

## Case reports of imaging of postpartum ovarian vein thrombosis

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**Section:** Genital (female) imaging

**Area of Interest:** Vascular Pelvis Abdomen

**Procedure:** Contrast agent-intravenous

**Procedure:** Diagnostic procedure

**Procedure:** Contrast agent-oral

**Imaging Technique:** CT

**Imaging Technique:** Ultrasound

**Imaging Technique:** Ultrasound-Colour Doppler

**Imaging Technique:** MR

**Special Focus:** Embolism / Thrombosis Fistula

Inflammation Case Type: Clinical Cases

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**Patient:** 23 years, female

### Clinical History:

A 23-year-old patient, G2 P3 presented with abdominal pain for 1 day.

A 37-year-old patient, G6 P4+1 presented with fever for 6 days.

A 27-year-old patient, G4 P4 presented with fever for 1 day.

A 26-year-old patient, G5 P4+1 presented with abdominal pain and fever for 1 day.

### Imaging Findings:

Fig 1, TA US shows an elongated inhomogeneous vascular mass in the left iliac fossa. CE-CT abdominal shows left gonadal vein thrombosis in the left iliac fossa adjacent to the left adnexa. No bowel obstruction.

Fig 2, CE-MRI of small bowel shows no inflammatory disease of the small bowel and right renal hydronephrosis. CE-CT abdomen shows bilateral ovarian vein thrombosis extending from ovaries to renal vein. No bowel obstruction.

Fig 3, TV US shows left flank containing an inhomogeneous mass from the left kidney to the lower left iliac fossa. CE-CT abdomen shows the left ovary enlarged with left ovarian vein thrombosis and involves the left renal vein. No bowel obstruction.

Fig 4, TA US shows a right adnexal tubular structure between the uterus and the right ovary, while the ovaries are normal. CE-CT abdomen shows postpartum uterus and extensive stranding around the right adnexa and thrombosis in the right ovarian vein extending up to IVC, while the renal veins are normal. Right renal hydronephrosis. No bowel

obstruction.

#### **Discussion:**

Ovarian vein thrombosis (OVT) is an uncommon condition in postpartum women [1]. Coexisting conditions of venous stasis and hypercoagulability contribute to the pathophysiology of OVT, which are frequent in the postpartum period. Furthermore, other conditions such as recent surgery and malignancy increase the risk of thrombosis [2].

During pregnancy the right ovarian vein compression at the pelvic brim by the enlarged uterus and a retrograde flow in the left ovarian vein further contribute for this disease [2].

OVT occurs in the first 7 days postpartum [1]. Up to 80 percent of women will complain of fever during the postpartum period, but only half will complain of right lower quadrant abdominal pain. About 90 percent of cases affect the right ovarian vein [1].

Non-invasive testing, namely ultrasonography with Doppler examination, is less expensive and requires no contrast material. [2].

CT or MR studies are more sensitive (100% and 92%) and specific (99% and 100%) [2]. A tubular retroperitoneal mass with a central low attenuation extending cephalad to the inferior vena cava (IVC) are the expected findings of OVT in CT examination [1].

MR imaging is appropriate in the diagnosis and follow-up of OVT. MR allows multiplanar acquisitions and better depicts tissue contrast without IV contrast material [1] MR supersedes CT in differentiating flowing blood, acute thrombus and subacute thrombus because of its sensitivity to blood flow and to the paramagnetic effects of iron [2].

OVT complications can result in sepsis; inferior vena cava and/or renal vein thrombosis, which can lead to pulmonary embolism (25%) [2]. Also, fatal cases have been reported (5% of complicated cases, with approximately 18 deaths per million pregnancies) [2].

Both anticoagulant and intravenous (IV) antibiotic therapy are the treatment of choice for ovarian vein thrombosis [1]. Surgical treatment is considered—such as thrombectomy or ligation of the ovarian vein, inferior vena cava filter placement [3]—in clinically significant cases of thrombosis or inefficiency of medical therapy after 5 days [2].

