# Pelvic Pain with Ovarian Cysts

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RAD 4001

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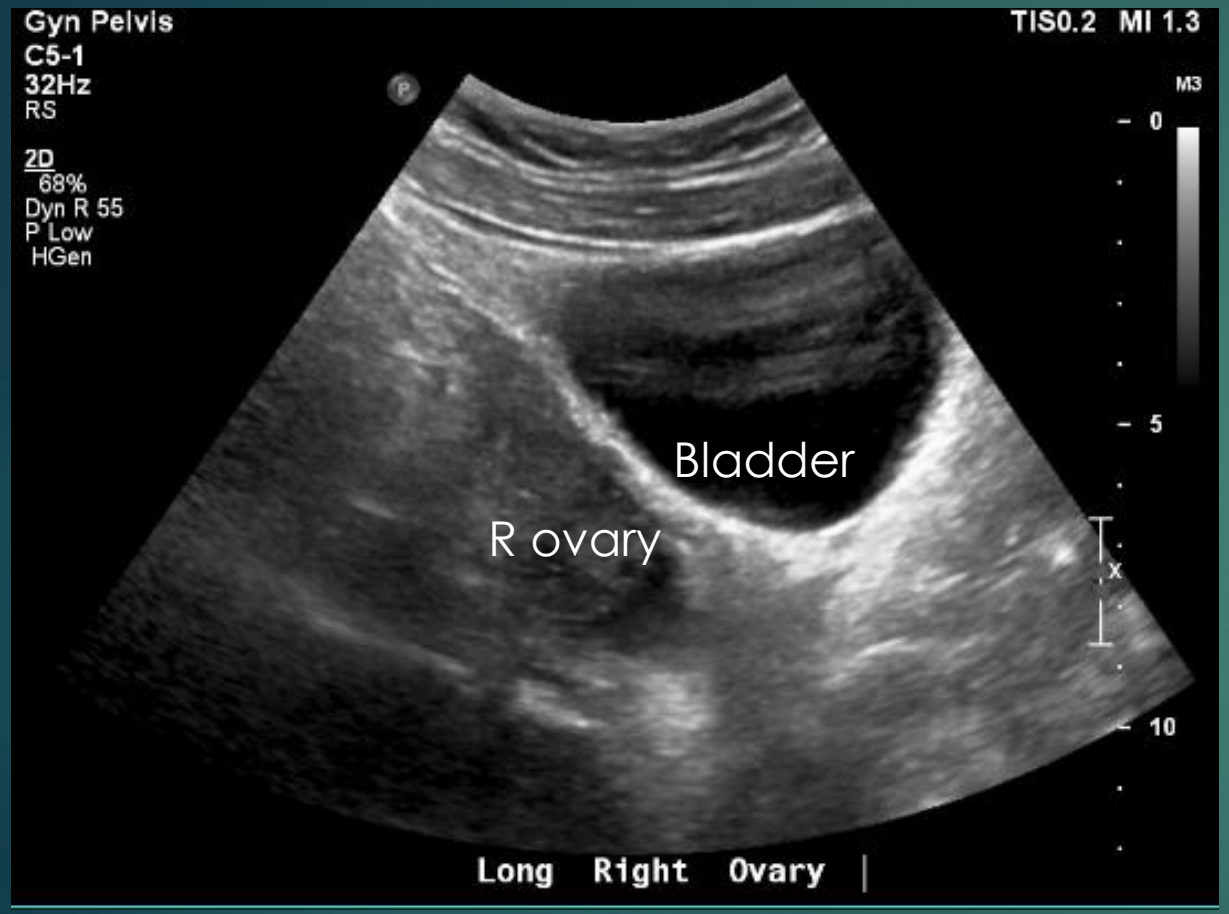
# Clinical History

