

Postpartum Hip Pain Caused by Deep Venous Thrombosis: A Case Report

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Case report

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Abstract

Background

Sural pain is usually the primary complaint for deep venous thrombosis (DVT). Hip pain in DVT is very uncommon.

Case summary

We report a rare case of a young woman who complained of left hip pain and fever postpartum, and who was diagnosed with DVT. We first suspected purulent arthritis of the hip joint, and a magnetic resonance image (MRI) and enhanced computed tomography (CT) were performed. The MRI suggested DVT of the left iliac vein and the CT revealed a wide-range thrombus, which spread over the distal renal vein, femoral vein and common iliac vein to the sural vein. Treatment with insertion of a filter into the inferior vena cava (IVC) and use of an anticoagulant dissolved the thrombus.

Conclusion

DVT must be considered as a possibility whenever pregnant or postpartum women present with a fever of unknown origin or complain of hip pain with lower leg edema.

Introduction

Deep venous thrombosis (DVT) can lead to a serious condition called pulmonary thromboembolism (PE). The most common complaint for patients with DVT is lower leg pain. Only two cases report hip pain as the primary symptom of DVT. We encountered a rare case of DVT presenting with hip pain as the main symptom. We report this case with relevant literature. The patient was fully informed and gave consent for her data to be submitted for publication.

Case Report

A 28-year-old woman complained of left hip pain 10 days after her second natural delivery, which had begun 4 days postpartum. Edema of the lower left leg was observed; however, it was not severe, so she was discharged. Fourteen days postpartum, her body temperature rose to 38.0°C. Her weight was 53 kg, height was 166 cm, and body mass index was 19.5 kg/m². She did not smoke or drink. She had a past medical history of cystitis and migraine. There were no risk factors of thrombus formation in her family history. She was taking no medication such as hormonal medicine. On admission, 18 days postpartum, she had a temperature of 37.6°C. However, her heart rate, blood pressure, and respiratory rate were normal. The range of motion in the left hip joint was remarkably restricted. She could flex her hip only 30° and extend only 60° due to hip pain, which was aggravated by external rotation, and Patrick's test was positive. There was no clear oppressive pain at Scarpa's triangle. Laboratory findings showed inflammation and hypercoagulability (Table 1).

On admission, a plain radiograph did not show narrowing of the joint space of the left hip. There was no finding of osteoarthritis of the hip joint, as there was no narrowing of the cleft between articulations and no bone destruction of the femur. We suspected purulent arthritis of the hip joint due to the presence of fever and hip pain. A magnetic resonance image (MRI) showed an unusually low signal from the left femoral vein to the common iliac vein (Figure 1A). Moreover, a heterogeneous high intensity signal was seen in the vein (Figure 1B). These images showed the clear existence of thrombosis. An enhanced computed tomography (CT) showed the thrombus from the distal renal vein to the left sural vein. No thrombus was found in the pulmonary artery (Figure 2A, B, and C). As a result, we diagnosed severe deep venous thrombosis and thrombophlebitis.

To prevent movement of the thrombus to the pulmonary artery, a filter was inserted into the inferior vena cava (IVC), and thrombolytic therapy started immediately after admission, with the use of heparin and urokinase. We controlled the dosage of heparin to prolong the activated partial thromboplastin time (APTT) 1.5 times to 2.5 times. We did not choose a newer oral anticoagulant because the patient was lactating. Fourteen days after admission, enhanced CT revealed the disappearance of the thrombus from the IVC and left sural vein, although a part of the thrombus remained in the left common iliac vein and popliteal vein. We removed the filter on day 16 after admission, and she was discharged on day 17. At discharge, we changed the anticoagulant to oral administration of 4.5 mg warfarin per day. (Figure 3). We controlled the dosage of warfarin to prolong prothrombin time (PT) 2 times to 3 times.

Six months after discharge, D-dimer returned to its normal level (0.0-1.0 µg/nl). Fifteen months after discharge, enhanced CT revealed the disappearance of all pieces of the thrombus, and warfarin was discontinued. She has not had a relapse of DVT. Blood examination during her hospitalization for DVT revealed that anti-cardiolipin antibody and lupus anticoagulant were negative, and lack of proteins S and C were not seen, meaning that she had no risk factors of easy thrombosis.

