

Iliofemoral-popliteal deep vein thrombosis at 35th week of pregnancy: treated with cesarean section and vena cava blockage plus thrombectomy

Gebeliğin 35. haftasında iliofemoral-popliteal derin ven trombozu olan sezaryen sekiyo, vena kava blokajı ve trombektomi ile tedavi edilen olgu sunumu

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Abstract

Pregnancy, due to its adaptive physiological changes, is a risk factor for deep vein thrombosis. Incidence of thromboembolic complications during pregnancy ranges from 0.76 to 1.72 per 1000 births. We present in this case report a pregnant woman with iliofemoral-popliteal deep vein thrombosis diagnosed at the 35th week of her pregnancy, who was treated with vena cava blockage and thrombectomy followed by cesarean section. Unfortunately, a rethrombosis developed in the patient after three days. We determined that the a-v fistula was blocked and not working. We found additionally that the deep vein thrombosis was closing the iliac vein completely on the left side and the blockage descending down through the inferior vena cava inlet with MRI. The patient underwent insertion of a retrievable vena cava filter, two stent implantation to the venous narrowings and surgical iliofemoral venous thrombectomy with concomitant re-creation of a temporary femoral arterio-venous fistula. Anticoagulation therapy with enoxaparine was started after the operation. The patient was discharged with warfarin under control of the INR value, and also with additional compression therapy (compression stockings) from the clinic. Without jeopardizing the mother and the baby, planning a combined surgical procedure, with a multidisciplinary approach is the best way to eliminate the risks of serious complications such as pulmonary embolism and mortality.

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Key words: Deep vein thrombosis, pregnancy, complications, thrombectomy, inferior vena cava

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Introduction

Pregnancy, due to its adaptive physiological changes in hormone concentrations, the position of the enlarged uterus in the vicinity of large veins, as well as the physiological alterations in the coagulation system, is a risk factor for deep vein

Özet

Gebelik, bu dönemdeki fizyolojik değişikliklere bağlı olarak, derin ven trombozu açısından bir risk faktördür. Gebelik sırasındaki tromboembolik komplikasyonların insidansı her 1000 doğumda 0.76 ila 1.72 arasında değişir. Biz bu olgu sunumunda, gebeliğin 35. haftasında iliofemoral-popliteal derin ven trombozu tanısı konan ve vena kava blokajı ve trombektomiye takiben sezaryen sekiyo ile tedavi edilen bir gebeyi sunuyoruz. Ne yazık ki bu hastada üç gün sonra tekrar tromboz gelişti. Arterio-venöz fistülün tıklandığını ve çalışmadığını saptadık. Ayrıca MR görüntüleme ile sol tarafta iliak venin tamamen tıklandığını ve tıkanıklığın aşağıda inferior vena kavanın girişine kadar uzandığını tespit ettik. Hastaya çıkarılabilir vena kava filtresi yerleştirildi, venöz daralma bölgelerine iki stent yerleştirildi, cerrahi olarak iliofemoral venöz trombektomi yapıldı ve eşzamanlı olarak geçici femoral arterio-venöz fistül yeniden oluşturuldu. Operasyondan sonra enoxaparine ile antikoagulan tedavi başlandı. Hasta INR kontrolü altında warfarin ve ek olarak kompresyon tedavisi (kompresyon çorapları) ile klinikten taburcu edildi. Pulmoner emboli ve ölüm gibi ciddi komplikasyon risklerini, anne ve bebeğin hayatını tehlikeye atmadan, elimine etmenin en iyi yolu multidisipliner yaklaşımla kombine cerrahi işlemlerin planlanmasıdır.

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Anahtar kelimeler: Derin ven trombozu, gebelik, komplikasyonlar, trombektomi, inferior vena kava

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thrombosis. The incidence of thromboembolic complications in pregnancy ranges from 0.76 to 1.72 per 1000 deliveries (1). Deep vein thrombosis (DVT) is classically associated with pulmonary embolism and chronic venous insufficiency, which are the leading causes of mortality in the USA and Europe; between 1.1 and 1.5 per 100000 pregnant women (2).

We present a case of a pregnant woman with iliofemoral-popliteal deep vein thrombosis diagnosed at the 35th week of her pregnancy, who was treated with vena cava blockage and thrombectomy followed by cesarean section.

Case

A 41 year -old woman, at the 35th week of gestation, was admitted as an emergency with acute pain in her left leg accompanied by edema. During pregnancy the patient was regularly followed-up by an obstetrician and gynecologist. Two weeks earlier, the patient had initially experienced a slight pain in her left leg, than recognized slight edema a few days previously. Hemodynamic findings were normal and there were no signs of pulmonary embolism when she was admitted. Laboratory tests following admission revealed: HGB 10.2 g/dl, HCT 29.8%, platelets 329.000 /mm³, WBC 11900 /l, D-dimer 0.89 µg/l, Creatinine 0.34 mg/dl, sodium 134.0 mmol/l, potassium 3.71 mmol/l APTT 35.1 s, INR 1.05, antithrombin III 76.9%, Protein C free >150%, Protein S 79.7%, CRP 10.06 MG. We searched also for thrombophilic factors, there were no Factor V Leiden or prothrombin G mutations.