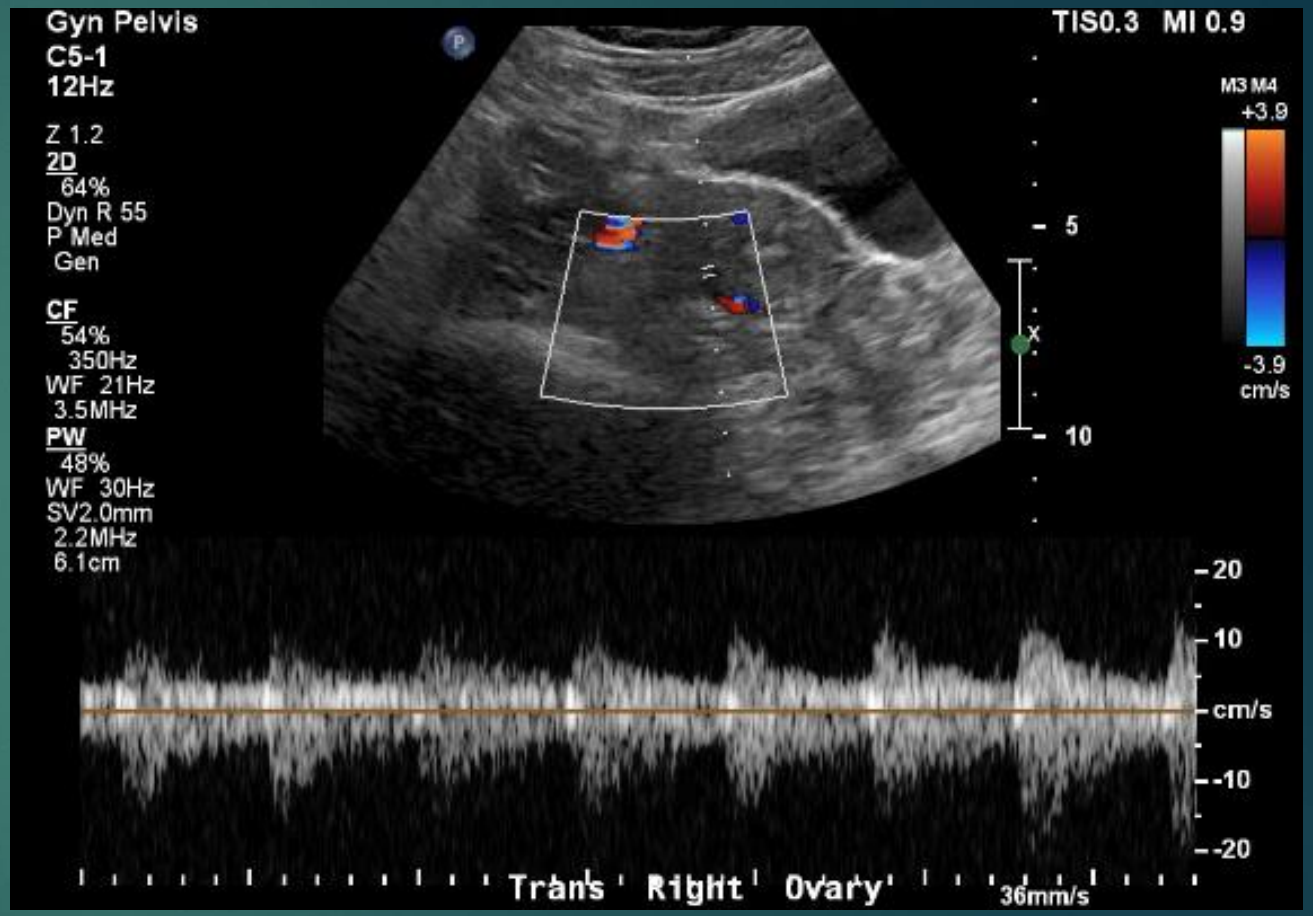
- 33 year old G0 woman presenting from an outside ED with intermittent abdominal pain accompanied with nausea and vomiting over the last week. OSH reported negative pregnancy test with a transvaginal ultrasound with doppler significant for 2 Left ovarian cysts with bilateral flow and pelvic free fluid. Reported regular menstrual periods with next one due "in a couple of days".
  - Surgical History significant for appendectomy
  - Past ObGYN Hx without STI/STDs and sexually active with 1 partner
- Physical Exam:
  - Vitals WNL
  - Exam findings significant for:
    - TTP in the RLQ with voluntary guarding, but without rebound tenderness
    - Vaginal Exam with fullness in LLQ, but no cervical motion tenderness
  - Pregnancy and covid tests negative, UA and B-hcg within normal limits

