

RADY 401 Case Presentation

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SCHOOL OF MEDICINE
Radiology

Focused patient history and workup

- Ms. O is a 24 yo G0 who presented as a transfer from infertility clinic with nausea, vomiting, and abdominal pain, in the setting of IVF oocyte retrieval earlier that day. Her cramping began the night before and worsened after the procedure. The nausea and vomiting began after the procedure, but worsened throughout the day. She became concerned when these symptoms did not improve with anti-emetics. She has not been able to tolerate PO.

VS: HR 102, otherwise wnl

Exam: NAD, tenderness to palpation in bilateral lower quadrants, +guarding. No rigidity or rebound. No palpable adnexal masses bilaterally

Labs: UPT negative

Differential Diagnosis¹

Differential for woman with acute pelvic pain, nausea, vomiting

- Ovarian torsion
- Appendicitis
- Ruptured ovarian cyst
- Ectopic pregnancy
- Tubo-ovarian abscess

List of imaging studies

- Transvaginal Ultrasound with color & spectral Doppler

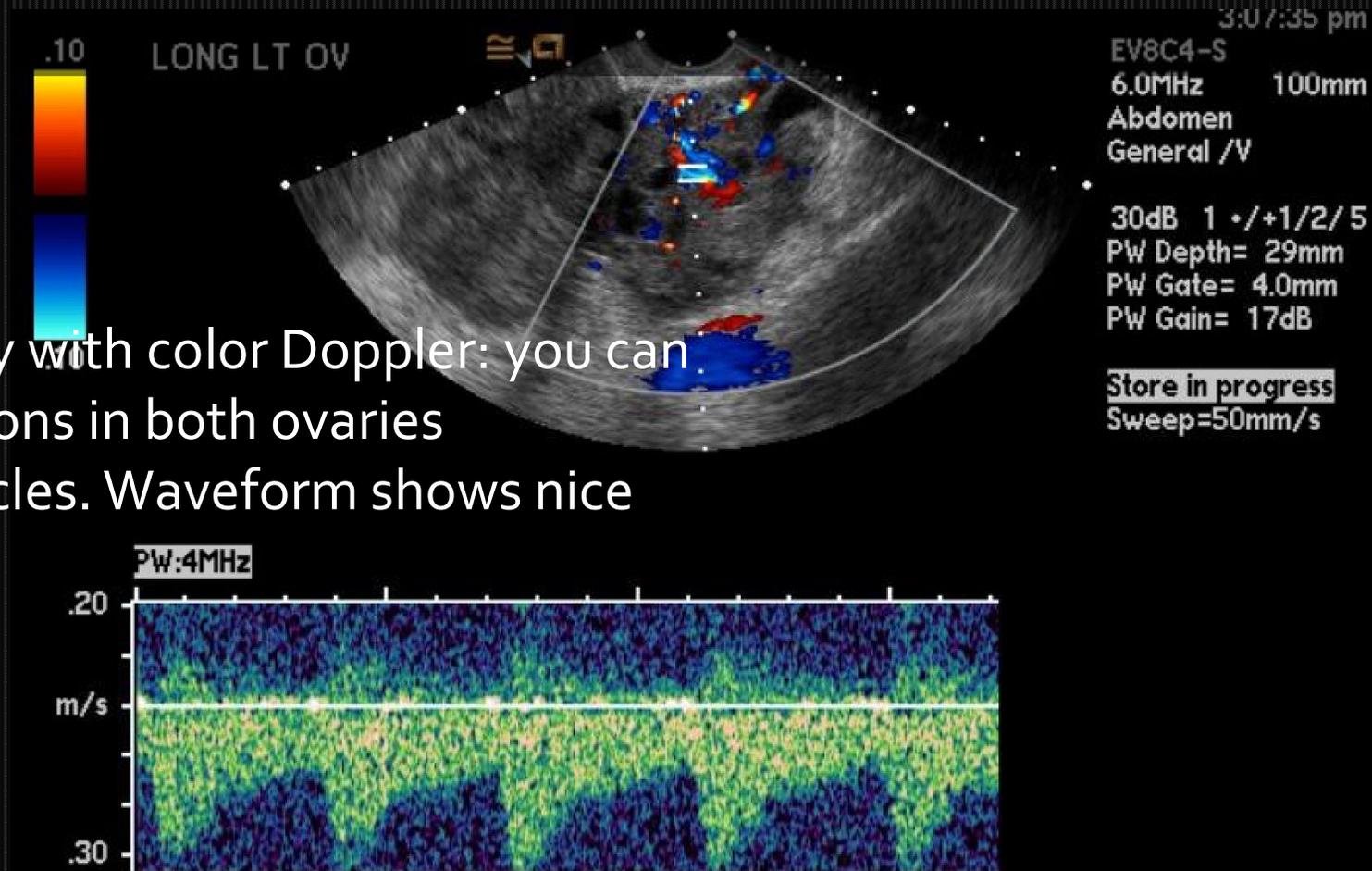
TVUS Report Findings from Epic

- *OVARIES: The ovaries were seen well transvaginally. Bilateral enlarged ovaries with multiple small cystic areas were seen within both ovaries compatible with follicles. And ovaries are adjacent to each other at the midline. Arterial and venous flow was seen in both ovaries with color and spectral doppler although color and spectral waveforms on the right side demonstrated less prominent arterial flow.*

TVUS Results

Left Ovary:

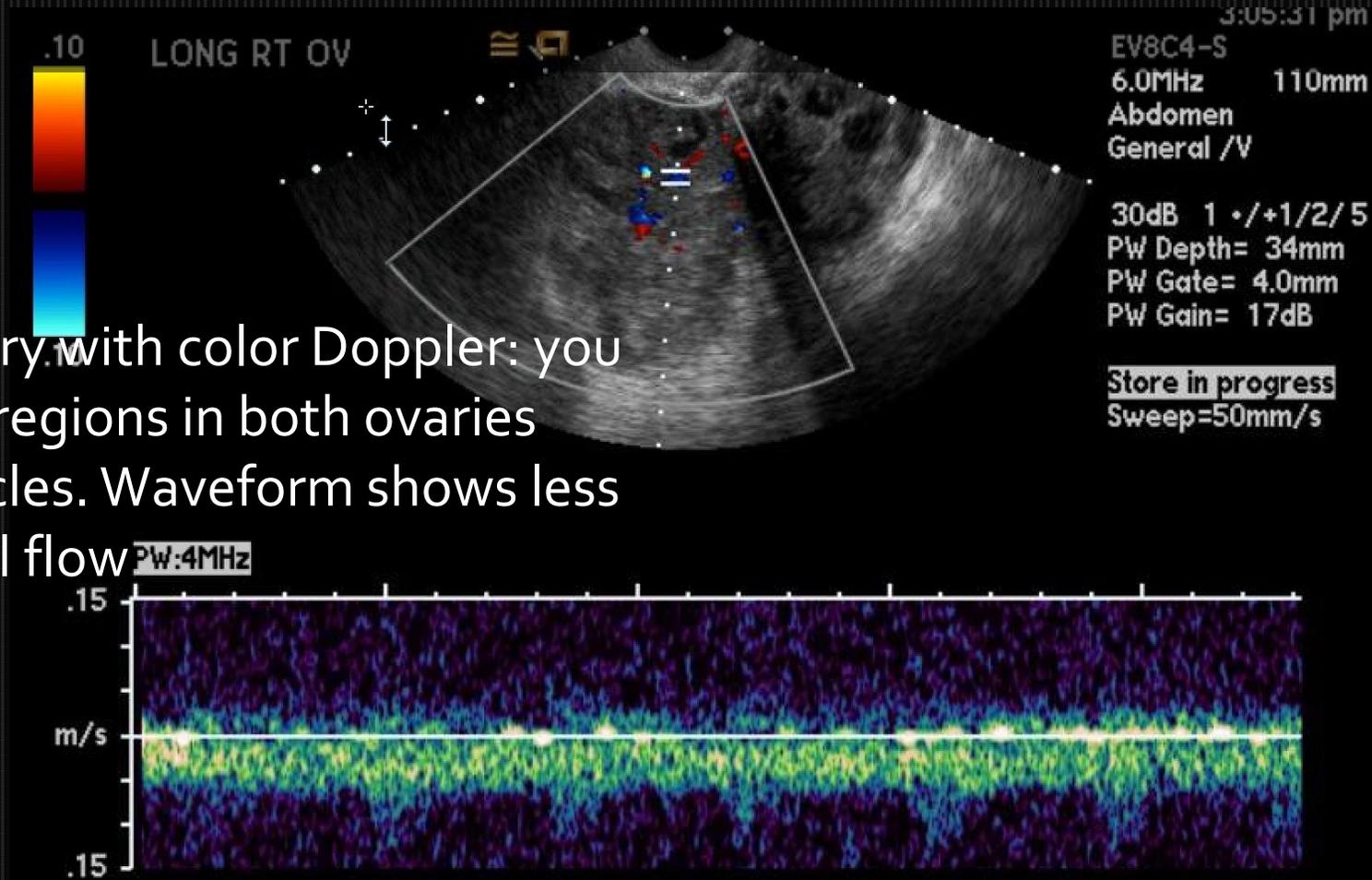
TVUS of left ovary with color Doppler: you can see anechoic regions in both ovaries representing follicles. Waveform shows nice arterial flow