Discussion

We encountered a rare case of a young postpartum woman complaining of left hip pain with fever of unknown origin and swelling of the lower thigh who was diagnosed with DVT. Swelling of the lower thigh, sural pain, Homan's sign, varicosis, and fever of unknown origin are well-known symptoms of DVT; however, hip pain is uncommon. We found only two case reports with hip pain as a symptom of DVT [4]. Both patients were pregnant women.

It is said that the crisis rate of DVT among all women was 0.03%, but was five times higher in pregnant women. The reason is that pregnancy makes blood coagulation overactive. Female hormones loosen the smooth muscles of the uterus, and the enlarged uterus presses on the surrounding veins, especially in women confined to their bed after a cesarean section. Ginsberg et al. [1] and McColl et al. [2] reported that 90% of DVT cases occurred on the left side during pregnancy, likely because of the enlarged uterus causing the right iliac and ovarian arteries to press on the left common iliac artery. It is well-known that age ≥ 35 years, BMI ≥ 27 , protracted bed rest (because of vomiting during pregnancy, imminent abortion,

placenta previa, multiple pregnancy, etc.), existence of varix, cesarean section, and past history of venous thrombosis (VTE) are risk factors for DVT. It was reported that the risk of DVT in cesarean sections was five times higher than in spontaneous deliveries. The patient in this case had none of these risk factors, and the only symptoms were swelling of the lower leg and fever of unknown origin. However, Wells' criteria for the prediction of DVT includes entire leg swelling, and Chan et al [5] reported that a LEFt score that includes calf circumference difference ≥ 2 cm between asymptomatic and symptomatic legs was also predictive of DVT. This indicates that swelling is an important symptom in suspected DVT cases.

A thrombus in the femoral vein might lead to inflammation of the vein itself, which might cause swelling of the muscle and soft tissue around the vein. Hip pain might then occur due to increased pressure on the muscle. As DVT can occur more easily in the perinatal period in the iliac and femoral veins (72%) than the sural vein (9%) [3], we rarely diagnose DVT by the symptom of hip pain. Eight percent of deaths in pregnant and postpartum patients are caused by PE, which arises secondary to DVT. If we can diagnose DVT early, the lives of many pregnant and postpartum patients can be saved. When patients present with complaints of swelling or fever of unknown origin, (especially pregnant or postpartum patients), DVT should be considered as part of the differential diagnosis.

Conclusion

We present a rare case of severe DVT, which occurred in a young woman who gave birth one week prior to onset of symptoms. The thrombus was discovered by chance during an MRI. Without this finding, she may have had a potentially fatal PE. As DVT and PE aggravate rapidly, DVT must be considered as a possibility whenever pregnant or postpartum women present with a fever of unknown origin or complain of hip pain with lower leg edema. To prevent death from fetal PE in pregnant women, MRI should be performed as soon as possible when a patients complains of hip pain.

Abbreviations

DVT: deep venous thrombosis; MRI: magnetic resonance image; CT: computed tomography; IVC: inferior vena cava; PE: pulmonary thromboembolism; APTT: activated partial thromboplastin time; PT: prolong prothrombin time; PE: VTE: venous thrombosis; WBC: White Blood Cell; Neut: Neutrophil; CRP: C-Reactive Protein; ESR: Erythrocyte Sedimentation Spin Resonance; FDP: Fibrin Degradation Product

Declarations

Ethical approval and consent to participate

This study was approved by the Juntendo Nerima Hospital

Consent for publication

All presentations of case reports have consent for publication

Availability of supporting data

Not applicable

Competing interests

The authors declare that they have no competing interests

Authors' contribution

Masayoshi Sumiyoshi treated the patient for inserting the IVC filter and adjusting function of coagulation. The authors read and approved the final manuscript

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Tables

Due to technical limitations, table 1 is only available as a download in the Supplemental Files section.