# Differential Diagnosis

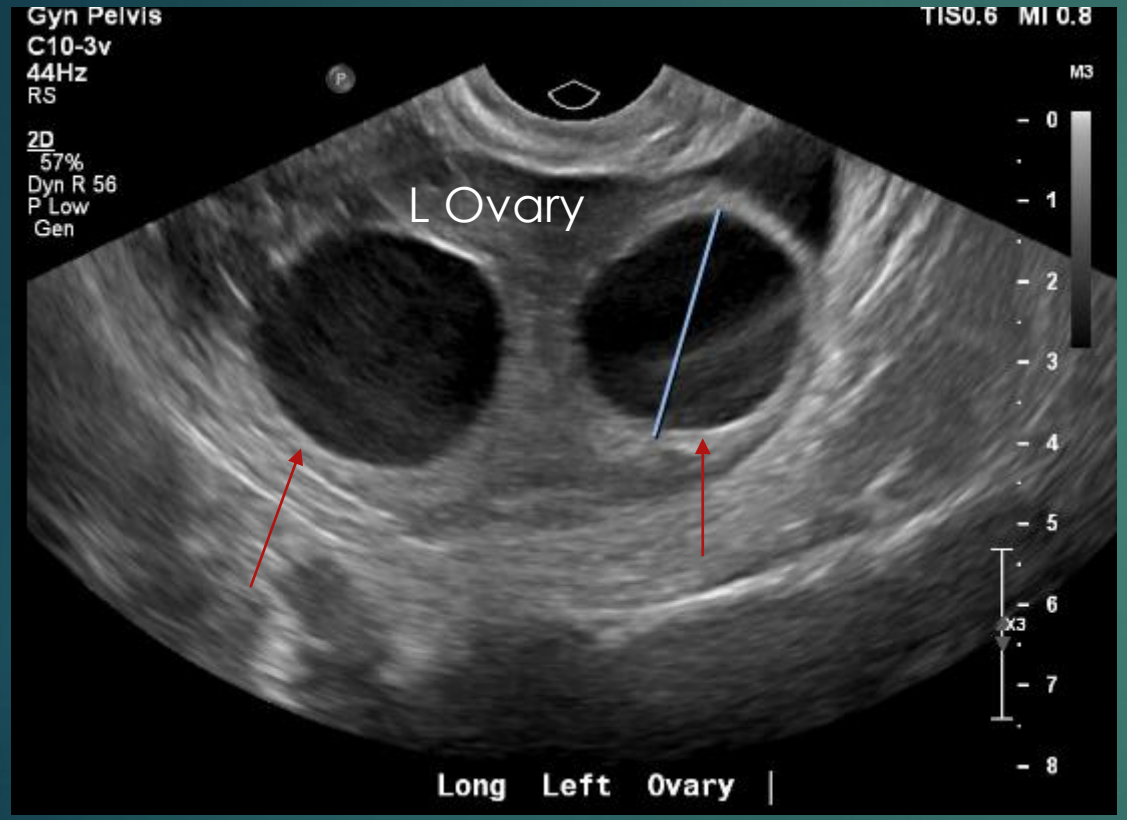
- Intermittent ovarian torsion
- Ruptured ovarian cysts
- Abscess
- Endometrioma
- Physiologic/hormonal pain
- STD