**Differential Diagnosis List:** Ovarian vein thrombosis, Hydroureter, Acute appendicitis

**Final Diagnosis:** Ovarian vein thrombosis

#### **References:**

- Slam Kristine, Sara Duckett, Arul S. Thirumoorthi and Paul Clark. (2008) Ovarian Vein Thrombosis in Two Postpartum Women case report. Hospital Physician 31-35.
- Khlifi A, Kebaili S, Hammami M, Berregaya L, Hidar S, Affes N, Khairi H. (2010) Postpartum ovarian vein thrombophlebitis: Report of a case and review of the literature. N Am J Med Sci 2(8):389-91 (PMID:[22737678](#))
- Bilgin M, Sevket O, Yildiz S, Sharifov R, Kocakoc E. (2012) Imaging of postpartum Ovarian Vein Thrombosis. Case Rep Obstet Gynecol 134603 (PMID: [23133765](#))

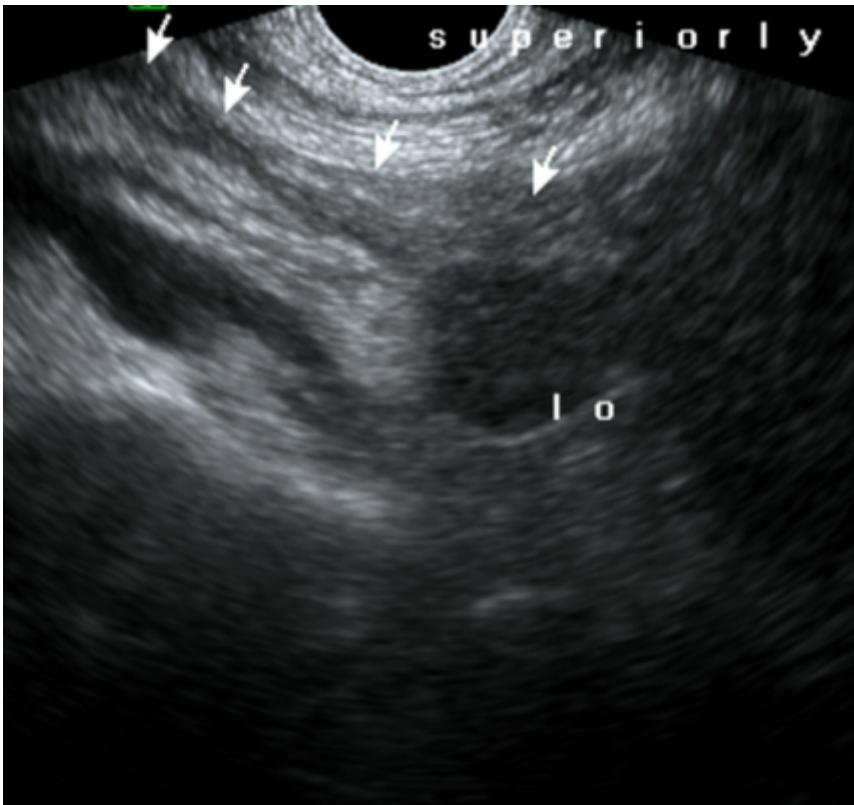
**Figure 1**

**a**



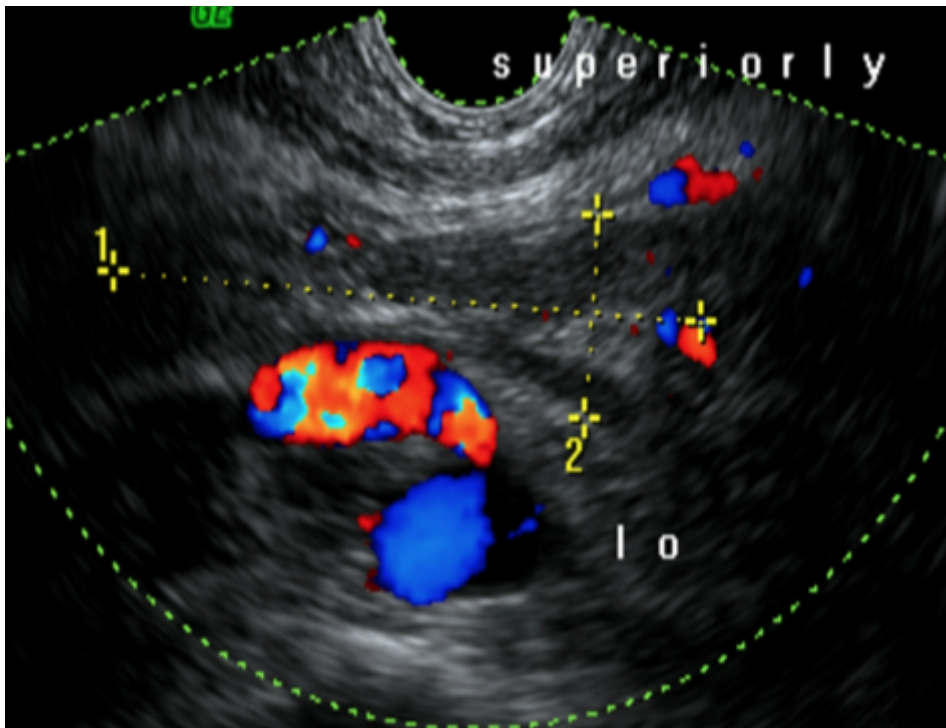
**Description:** CE-CT abdominal, axial view, shows heterogenous enhanced soft tissue mass in the left iliac fossa adjacent to left adnexa. Other abdominal organs, uterus and right ovary are normal. No free fluid or air. **Origin:** R. Quatullah. Mafraq Hospital, SEHA company, AbuDhabi, UAE.

**b**



**Description:** TA US shows an elongated inhomogeneous vascular mass in left iliac fossa adjacent to the left ovary = +/- 5 x 2 x 3.5cm. **Origin:** R. Quatullah. Mafraq Hospital, SEHA company, AbuDhabi, UAE.

c



**Description:** TA colour Doppler US shows an elongated inhomogeneous vascular mass in left iliac fossa adjacent to the left ovary without obvious flow. **Origin:** R. Quatullah. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**Figure 2**

a



**Description:** CE-CT abdomen axial view shows bilateral OVT with cordlike structure extending from ovaries to renal vein. Inflammatory soft tissue thickening in left ovarian vein till aortic bifurcation. No free fluid. No lymphadenopathy. **Origin:** V. Papineni, Clinical imaging Consultant Physician. Mafrq Hospital, SEHA company, Abu Dhabi, UAE. B. Rathinavelu, Clinical imaging Consultant Physician. Mafrq Hospital, SEHA company, Abu Dhabi, UAE.