Both ECG and diagnostic cardiac echography revealed no significant abnormalities. Coloured duplex compression ultrasonography revealed left iliofemoral-popliteal phlebothrombosis. In line with these findings, left external iliac and femoro-popliteal deep vein thrombosis (DVT), was diagnosed by compression ultrasonography and magnetic resonance imaging (Figure 1a, 1b and Figure 2).

As a first intervention, an inferior vena cava blockage applied through the transfemoral passage through the left iliac vein. There was no difficulty in passing the occluded iliac vein by a thrombectomy catheter. We saw no pulmonary embolism by this procedure. The vena cava filter was not necessary when occluding the inferior cava vein by thrombectomy catheters and a Cesarean section was performed thereafter under the control of vascular surgeons.

After the delivery of the baby, first thrombectomy and then arterio-venous (a-v) femoral fistula were performed by there vascular surgeons. The complete procedure was carried out without any complication. The treatment started immediately with Enoxaparin (Clexane 0.8 2*1 sc) after surgery. Factor Xa levels were checked daily to see whether they were within the level of treatment or not.

Unfortunately, a rethrombosis developed in the patient after three days. We determined that the a-v fistula was blocked and not working. After this, we decided to carry out a new thrombectomy operation. During the thrombectomy, two venous narrowings were found and two different stents, one of 14 mm. diameter and 6 cm. in length and the other one of 12 mm. diameter and 4 cm. in length, were implanted into these narrowed parts and also the a-v fistula was again made functional.

We found additionally that the deep vein thrombosis was closing the iliac vein completely on the left side, with the blockage descending down through the inferior vena cava inlet with MRI. The patient underwent insertion of a retrievable vena cava filter, two stent implantations to the venous narrowings and surgical iliofemoral venous thrombectomy with concomitant re-creation of a temporary femoral arterio-venous fistula. The inferior vena cava filter was inserted before the venous thrombectomy to prevent pulmonary embolism from clots dislodged



Figure 2. MRI image of the 41 year-old woman case showing the DVT

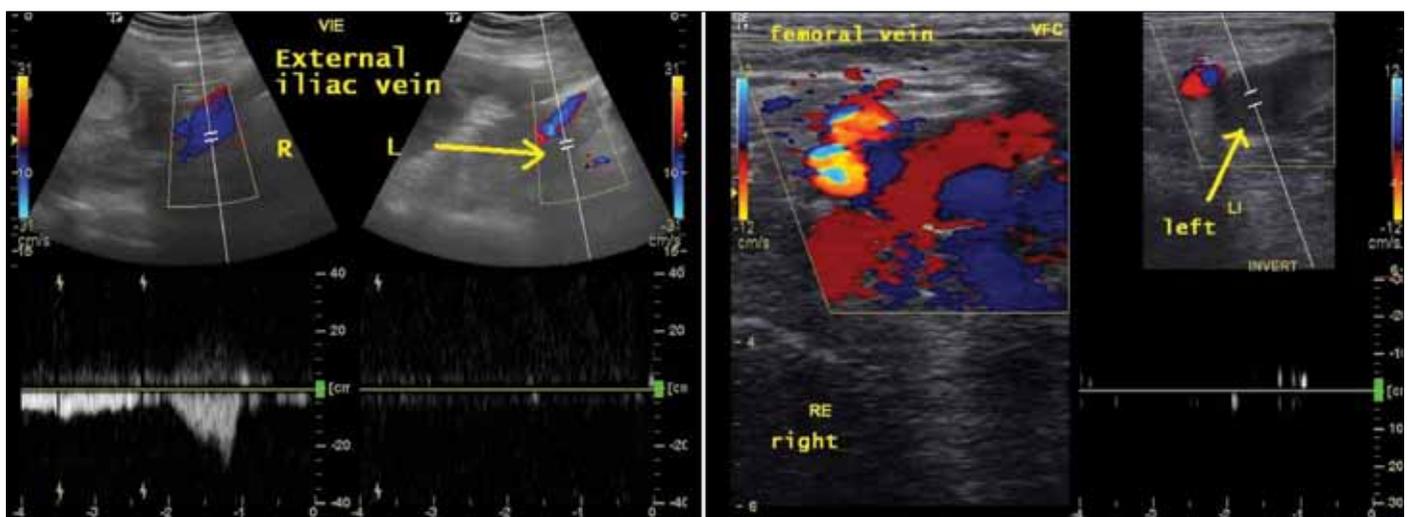


Figure 1. a) Ultrasonographic picture showing absence of flow in the left external iliac vein, b) Ultrasonographic picture showing absence of flow in the left femoral vein

during thrombectomy. Anticoagulation therapy with warfarin and enoxaparine, (clexane 0.8 ml 2*1 sc for 5 days with Factor Xa level were controlled during the therapy, until INR value reached between 2 to 3) was started after the operation. After a 5-day treatment with warfarin and enoxaparine, enoxaparine was stopped. The patient was discharged with warfarin (coumadin) under control of the INR value, and also with additional compression therapy (compression stockings) from the clinic.