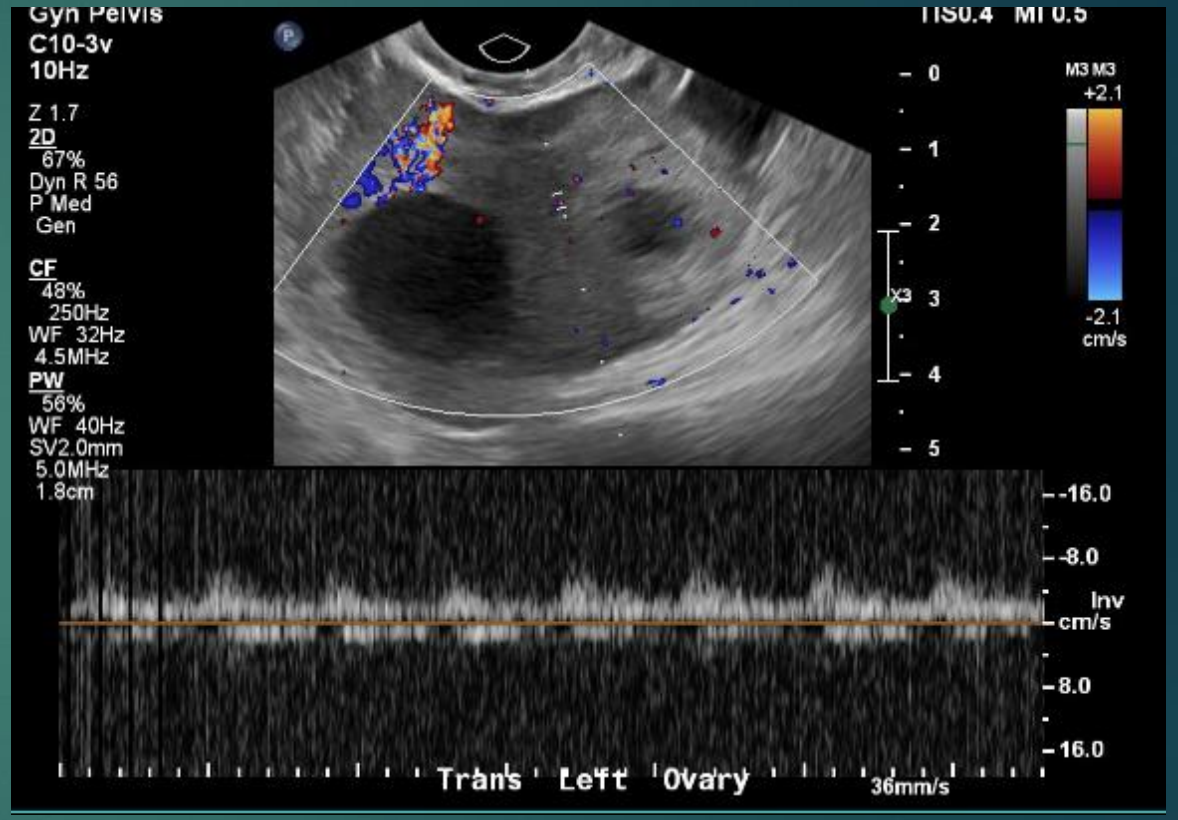
# Pelvic U/S 10/4 normal anatomy



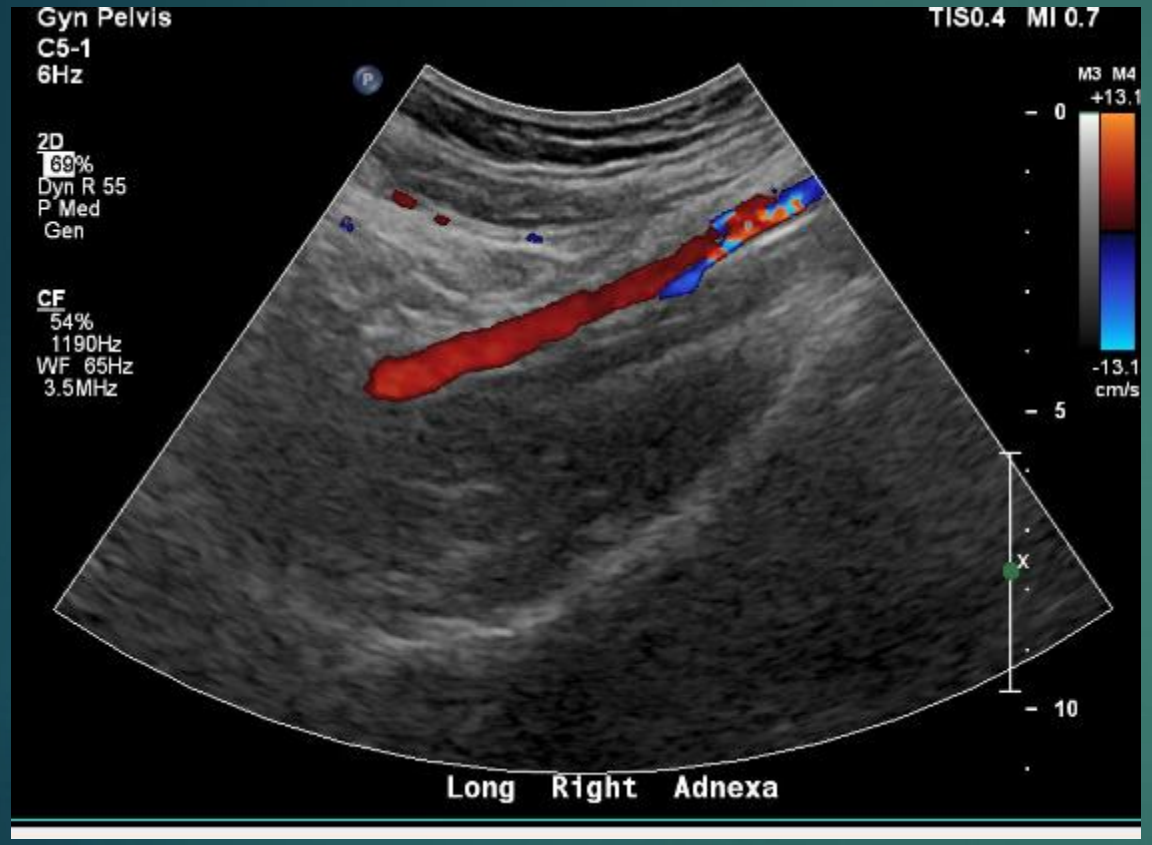



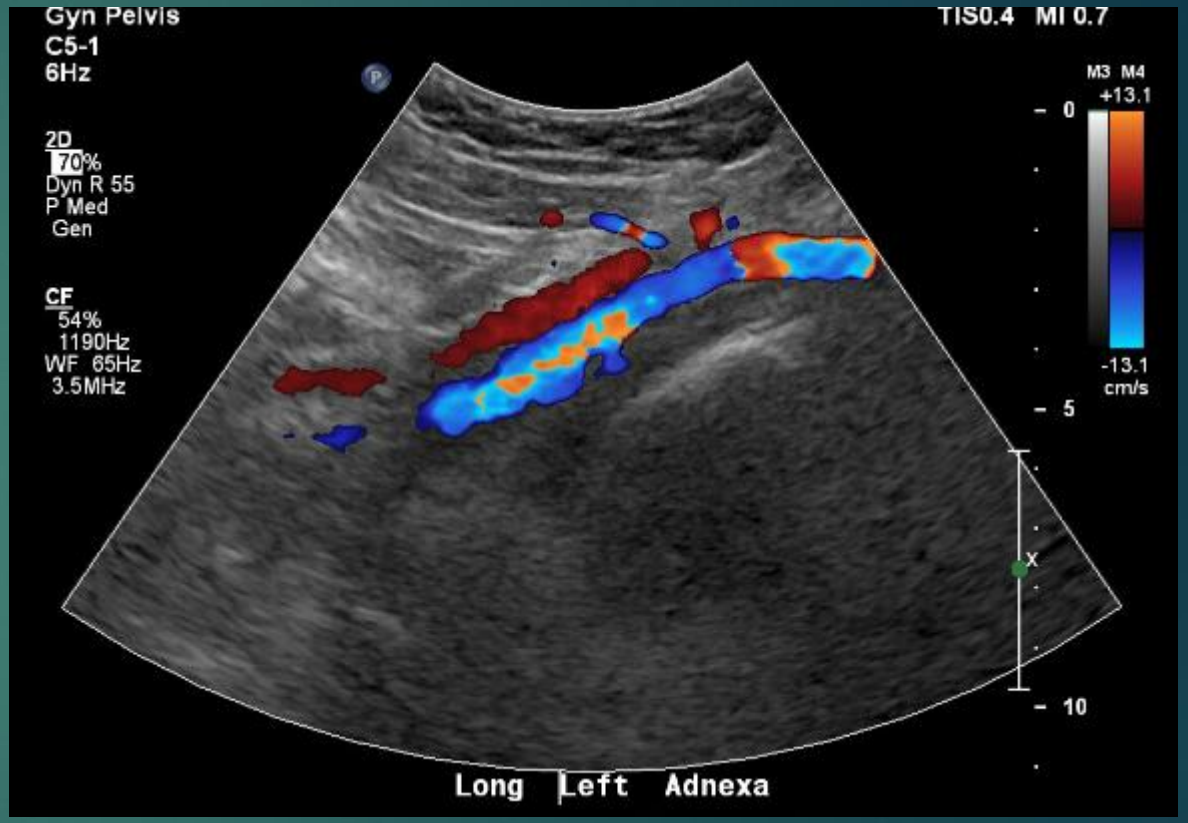