TVUS Results

Right ovary:

TVUS of right ovary with color Doppler: you can see anechoic regions in both ovaries representing follicles. Waveform shows less prominent arterial flow



TVUS Report Impression

- *Bilaterally enlarged ovaries with multiple follicles, likely due to ovarian hyperstimulation syndrome.*
- *Color and spectral waveforms on the right side demonstrated less prominent arterial flow compared to the left side and this could be due to technical reasons although intermittent or incomplete torsion cannot be excluded. Clinical correlation is recommended.*

Patient treatment or outcome

- Despite the TVUS findings, the patient's clinical picture was **not concerning** for ovarian torsion that required surgical management.
- Abdominal pain/discomfort could be explained by oocyte retrieval procedure. Patient was kept for observation overnight due to nausea and no PO intake
- Patient discharged HD#2 after improvement of Sx.

Common Presenting Symptoms of Ovarian Torsion¹

- Pelvic Pain (90%)
- Adnexal Mass (86-95%)
- Nausea and vomiting (47-70%)
- Fever (2-20%)
- Abnormal genital tract bleeding

Discussion: Torsion Workup¹

- History & Exam
- Labs: Serum β -hCG, Hct, WBC, chemistries
- Imaging: Ultrasound is appropriate (no radiation, permits real-time imaging with documentation of vascular flow to the ovary (or lack thereof) with Doppler. MRI/CT are more expensive and not much better
- Diagnosis is clinical \rightarrow can only be confirmed in laparoscopy