Discussion

Although thromboembolism is not so common during pregnancy and the postpartum period, physicians should be alert for the possibility because the complications like pulmonary embolism, can be life threatening. Nonetheless, DVT is one of the most common cause of death among women in the puerperium (1, 2).

Pregnant women who present with thromboembolic occlusion are particularly difficult to treat because thrombolysis is hazardous to the fetus and surgical intervention by any of several approaches is controversial (3, 4).

Pregnancy may increase the risk of thrombosis through a number of factors, singly or in combination: mechanical obstruction of venous drainage by the enlarging uterus and descending fetal head, decreased activity in late pregnancy and especially intrapartum, intimal injury from vascular distention or surgical manipulation, and abnormal levels of procoagulant or anticoagulant plasma factors. Protein S serves as a cofactor for activated protein C, which has anticoagulative activity. Protein S deficiency leads to spontaneous, recurrent thromboembolic complications in adulthood. Protein S levels are substantially reduced during pregnancy and puerperium and during use of oral contraceptives (5, 6).

D-Dimer has lost its importance during pregnancy as well as Protein S and Protein C, when diagnosing thrombosis of a pregnant woman. Furthermore clinical examination, Duplex sonography and MRI become the most important diagnostic tools (2). We have also preferred these effective tools to the others in our case.

In order to reduce both maternal and fetal risks, combined surgical procedure is planned for the treatment of thrombosis. In these types of cases, the equipment and facilities of the hospital play a critical role, as well as the cooperation and coordination between related departments (6).

As discussed in our case, in cases of acute iliofemoro-popliteal thrombosis developing towards the end of the gestational

period (7), the high risk for pulmonary embolism and mortality secondary to pulmonary embolism makes it almost impossible to plan the delivery with by normal vaginal route (8, 9).

Conclusion

Without jeopardizing the mother and the baby, planning a combined surgical procedure with multidisciplinary approach is the best way to eliminate the risks of serious complications like pulmonary embolism and mortality.

Conflict of interest

No conflict of interest was declared by the authors.

References

1. Burgazli K M, Bilgin M, Kavukçu E, Altay MM. Diagnosis and treatment of deep-vein thrombosis and approach to venous thromboembolism in obstetrics and gynecology. *J Turkish-German Gynecol Assoc* 2011; 12: 168-75. [CrossRef]
2. Barritt DW, Jordan SC. Anticoagulant drugs in the treatment of pulmonary embolism. A controlled trial. *Lancet* 1960; 1: 1309-12. [CrossRef]
3. Goodacre S, Sampson F, Thomas S, van Beek E, Sutton A. Systematic review and meta-analysis of the diagnostic accuracy of ultrasonography for deep vein thrombosis. *BMC Med Imaging* 2005; 5: 6. [CrossRef]
4. Kahn SR. Post-thrombotic syndrome after deep venous thrombosis: risk factors, prevention, and therapeutic options. *Clin Adv Hematol Oncol* 2009; 7: 433-5.
5. Bates SM, Greer IA, Pabinger I, Sofaer S, Hirsh J; American College of Chest Physicians. Venous thromboembolism, thrombophilia, antithrombotic therapy, and pregnancy: American College of Chest Physicians evidence-based clinical practice guidelines (8th edition). *Chest* 2008; 133: Suppl: 844S-86S.
6. Özeser S, Çırpan T, Ergenoğlu M, Terek MC et al : A Case of Deep Venous Thrombosis in the Third Trimester of Pregnancy Associated with Homozygote Factor V Leiden Mutation. *J Turkish-German Gynecol Assoc* 2003; 4: 66-8.
7. du Toit DF, McCormich M, Laker L. Deep-vein thrombosis in pregnancy. A case report. *S Afr Med J* 1985; 67: 781-2.
8. Steiner E, Christides C, Tabaste JL, Dabir P, Collet D, Grego MC, et al. [Iliac vein thrombosis with a "floating clot" at the 37th week of pregnancy. Caesarean section and the application of a clip on the inferior vena cava. A case history (author's transl)]. *J Gynecol Obstet Bioel Reprod (Paris)* 1981; 10: 823-9.
9. Grand A, Ghadban W, Perret SP, Saboul R, Mosnier S, Douieb A, et al. [Ilio-femoral vein thrombosis treated with tissue plasminogen activator in a pregnant woman]. *Ann Cardiol Angeiol (Paris)* 1996; 45: 517-22.