# Pelvic Ultrasound 10/4



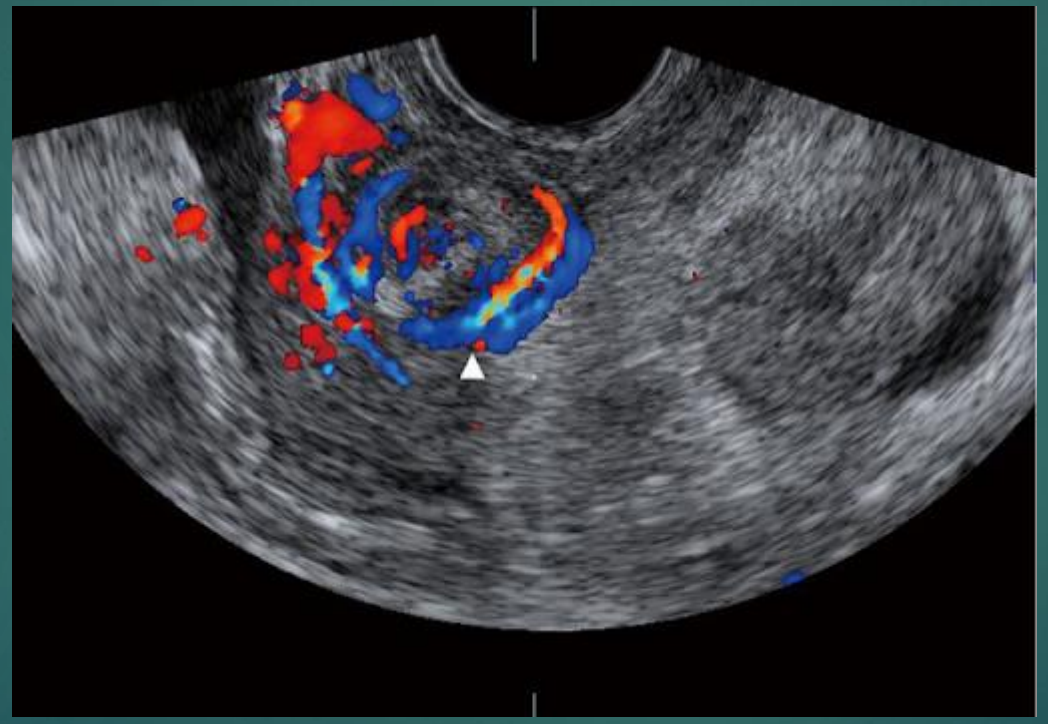
# Pelvic Ultrasound 10/4



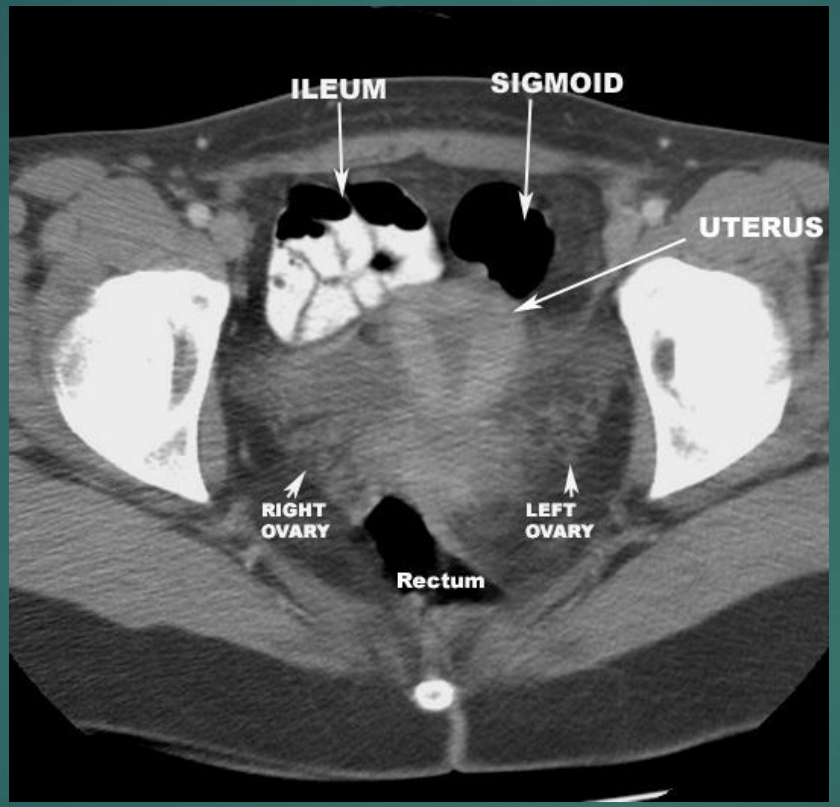
# Whirlpool sign

- The whirlpool sign is a reliable clinical indicator of ovarian