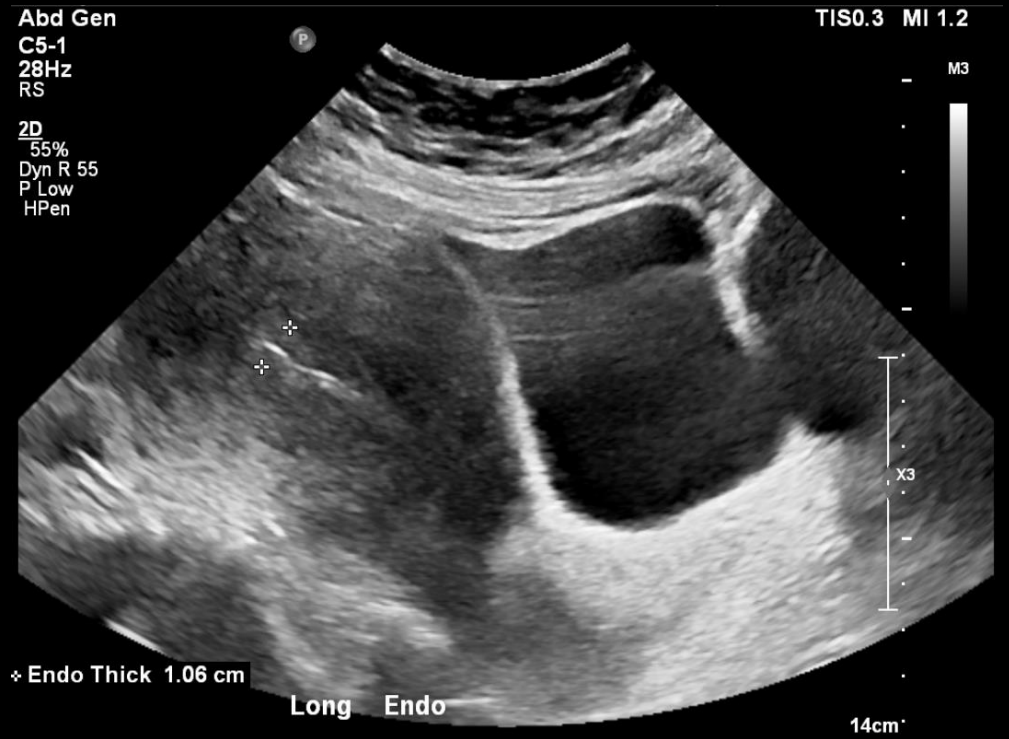
Patient Progress

- Diffusely enlarged uterus.
- Transabdominal and transvaginal ultrasound performed for greater definition to rule out fibroids or other endometrial masses.

Findings (unlabeled)