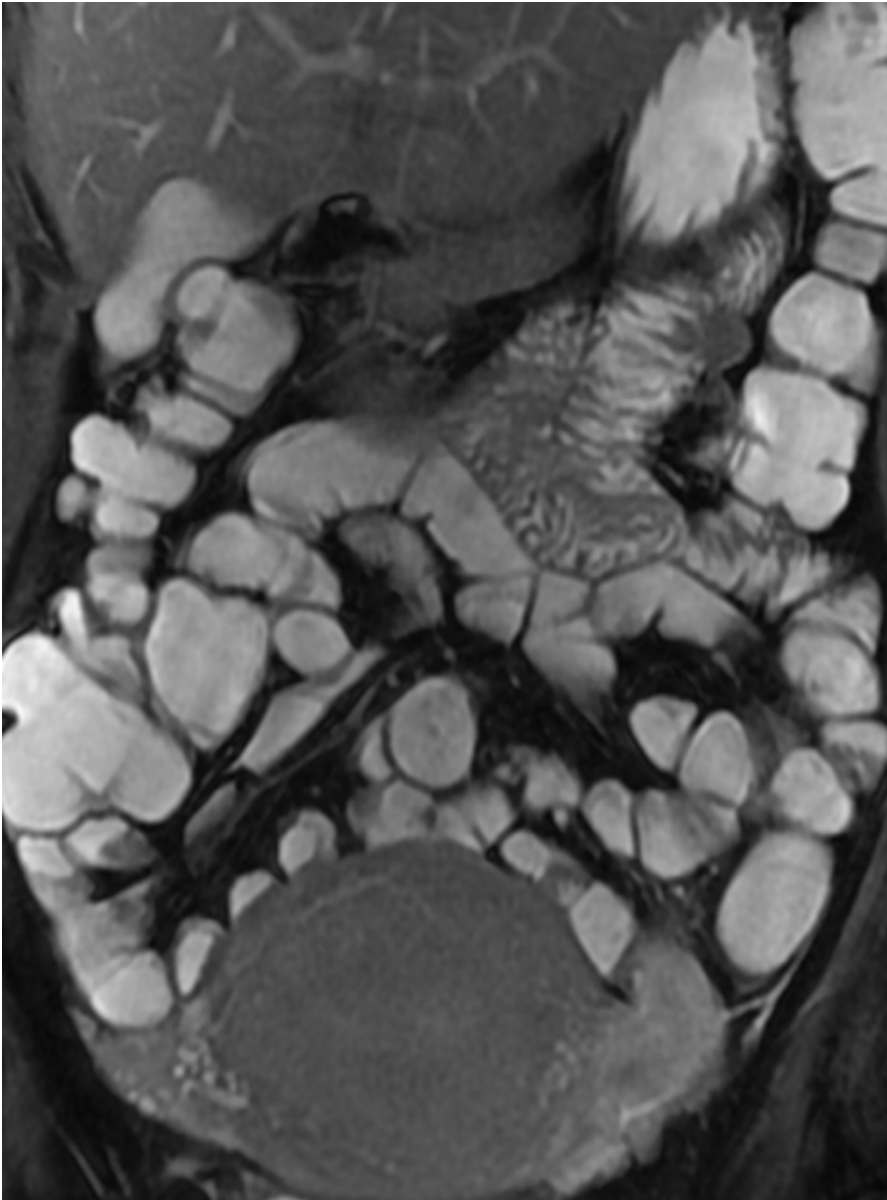
**Description:** CE-CT abdomen coronal views show bilateral OVT with cordlike structure extending from ovaries to renal vein. Inflammatory soft tissue thickening in left ovarian vein till aortic bifurcation. No free fluid. No lymphadenopathy. **Origin:** V. Papineni, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE. B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**c**



**Description:** CE-CT abdomen sagittal view show bilateral OVT with left side cordlike structure extending from ovaries to renal vein. Inflammatory soft tissue thickening in left ovarian vein till aortic bifurcation. No free fluid. No lymphadenopathy. **Origin:** V. Papineni, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE. B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

