

Sonographic Evaluation of Ovarian Vein Thrombosis

Tracy Ann Trivette Sheppard,
BS, RDMS, RVT

Ovarian vein thrombosis (OVT) is a rare condition typically seen in postpartum patients. Presented here however, is an extremely rare case of bilateral ovarian vein thrombosis diagnosed by ultrasound in a pregnant fifteen year old patient. This case illustrates the important role ultrasound has in the early diagnosis and treatment of ovarian vein thrombosis.



FIGURE 1. Transverse transvaginal ultrasound scan of the right adnexa. There is a hypoechoic tubular structure with echogenic thrombus within it.

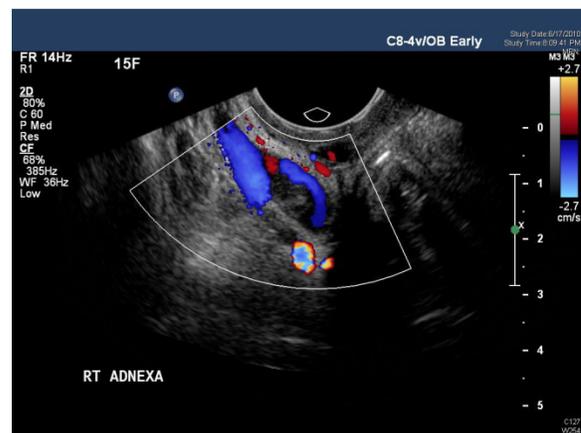


FIGURE 2. Transverse transvaginal ultrasound scan with color flow. Demonstrates a color-fill defect in the tubular structure.

From Duke University Hospital, Durham, NC
Correspondence: Tracy Ann Trivette Sheppard,
Erwin Rd. Durham, NC.
E-mail: sheppards@inbox.com

Case Report

A fifteen year old female presented to the emergency department with vague, right sided abdominal pain. She was afebrile and had no symptoms of nausea or vomiting. She had a documented intrauterine pregnancy previously dated at 19 weeks, 1 day. She was sent to ultrasound for an abdominal ultrasound as well as a pelvic ultrasound to rule out ovarian torsion. The transabdominal ultrasound was unremarkable and demonstrated appropriate flow to the ovaries bilaterally. The transvaginal ultrasound revealed enlargement of the ovarian veins bilaterally as well as echogenic thrombus within them. Color flow and Doppler were utilized to prove the absence of blood flow at the level of the ovarian vein thrombosis bilaterally. The patient was sent back to the emergency room where she immediately began anticoagulation and antibiotic therapies.

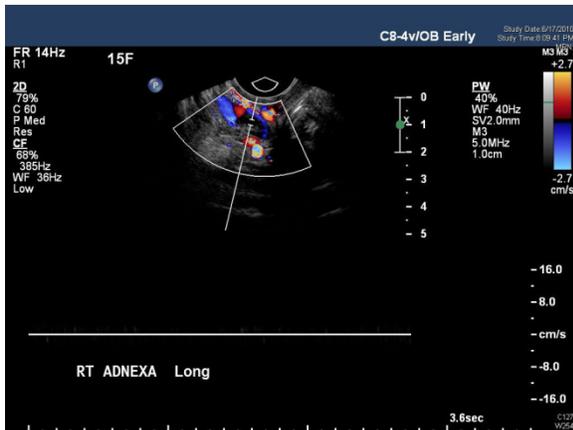


FIGURE 3: Transverse transvaginal ultrasound with Doppler. There is an absence of flow in the echogenic area within the hypochoic tubular structure.

Discussion

Ovarian vein thrombosis (OVT) or thrombophlebitis is an uncommon and

potentially fatal condition that most often occurs postpartum, but has been documented in cases of pelvic inflammatory disease, following pelvic surgeries, or pelvic traumas. Although pregnancy is associated with a hypercoagulable state, it is extremely rare antepartum.¹

Postpartum OVT occurs in 0.02% to 0.18% of pregnancies. Right-sided OVT occurs in 80% to 90% of cases. The hypotheses for right-sided predominance include dextrotorsion of the gravid uterus compressing the right ovarian vein, and retrograde flow in the left ovarian vein, which prevents ascending infection from involving that side.¹

The impact of ovarian vein thrombosis and potential embolism is significant. The incidence of embolism in a postpartum patient with OVT has been reported from 13% to 33%.² Thrombus may extend into the renal veins and the IVC due to the anatomy of the ovarian veins. The ovarian veins are long and unbranched vessels that have incompetent valves and arise from venules that drain the ovaries, the broad ligament and the infundibulopelvic rim. The right ovarian vein usually enters the IVC anterolaterally and the left ovarian vein usually enters the left renal vein.²

The potential for devastating outcomes of ovarian vein thrombosis makes early diagnosis crucial. Ultrasound is the initial modality used because it is non-invasive, quickly available, and the least expensive.¹ It is important for sonographers to recognize the appearance of ovarian vein thrombosis to aid in an expeditious diagnosis and treatment.

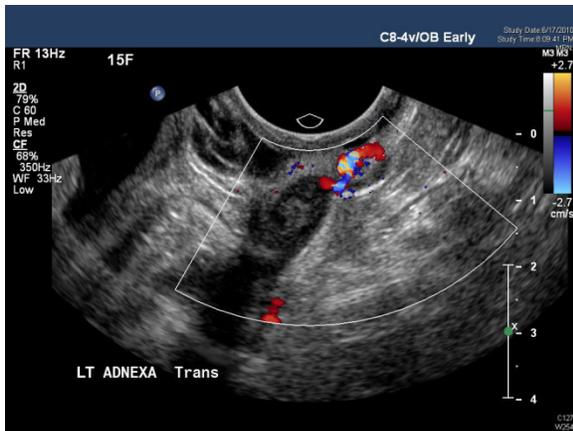


FIGURE 4: Transverse transvaginal ultrasound of the left adnexa. There is a tubular structure filled with echogenic thrombus. There is no color flow detected.

Symptoms and Risk Factors

The symptoms of ovarian vein thrombosis are often vague. They include chills, fever, and abdominal pain.

Chrone's disease, multiparity, coagulation disorders, history of endometritis, PID, pelvic surgery, and pelvic traumas are all risk factors.^{2,3}

Sonographic Appearance

Sonographically the thrombosed vein appears hypoechoic and tubular extending superiorly from the adnexa. There is an absence of flow on Doppler interrogation. The most differentiating finding is the identification of thrombus extending cranially into the abdominal portion of the right ovarian vein, although this is not present in all cases.¹ Overlying bowel gas may be a pitfall.

Differential Diagnosis

Conditions that may be confused with OVT include acute appendicitis, hydroureter,

lymphadenopathy, dilated fallopian tube, and thrombosed inferior mesenteric vein.¹

Treatment

Ovarian vein thrombosis is most often treated with dual anticoagulation and antibiotic therapy. Sometimes an IVC filter is placed based on lack of response to therapy, or other contraindications to therapy.²

Conclusion

Ovarian vein thrombosis is an uncommon condition and the presented case even more rare. A pregnant teenager was diagnosed and treated sooner because of ultrasound. There was less expense and the possible harmful effects of CT radiation on the fetus were eliminated. It is imperative that sonographers are familiar with OVT so that this condition is accurately identified.

References

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3. Rumack MD, Wilson MD, Charboneau MD: *Diagnostic Ultrasound*. Volume 1. Elsevier Mosby: 1991: 481-482.