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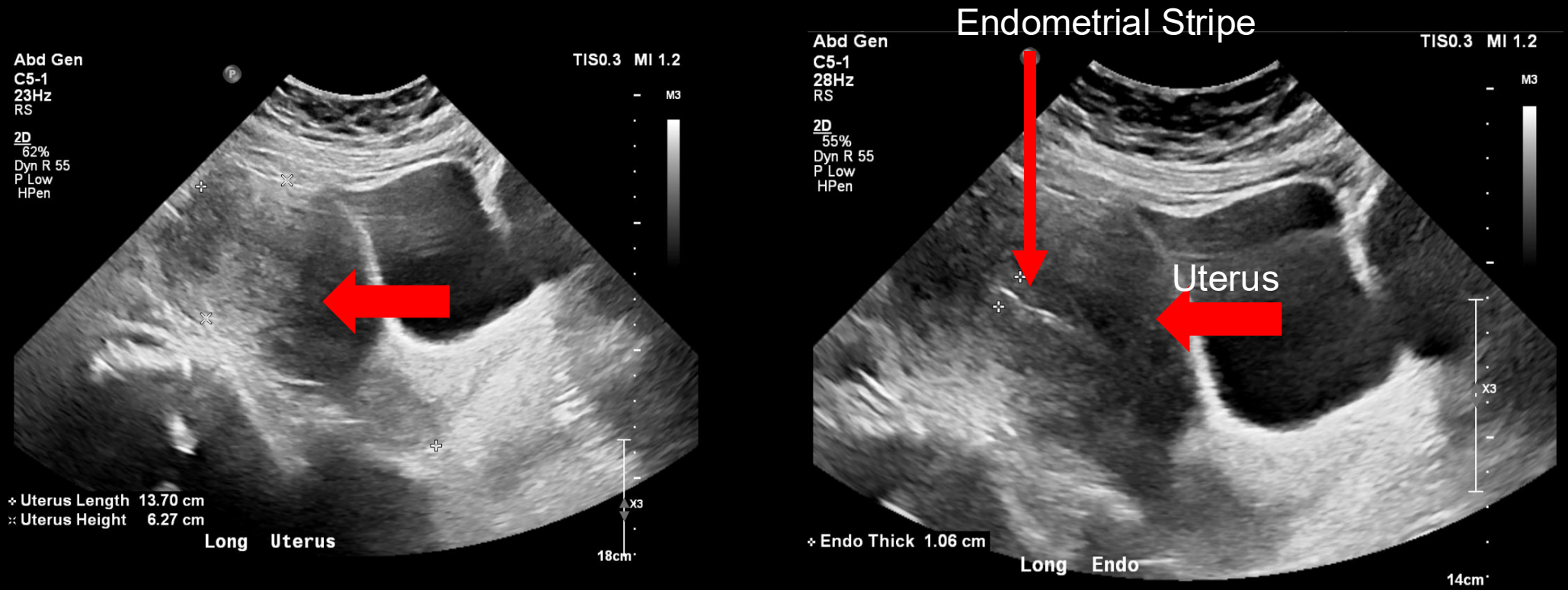

- Diffusely enlarged, globular uterus with indistinct architecture measuring 12.4 x 6.2 x 8.7 cm
- Endometrial stripe normal in thickness for pre-menopausal state
- Myometrium normal vascularity, no discrete uterine mass.

Patient Progress

- The patient was managed conservatively and referred for treatment of pelvic pain as an outpatient. In the next 12 months, the patient returned to the emergency department several times with symptoms of anemia, reporting heavy periods requiring 10-12 pads per day for 5 days.

What Imaging Should We Order?

ACR Appropriateness Criteria

Variant 2: **Abnormal uterine bleeding. Follow-up imaging when original ultrasound is inconclusive or further imaging characterization is needed.**

Procedure	Appropriateness Category	Relative Radiation Level
US sonohysterography	Usually Appropriate	O
MRI pelvis without and with IV contrast	Usually Appropriate	O
US duplex Doppler pelvis	May Be Appropriate (Disagreement)	O
US pelvis transabdominal	May Be Appropriate (Disagreement)	O
US pelvis transvaginal	May Be Appropriate (Disagreement)	O
MRI pelvis without IV contrast	May Be Appropriate (Disagreement)	O
CT pelvis with IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis without IV contrast	Usually Not Appropriate	☢☢☢
CT pelvis without and with IV contrast	Usually Not Appropriate	☢☢☢☢

Given uncontrolled pelvic pain with conservative measures and abnormal uterine bleeding, MRI pelvis without and with IV contrast.