d

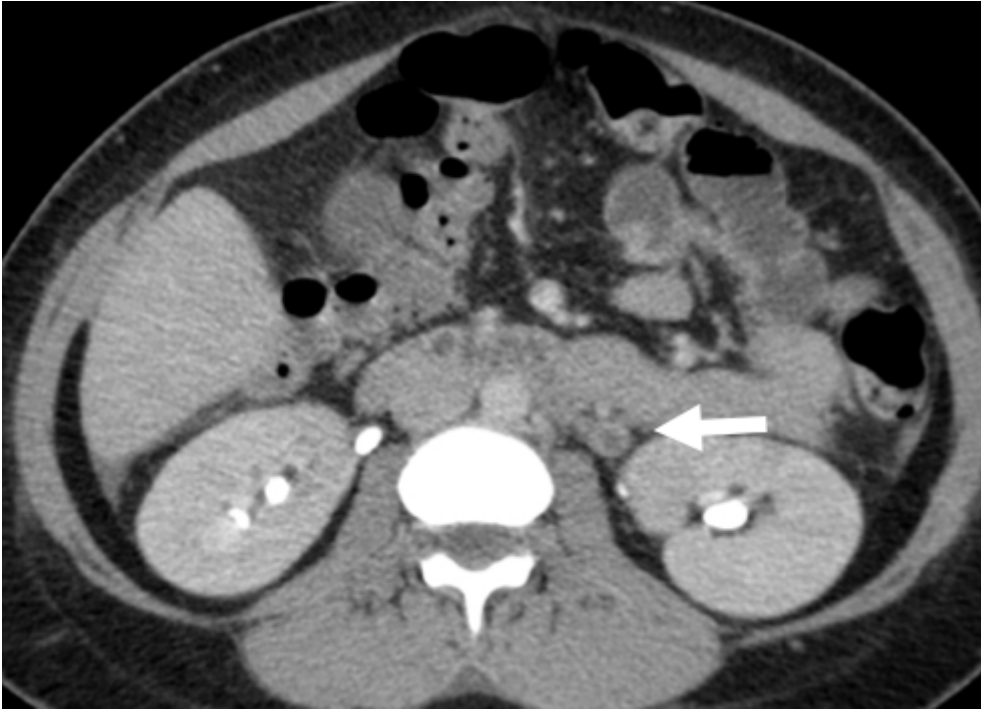


**Description:** CE-MRI, coronal view shows no small bowel obstruction, no stricture, no wall thickening with normal enhancing and no inflammatory changes. No fluid or air collections. No bile duct dilatation. Right renal hydroureteronephrosis. No active fistulas. **Origin:** V. Papineni, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE. B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.



**Figure 3**

a



**Description:** CE-CT abdomen, axial view shows enlarged left ovary with thrombosis involving left ovarian vein extending to left renal vein. No air/fluid collections. Normal right ovary. Abdominal organs are normal. No hydronephrosis. No bowel obstruction. **Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**b**



**Description:** CE-CT abdomen, axial view shows enlarged left ovary with thrombosis involving left ovarian vein extending to left renal vein. No air/fluid collections. Normal right ovary. Abdominal organs are normal. No hydroureteronephrosis. No bowel obstruction. **Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**Figure 4**

a



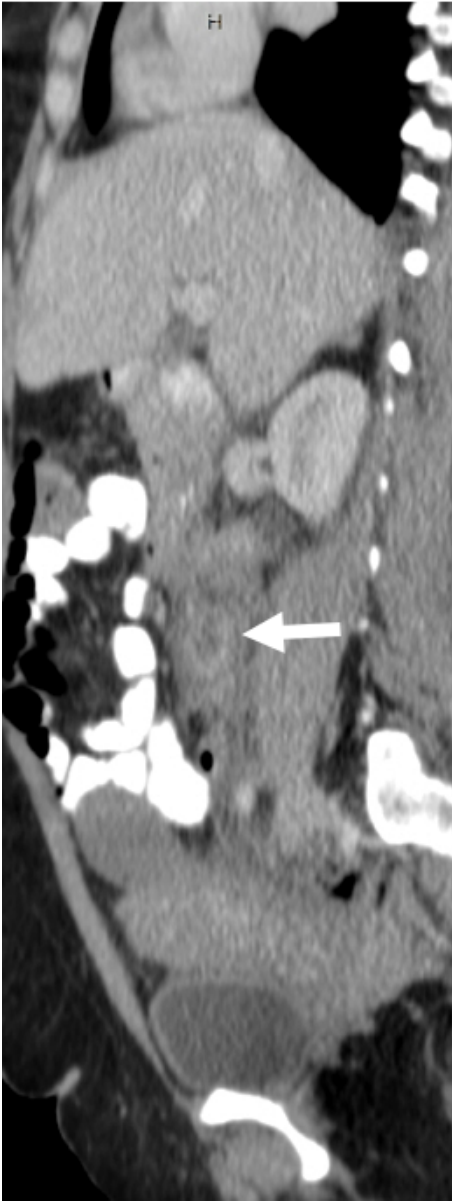
**Description:** CE-CT abdomen axial view shows postpartum uterus. A thrombosis noted in right ovarian vein and in right IVC. Both renal veins appear normal. No fluid or air collections. Right renal hydronephrosis. No bowel obstruction. **Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**b**



