

An unusual presentation of postpartum ovarian vein thrombosis

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ABSTRACT

Ovarian vein thrombosis is a rare but potentially serious complication following childbirth. The majority of patients present during the first week postpartum, with fever and right lower quadrant abdominal pain. We report an unusual case of postpartum ovarian vein thrombosis who presented with fever, low backache, and painful thighs. A high index of suspicion is crucial to diagnose and treat this condition in order to avoid serious consequences.

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Postpartum ovarian vein thrombosis is uncommon but the true incidence is not known. Most of the data regarding this clinical entity has been derived from small studies and case reports. It has been reported to complicate approximately 1:500 to 1:2000 deliveries.¹ If suspected computed tomography (CT) scan is the study of choice to confirm diagnosis. Appropriate treatment should be started immediately after securing diagnosis to prevent life threatening complications. Most of these patients present with fever and abdominal pain. Our patient presented with fever, low backache, and very high erythrocyte sedimentation rate (ESR), which is unusual for this disorder. There is a need to emphasize that a high index of suspicion is required to diagnose and treat this condition in order to prevent significant morbidity and mortality associated with it.

Case Report. A 23-year-old Saudi female, gravida 1 para 1 presented to her obstetrician with complaints of fever and severe low back pain for 2 days after normal vaginal delivery that required mediolateral episiotomy for assistance. She did not receive epidural analgesia. Her pregnancy was otherwise uncomplicated. She had no history of pelvic inflammatory diseases and has been previously healthy. On examination, she was febrile (temperature of 38.5°C) and had painful range of movements of the lumbar spine. Complete blood count was within normal range and urinalysis revealed white blood cell >100/μl. Urine and blood cultures revealed no growth. Ultrasound of the abdomen and pelvis was normal. She was diagnosed to have urinary tract infection and was discharged home on cefuroxime and diclofenac sodium after consultation with an orthopedic surgeon. She was advised to follow as outpatient. She continued to have intermittent fever and severe low backache and was referred to our clinic at 3 weeks postpartum for further evaluation. The patient's history was significant for intermittent fever since her discharge from maternity services. She was experiencing moderate to severe low backache and painful thighs that were limiting her activities of daily life. She denied abdominal pain or dysuria and review of the systems was unremarkable. Physical examination revealed temperature of 37.8°C and mild tenderness of lower abdomen on deep palpation. No masses were felt. The musculoskeletal examination was normal except for limited and painful movement at the lumbosacral spine. Examination of the hip joints was normal. She had difficulty in standing from squatting position due to pain and neurological examination was otherwise normal.

Initial laboratory workup including complete blood count, urinalysis, renal and liver function tests were within normal range. Urine culture, blood culture, and cervical cultures were sterile. Brucella serology, anti-nuclear antibodies (ANA) and anti-double-stranded DNA antibodies were negative. The only laboratory abnormality was a very high ESR (115 mm

1st hour), and C-reactive protein (CRP 48 µg/l). The x-rays of lumbosacral spine and chest were normal and ultrasound of the abdomen revealed minimal fluid in the pouch of Douglas. Magnetic resonance imaging (MRI) of thighs and lumbosacral spine was ordered as she continued to have severe backache and pain thighs despite nonsteroidal anti-inflammatory drugs (NSAIDs). The MRI of thighs was normal, however, MRI of lumbosacral spine incidentally revealed a soft tissue mass in front of the right psoas muscle, which enhanced on gadolinium contrast in both T1 and T2 weighted images (Figure 1). A CT scan of the abdomen and pelvis was performed for further evaluation of the mass reported on MRI, and revealed a filling defect in a dilated and tortuous right ovarian vein with contrast enhancement representing right ovarian vein thrombosis (Figure 2).

Extensive workup was carried out to exclude underlying thrombophilia including antithrombin III, protein C, and protein S deficiencies were negative.

Plasma homocysteine level was within normal range. The coagulation profile was normal [prothrombin time prothrombin time 12.5 seconds, activated partial thromboplastin time 30 seconds and international normalized ratio (INR) 1.10]. Prothrombin gene mutation and activated protein C (APC) resistance were excluded as well. She was anticoagulated (enoxaparin followed by warfarin) and received a course of antibiotics for 14 days. She became afebrile, the pain subsided, and developed a sense of well-being. The ESR and CRP normalized and she was discharged on warfarin with target INR between 2-3. She is doing fine and follow up CT scan abdomen and pelvis at 3 months of treatment showed complete resolution of thrombus.

Discussion. Ovarian vein thrombosis is a rare but potentially serious disorder complicating 0.05-0.17% all pregnancies that result in live birth.^{1,2} It also follows abortions and gynecological surgeries and has been reported to be associated with malignancies, pelvic

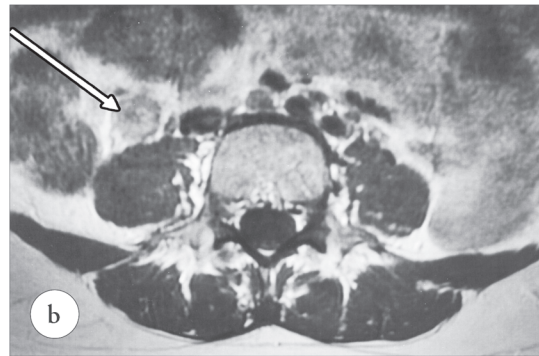


Figure 1 - T1 weighted magnetic resonance imaging showing a) a mass in relation with the right psoas muscle, which enhances on b) gadolinium contrast.