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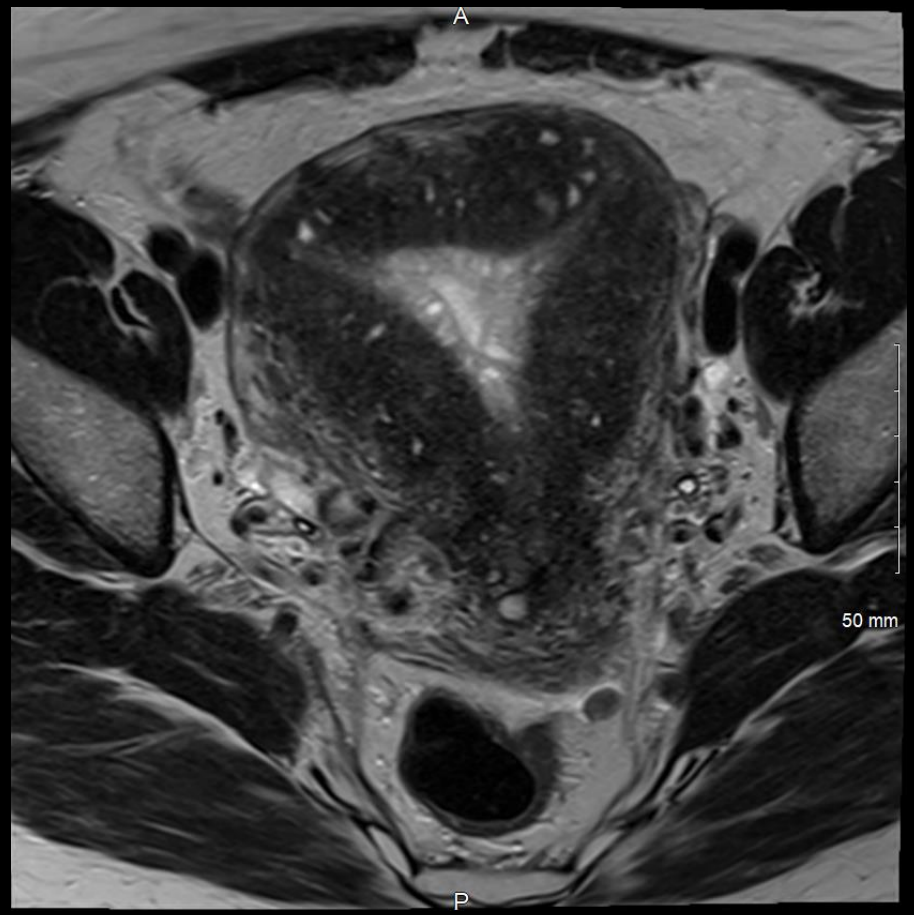
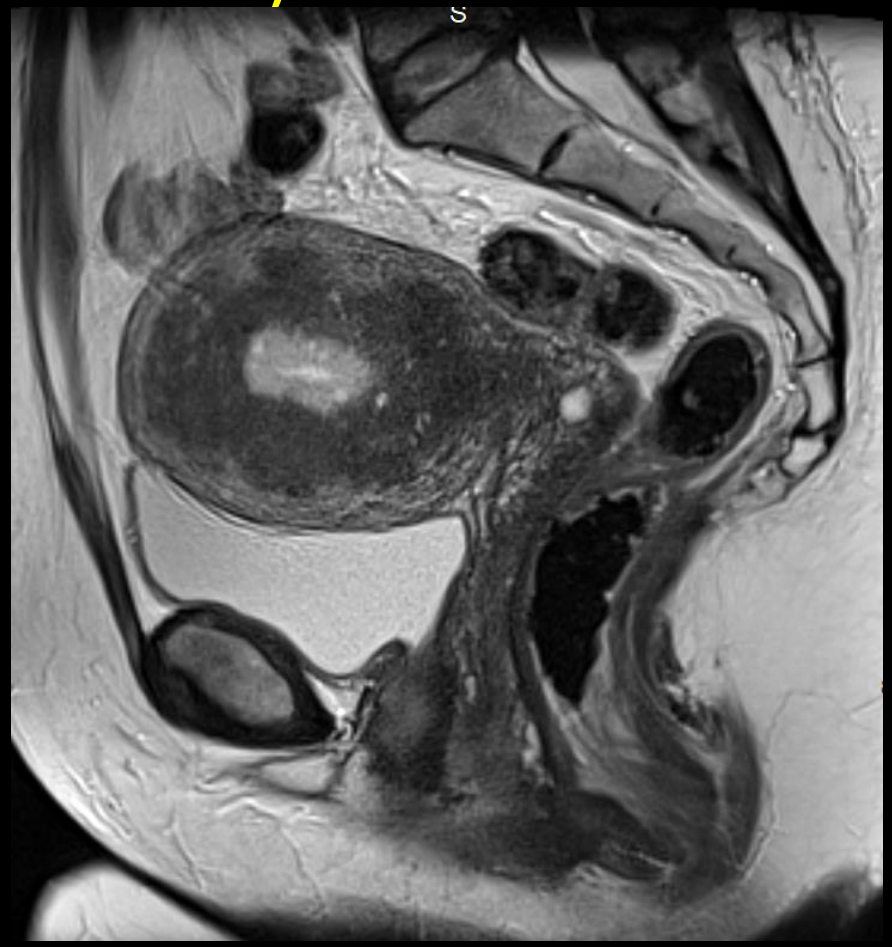
Findings (unlabeled)