torsion in reproductive aged women, along with edema and lack of flow in the ovary itself



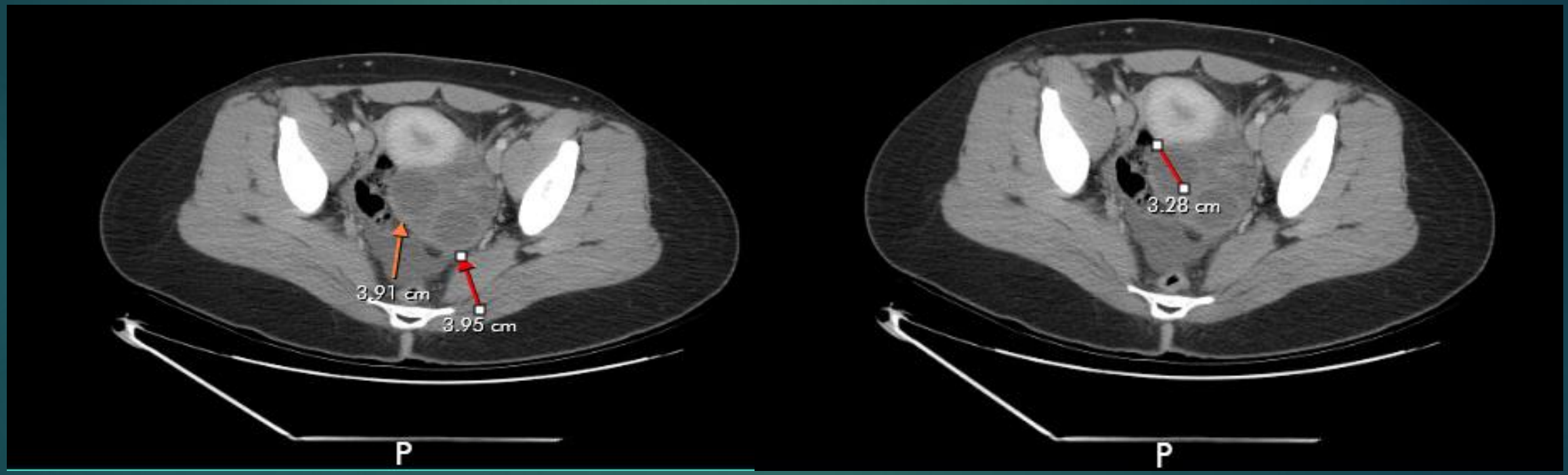
http://qims.amegroups.com/article/view/32542/27325