Discussion: ACR Appropriateness Criteria²

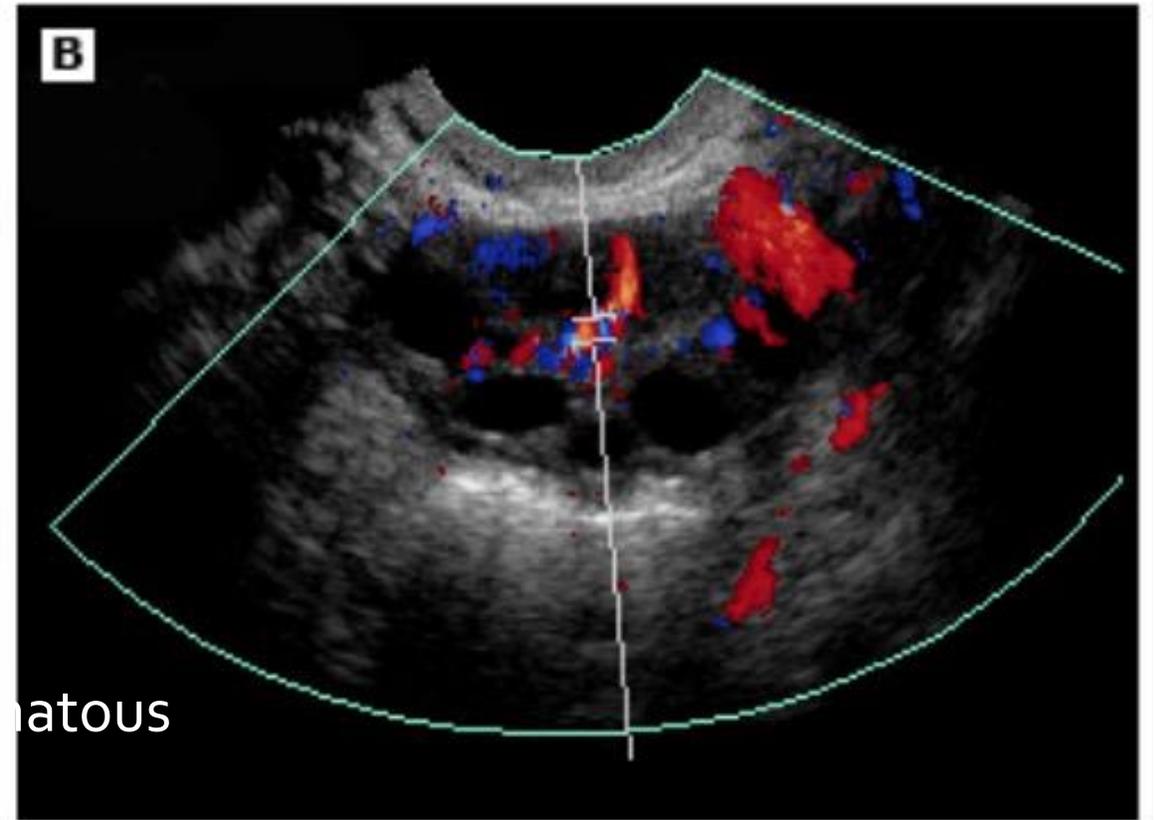
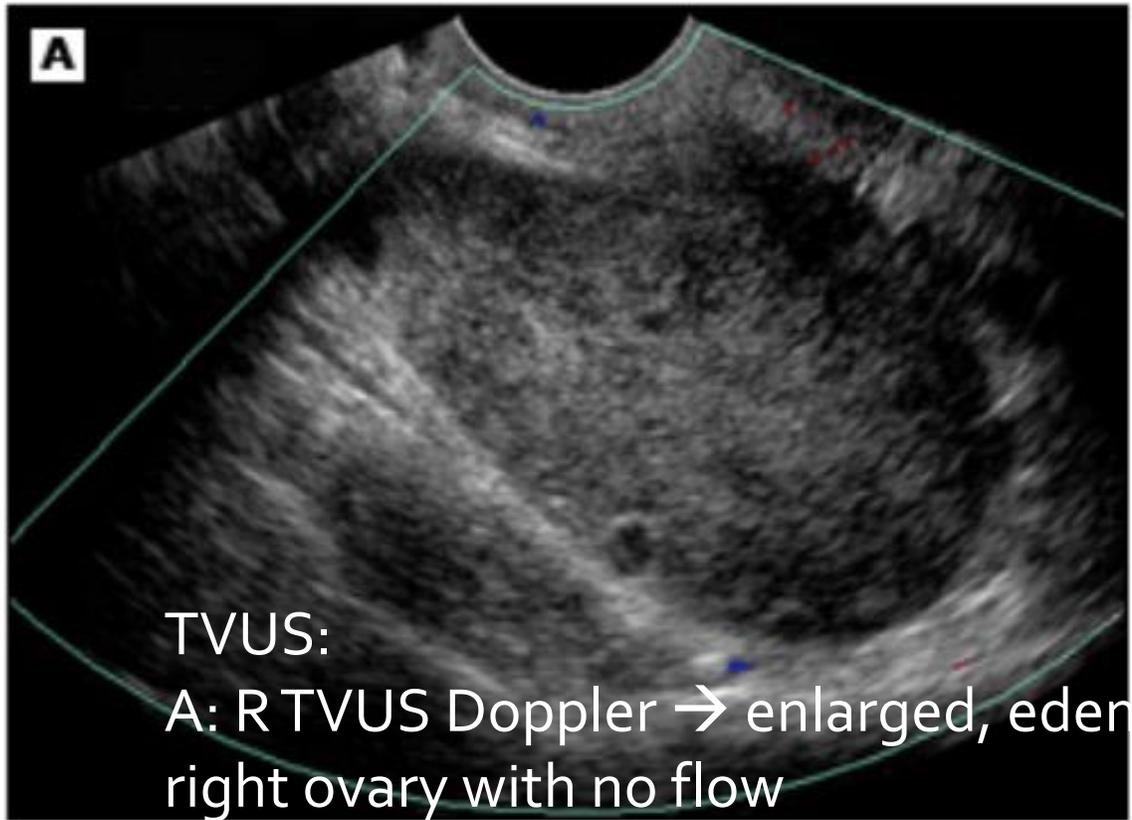
Clinical Condition: Acute Pelvic Pain in the Reproductive Age Group