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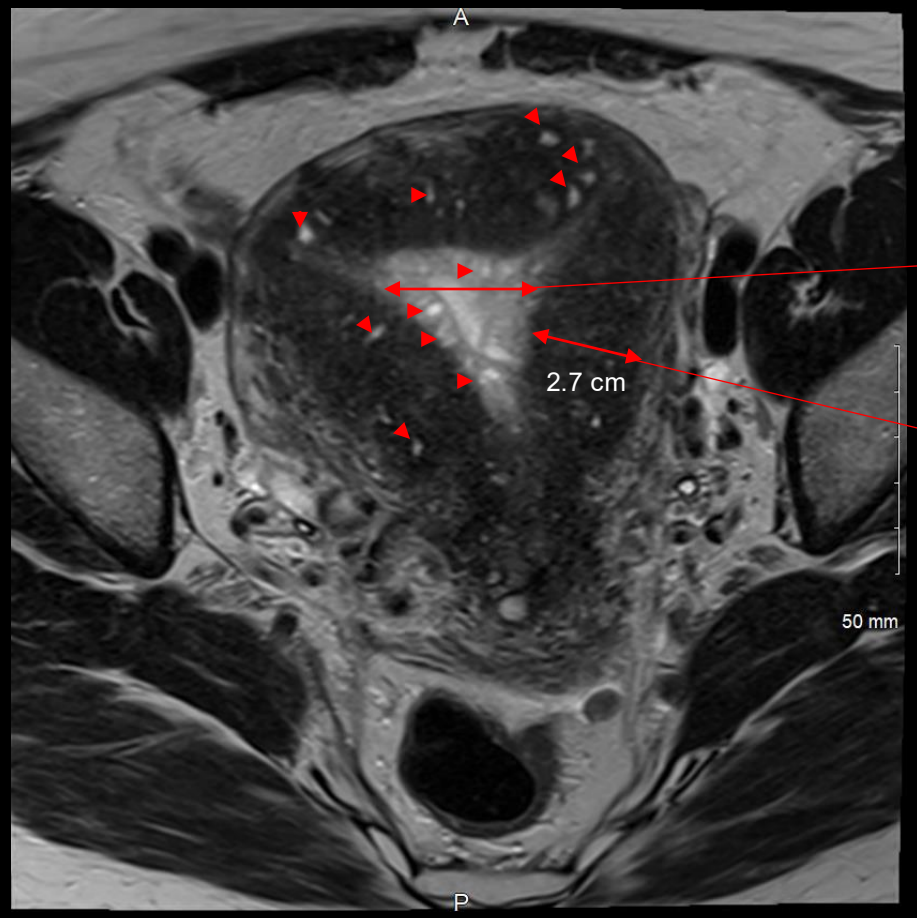
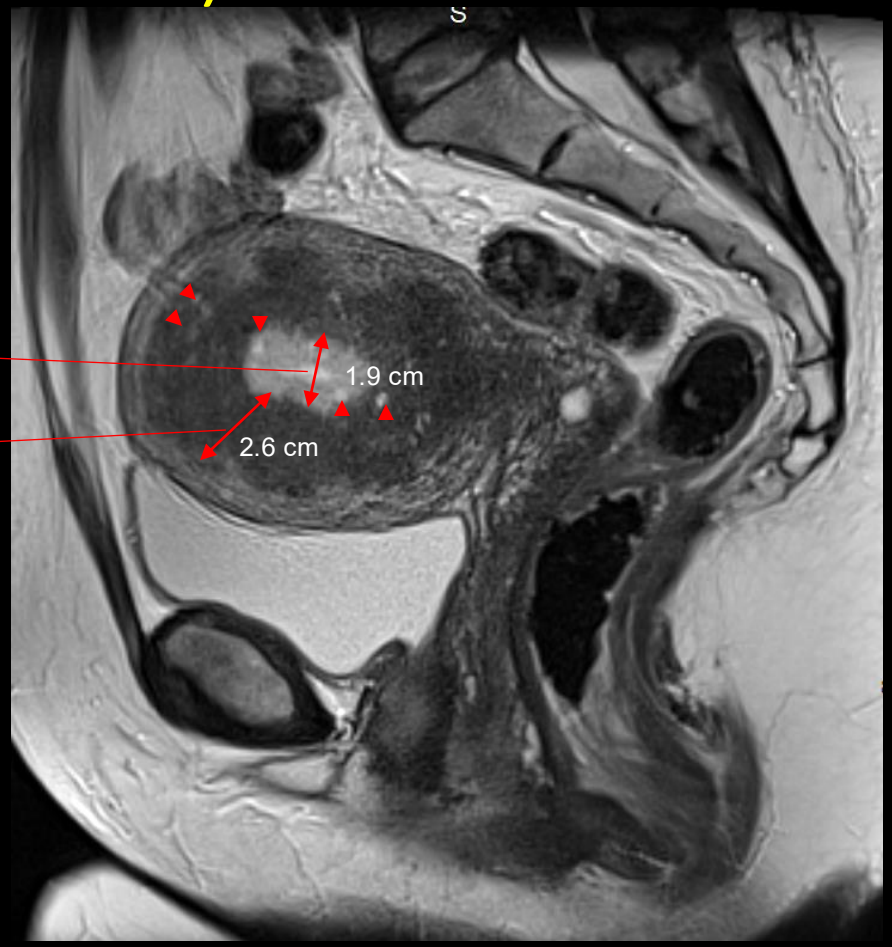