# CT Pelvis, normal female anatomy

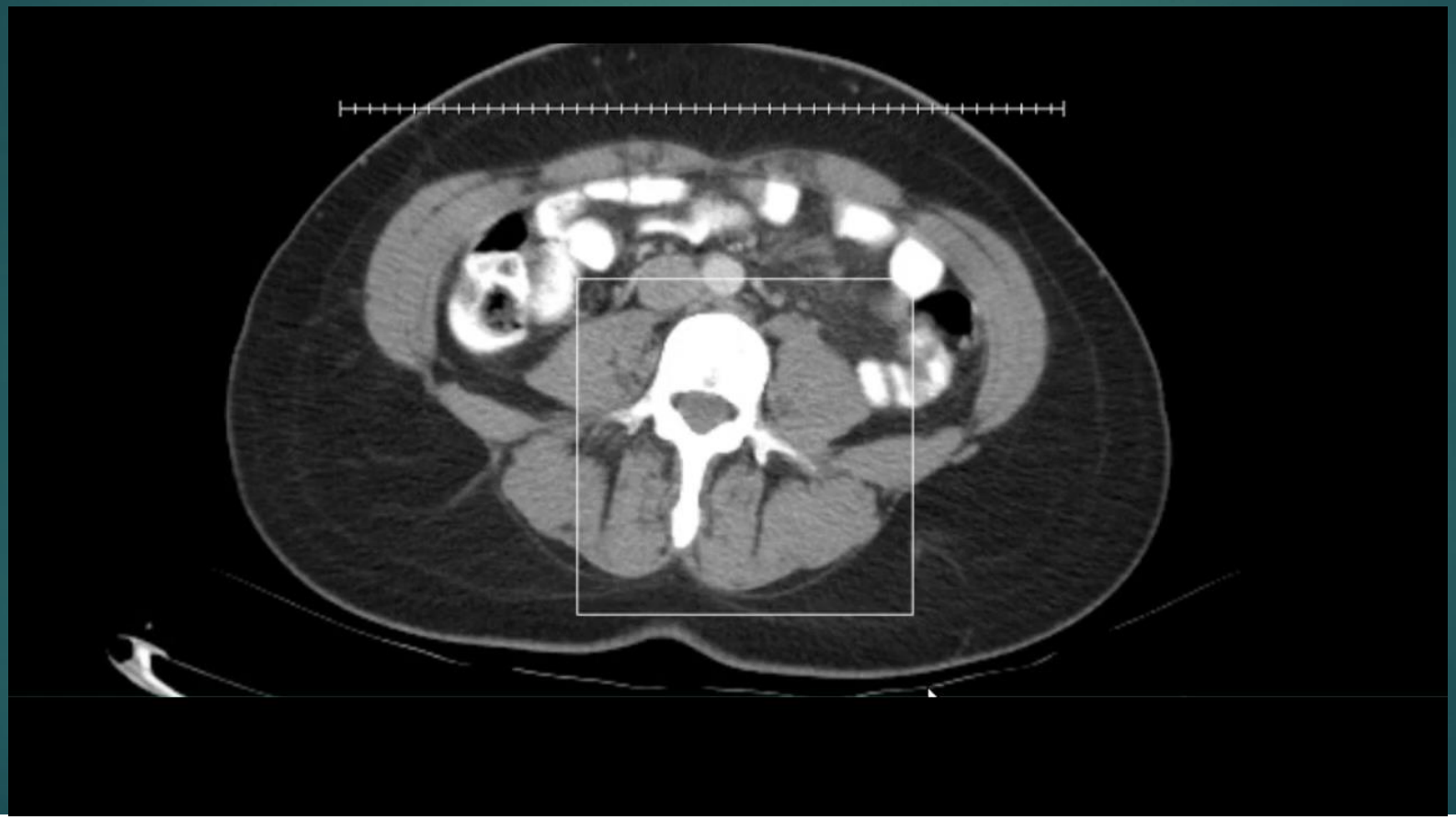



- http://www.meddean.luc.edu/lumen/MedEd/Radio/curriculum/GI/sandy138a.jpg

# CT Pelvis w/ IV contrast, 10/4



# More relevant imaging



# Key findings

- Anteverted uterus
- Numerous benign appearing left ovarian cysts, measuring >3 cm, largest being approximately 3.5 cm
- Small amount of pelvic free fluid
- Ultrasound specifically demonstrated simple L ovarian cysts and bilateral arterial flow to the ovaries and was sufficient to rule out acute ovarian torsion, however intermittent torsion still remained a possibility