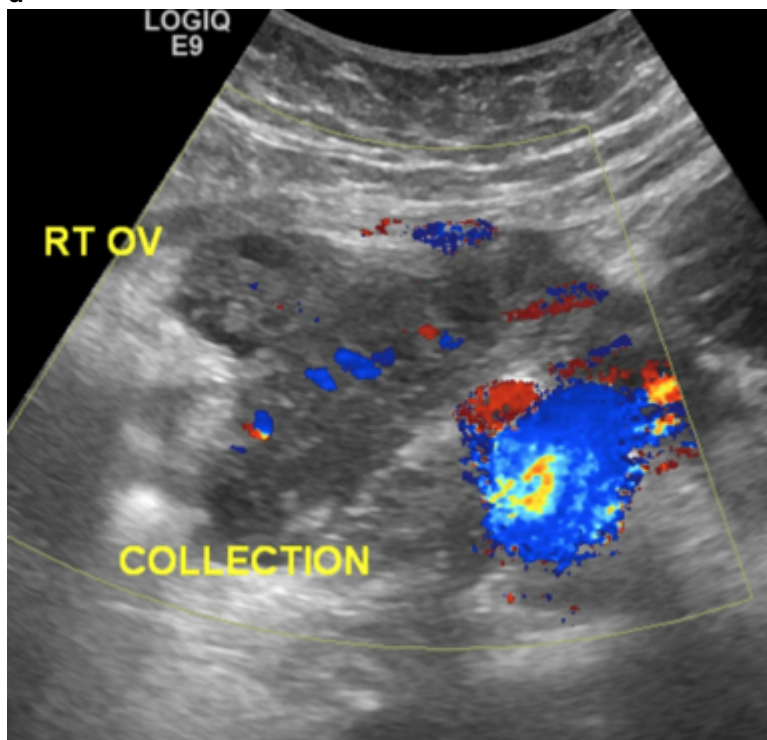
**Description:** CE-CT abdomen coronal view shows postpartum uterus. A thrombosis noted in right ovarian vein and in right IVC. Both renal veins appear normal. No fluid or air collections. Right renal hydronephrosis. No bowel obstruction. **Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

**c**



**Description:** CE-CT abdomen sagittal view shows postpartum uterus. A thrombosis noted in right ovarian vein and in right IVC. Both renal veins appear normal. No fluid or air collections. Right renal hydronephrosis. No bowel obstruction. **Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

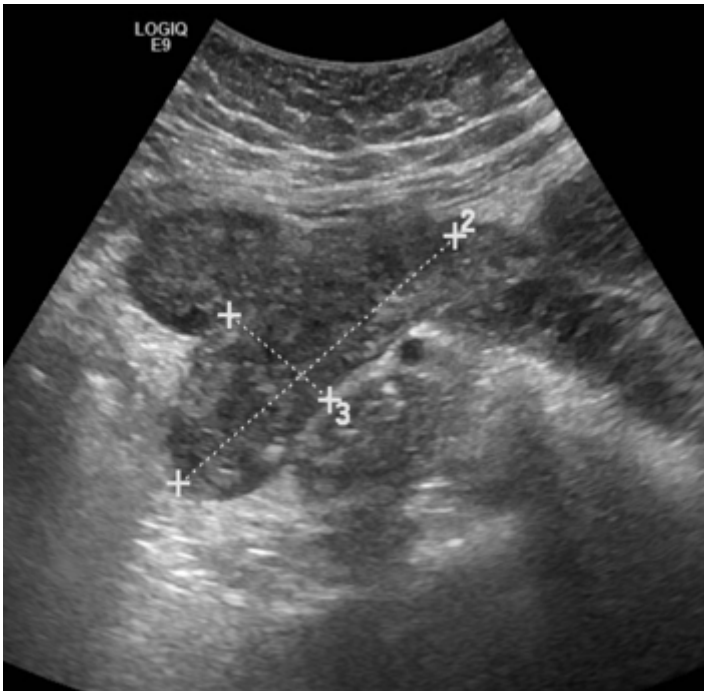
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**Description:** TA colour Doppler US shows right adnexal tubular structure, which is hypervascular, between the uterus and right ovary with minimal free fluid around it. Both ovaries appear unremarkable.

**Origin:** B. Rathinavelu, Clinical imaging Consultant Physician. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.

e



**Description:** TA US shows right adnexal tubular structure, which is hypervascular, between the uterus and right ovary with minimal free fluid around it. Both ovaries appear unremarkable. Uterus appears bulky, postpartum changes. Impression: right salpingitis. **Origin:** B. Rathinavelu. Mafraq Hospital, SEHA company, Abu Dhabi, UAE.