Endometrium

Endometrial Stripe

Junctional Zone



- Enlarged, globular uterus with diffuse thickening of the junctional zone containing numerous cystic foci (*arrowheads*).
- Thickened endometrium up to 1.9 cm
- No evidence of uterine fibroids

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Final Dx:

Adenomyosis

Case Discussion

- Adenomyosis:
  - The presence of endometrial glands within the myometrium[1].
  - Two main hypotheses[1]
    1. Invagination of the endometrial basalis into the myometrium after tissue injury.
    2. Metaplasia of displaced embryonic cells or differentiation of displaced stem cells.
- Overall incidence is around 1%[2]. Highest incidence in women aged 41-45 years[2].
- Adenomyosis mostly affects women in their reproductive years though it can also affect perimenopausal women in their 50s and 60s[3].

Case Discussion

- Traditionally was diagnosed post-hysterectomy, but advances in ultrasound and MRI have now made diagnosis possible by imaging[4].
- Symptoms[5]:
  - Abnormal uterine bleeding, pelvic pain, dysmenorrhea, dyspareunia.
  - Infertility.
- Management and Outcomes[5,6]:
  - Medical management of symptoms: NSAIDs, OCPs, Progestin-containing IUDs, GnRH analogues and antagonists.
  - Embolization is possible for focal adenomyosis.
  - Definitive treatment is hysterectomy.

References:

1. García-Solares J, Donnez J, Donnez O, Dolmans MM. Pathogenesis of uterine adenomyosis: invagination or metaplasia?. Fertil Steril. 2018;109(3):371-379. doi:10.1016/j.fertnstert.2017.12.030
2. Yu O, Schulze-Rath R, Grafton J, Hansen K, Scholes D, Reed SD. Adenomyosis incidence, prevalence and treatment: United States population-based study 2006-2015. Am J Obstet Gynecol. 2020;223(1):94.e1-94.e10. doi:10.1016/j.ajog.2020.01.016
3. Ascher SM, Jha RC, Reinhold C. Benign myometrial conditions: leiomyomas and adenomyosis. Top Magn Reson Imaging. 2003;14(4):281-304. doi:10.1097/00002142-200308000-00003
4. O'Shea A, Figueiredo G, Lee SI. Imaging Diagnosis of Adenomyosis. Semin Reprod Med. 2020;38(2-03):119-128. doi:10.1055/s-0040-1719017
5. Schrager S, Yogendran L, Marquez CM, Sadowski EA. Adenomyosis: Diagnosis and Management. Am Fam Physician. 2022;105(1):33-38.
6. Donnez J, Donnez O, Dolmans MM. Introduction: Uterine adenomyosis, another enigmatic disease of our time. Fertil Steril. 2018;109(3):369-370. doi:10.1016/j.fertnstert.2018.01.035

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