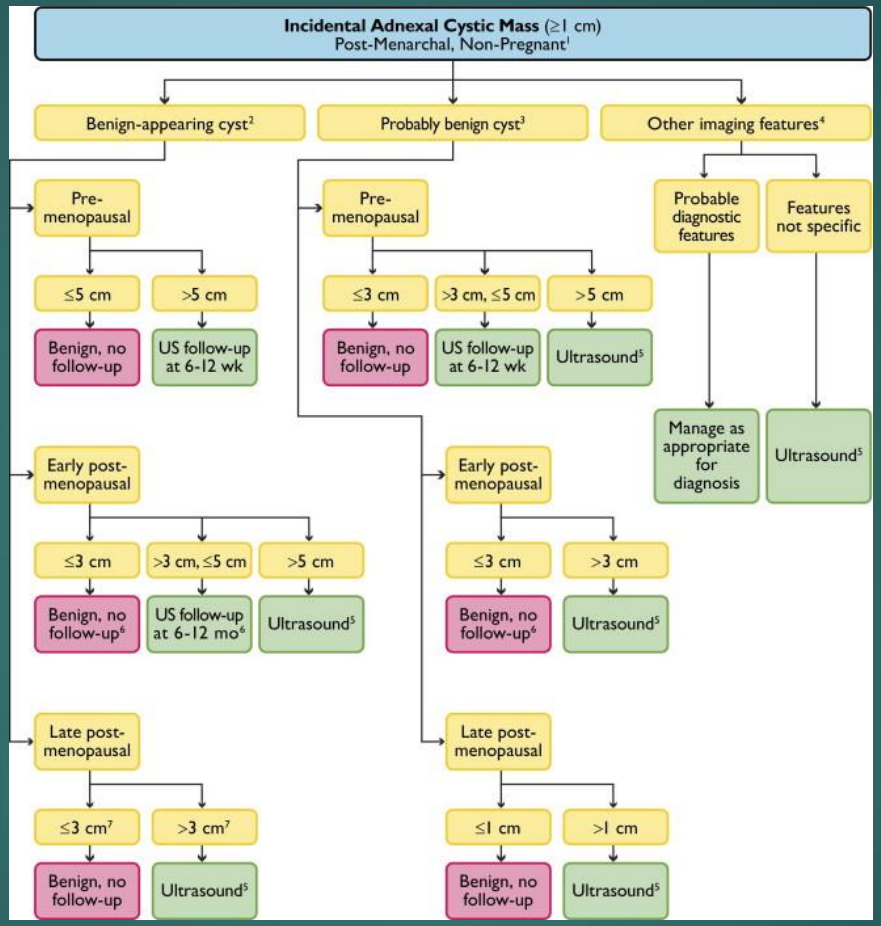
# Final Diagnosis: Dysmenorrhea

- The patient was kept for overnight observation due to possibility of intermittent torsion
  - Stayed overnight with clinical improvement in symptoms
  - Pain did not require narcotics
- Minimal free fluid in pelvis made torsion or cyst less likely as both would present with significant free fluid
- Maintenance of flow on dopplers to bilateral ovaries
- Given her clinical improvement, patient was discharged to follow up with her OB/GYN

# Discussion

- Most likely due to menstrual pains
  - Menstrual pains are caused by contraction of the uterus due to release of prostaglandins around the time of menstruation
    - The timing of her symptoms fits with her presentation
  - Can be managed on an outpatient basis
- What about the cysts?
  - Patient would need a follow up ultrasound only if her symptoms persist over the next few weeks
  - Given that the cysts were benign appearing and <5 cm, there would be no clinical indication for an ultrasound as part of routine follow up

# Discussion cont.




Obtained from Patel, Maitray D et al. "Managing Incidental Findings on Abdominal and Pelvic CT and MRI, Part 1: White Paper of the ACR Incidental Findings Committee II on Adnexal Findings." *Journal of the American College of Radiology* 10.9 (2013): 675-681. Web.

# ACR appropriateness Criteria

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

**Variant 2:** Gynecological etiology suspected, serum β-hCG negative.

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| US pelvis transvaginal | 9 | Both transvaginal and transabdominal US should be performed if possible. | O |
| US pelvis transabdominal | 9 | Both transvaginal and transabdominal US should be performed if possible. | O |
| US duplex Doppler pelvis | 9 | | O |
| MRI pelvis without and with 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 and with 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 IV contrast | 4 | 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 | 4 | 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 |
| CT abdomen and pelvis with IV contrast | 4 | This procedure can be performed if US is inconclusive or nondiagnostic and MRI is not available. See the Summary of Literature Review for the use of contrast media. | ☢☢☢ |

Per mdsave.com, the cost of a TVUS is $394 on average, Doppler US is $324 on average, and a CT A/P with contrast is 647 on average. In total, this patient's cost of imaging can be estimated at $1365.

# Take Home Points / Teaching points

- The most common causes of lower abdominal pain in premenopausal women are: appendicitis, cholecystitis, or gynecologic (e.g. mittelschmerz, pregnancy).
- Benign appearing cysts in a premenopausal women do not require surveillance if asymptomatic
- Initial workup for abdominal pain in a woman requires rule out of pregnancy before exposure to radiation
- Ovarian torsion can be diagnosed on ultrasound by the combination of ovarian edema, whirlpool sign, and/or lack of blood flow to ovaries
- The presence of blood flow does not exclude ovarian torsion due to its dual supply from the ovarian and uterine arteries, consider the clinical picture

# References


- Andreotti, Rochelle F. et al. “ACR Appropriateness Criteria on Acute Pelvic Pain in the Reproductive Age Group.” *Journal of the American College of Radiology* 6.4 (2009): 235-241. Web. Available at: https://acsearch.acr.org/docs/69503/Narrative/. Accessed 10/10/2020.
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- Feng, Jie-Ling, Ju Zheng, Ting Lei, Yong-Jian Xu, Hui Pang, & Hong-Ning Xie. "Comparison of ovarian torsion between pregnant and non-pregnant women at reproductive ages: sonographic and pathological findings." *Quantitative Imaging in Medicine and Surgery* [Online], 10.1 (2020): 137-147. Web. 13 Oct. 2020
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# Questions?

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