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.	0
US pelvis transabdominal	9	Both transvaginal and transabdominal US should be performed if possible.	0
US duplex Doppler pelvis	9		0

<https://www.acr.org/Clinical-Resources/ACR-Appropriateness-Criteria>

Discussion: TVUS Torsion¹



Discussion: TVUS and Doppler for Torsion

- A 2002 prospective study³ conducted at a single institution in Israel looked at 65 women prior to laparoscopy for suspected adnexal torsion. Of the 65 patients undergoing laparoscopy, 15 patients (23%) had ovarian torsion diagnosed during the procedure. All 15 patients with torsion had abnormal flow detected in their spectral Doppler studies – 10 cases had no arterial or venous flow in the affected ovary, while 5 case had arterial flow without venous flow. 50 out of 65 women were not found to have torsion during laparoscopy. 49/50 women without diagnosed torsion had arterial and venous flow detected on spectral Doppler. From these values, the authors calculated that **color and spectral Doppler examinations had a sensitivity of 100% and a specificity of 98% for detecting ovarian torsion.**

Discussion: TVUS and Doppler for Torsion

- 2000 retrospective study⁴ looked at 21 patients who had ovarian torsion confirmed during surgery.
- Only 10 of these patients had received Doppler sonography prior to surgery. Of the 10 patients, 6 had normal flow detected by the Doppler studies, while 4/10 had decreased or absent flow.
- The authors concluded that **abnormal (decreased or absent) flow to the ovary was highly predictive of adnexal torsion.**

Discussion: Cost

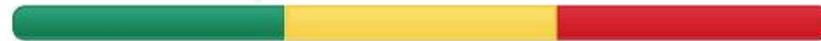


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References

1. Laufer MR. (2018). Ovarian and fallopian tube torsion. In: UpToDate, Post, TW (Ed), UpToDate, Waltham, MA, 2018.
2. Priyadarshani R, Atri M, Harris R et al. (2015). ACR Appropriateness Criteria Acute Pelvic Pain in the Reproductive Age Group. Available at <https://acsearch.acr.org/docs/69503/Narrative/>. American College of Radiology. Accessed Oct 11, 2018.
3. Ben-Ami M, Perlitz Y, Haddad S. (2002). The effectiveness of spectral and color Doppler in predicting ovarian torsion: a prospective study. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 104:64-66.
4. Pena JE, Ufberg D, Cooney N, Denis AL. (2000). Usefulness of Doppler sonography in the diagnosis of ovarian torsion.