Figures

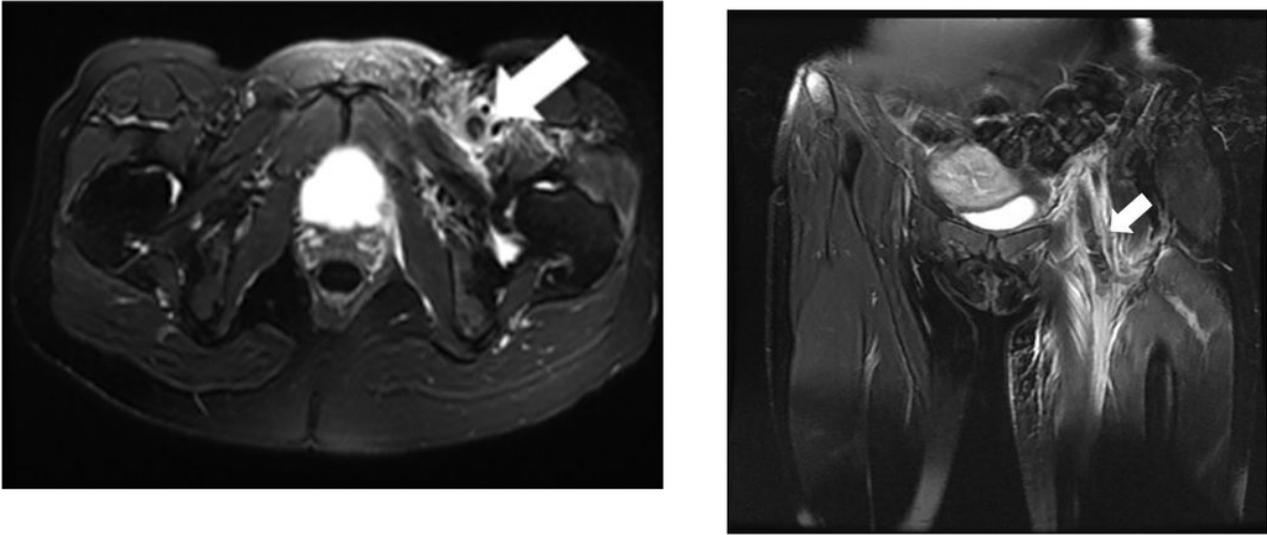


Figure 1

(A) The white arrow indicates an unusually low signal from the left femoral vein to the common iliac vein.

(B) The white arrow indicates a high signal in the soft tissue surrounding the vein.

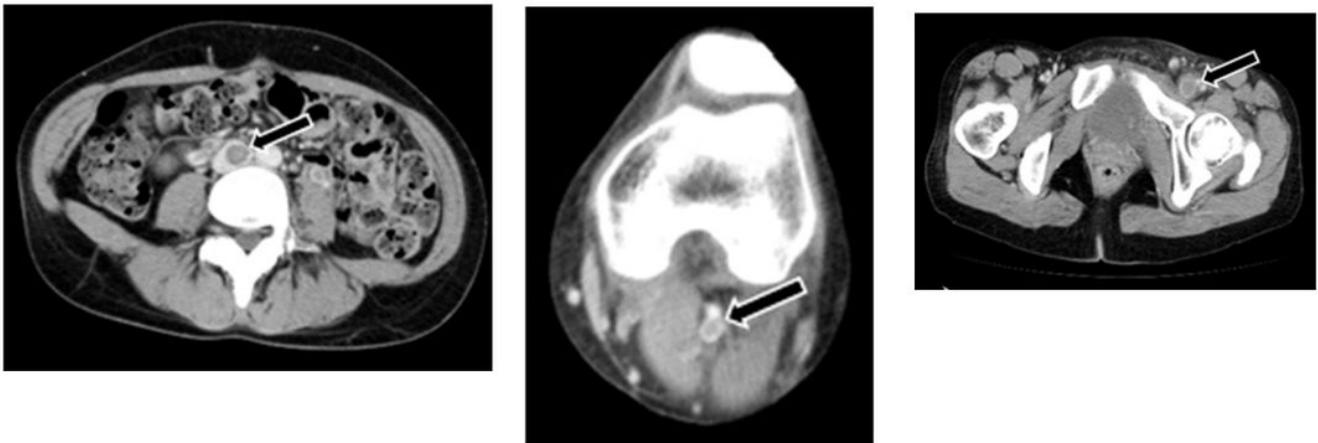


Figure 2

(A) The black arrow indicates thrombosis at the distal renal vein. (B) The black arrow indicates thrombosis at the left femoral vein. (C) The black arrow indicates thrombosis at the left sural vein.