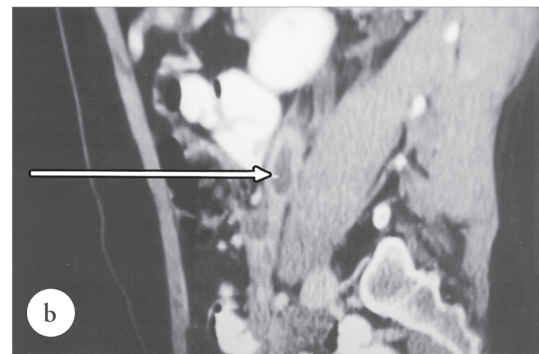
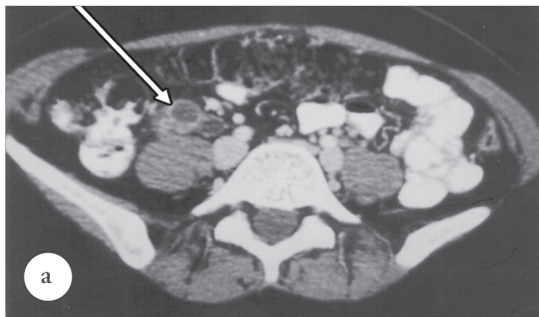


Figure 2 - Contrast enhanced computed tomography scan pelvis a) cross section view and b) sagittal view confirmed the mass detected on magnetic resonance imaging to be right ovarian vein thrombosis (seen as filling defects).

inflammatory disease, Crohn's disease, and infections with *Campylobacter fetus* and group A streptococcal bacteremia. Underlying inherited thrombophilia primarily factor V Leiden mutations and protein S deficiency has been reported in 50% of patients with ovarian vein thrombosis. There are case reports of ovarian vein thrombosis associated with antiphospholipid syndrome and heparin induced thrombocytopenia-type II.

Postpartum ovarian vein thrombosis is pathologically characterized by inflammation and thrombosis of one or both ovarian veins. The hypercoagulable state of pregnancy, together with infection from the uterus spreading to the ovarian veins causing local inflammation and venous intimal injury are considered to be important predisposing factors.³ These are further compounded by increased blood flow in markedly dilated ovarian veins during pregnancy. The right ovarian vein is involved in 80-90% of patients, which is attributed to the compression of right ovarian vein by dextroverted gravid uterus against the pelvic brim.⁴ The majority of the patients with postpartum ovarian vein thrombosis present with sudden onset of right lower quadrant abdominal pain and fever, usually within the first postpartum week mimicking various surgical emergencies like acute appendicitis, ovarian torsion, and pelvic inflammatory disease (tubo-ovarian abscess) leading to unnecessary laparotomies.^{3,5,6} It may be confused with ureteric colic, endometritis and pyelonephritis. Some patients may have a mass palpable in the right iliac fossa due to markedly dilated thrombosed ovarian vein. In the past, ovarian vein thrombosis was diagnosed at laparotomy performed for acute abdomen. Contrast CT scan is now the most accurate noninvasive imaging technique for diagnosing ovarian vein thrombosis. The sensitivity of contrast CT is 100% while that of MRI with gadolinium contrast is 92% and duplex color Doppler ultrasonography is 50%.⁷ Duplex Doppler ultrasound may be used as an initial study, but due to low sensitivity and high false negative and false positive rates, contrast CT scan is the preferred choice.

Undiagnosed and or untreated postpartum ovarian vein thrombosis carries the risk of serious complications like sepsis and extension into the inferior vena cava. Septic pulmonary embolism occurs in 11-33% patients and carries an overall mortality of 4-5%.⁸ Anticoagulation for 3-6 months and a course of antibiotics for 2 weeks is the mainstay of treatment offering cure to a high proportion of patients. Before the introduction of medical therapy,

surgical interventions including ligation, and splitting of the thrombosed ovarian vein and inferior vena cava or placement of inferior vena cava filters were the mainstay of treatment to prevent pulmonary embolism in such patients. The surgical treatment is now reserved for patients in whom anticoagulation is contraindicated, those who develop treatment related complications and are at high risk for pulmonary embolism, for example those with free floating thrombus, extension of thrombus or recurrent pulmonary embolism despite adequate medical therapy.^{9,10}

In conclusion, patients with postpartum ovarian vein thrombosis may see an obstetrician, surgeon, physician or an orthopedician (as in our case). A high index of suspicion is crucial to diagnose postpartum ovarian vein thrombosis. The condition should be suspected in all postpartum females who present with puerperal pyrexia with lower abdominal pain or low backache (as in our case) not responding to antibiotics and analgesics. If suspected clinically, a contrast CT scan is the imaging study of choice to confirm the diagnosis. Appropriate medical treatment should be started soon after diagnosis is confirmed to prevent serious complications.

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