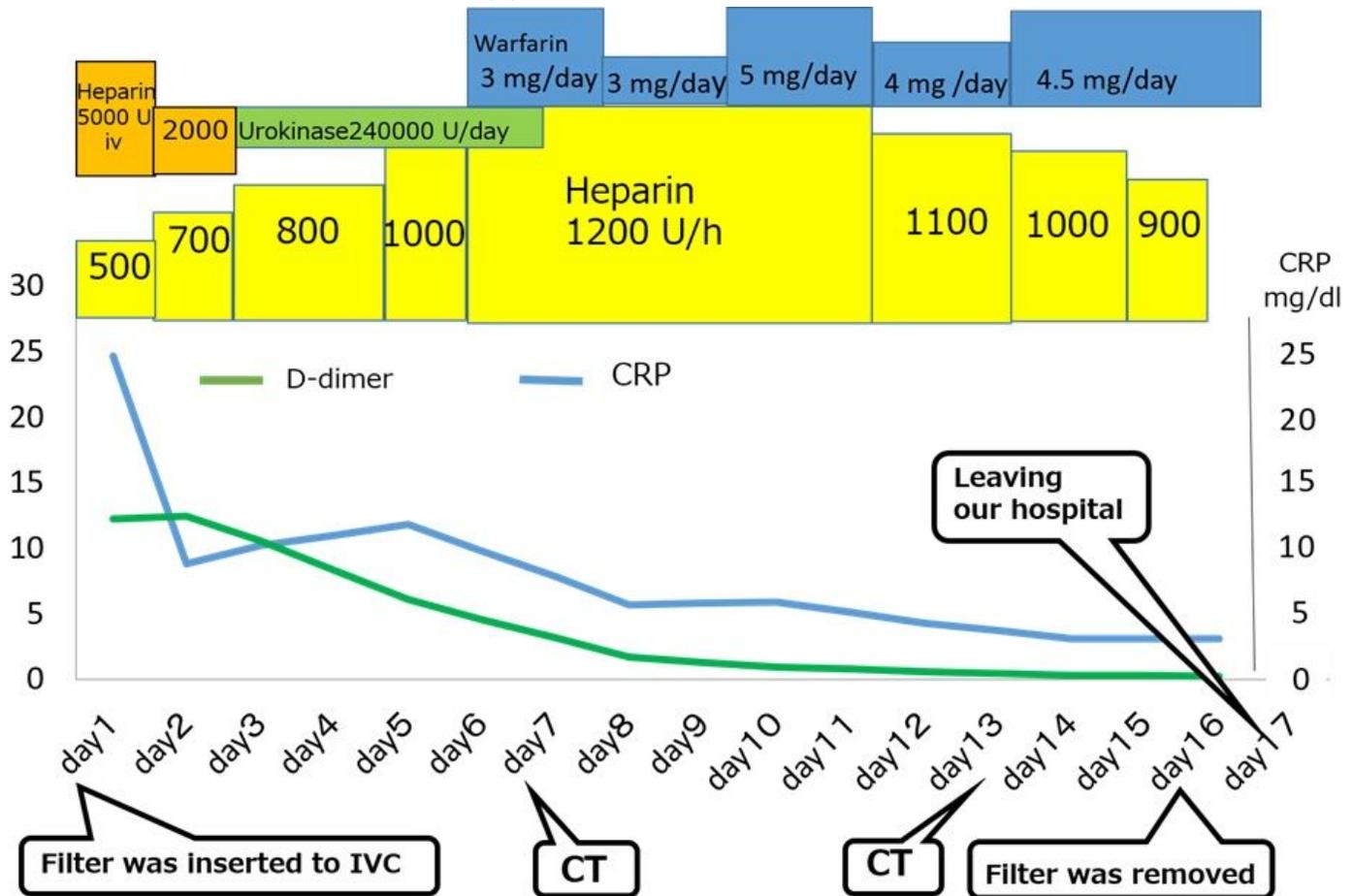


Figure 3

The upper part of this figure shows the dosages of heparin, urokinase, and warfarin. We controlled the dosage of heparin to prolong APTT 1.5 times to 2.5 times and the dosage of warfarin to prolong PT 2 times to 3 times. The lower part of this figure shows D-dimer and CRP decreasing with time.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Table1.tif](#)