

CASE REPORT

The Compression Conundrum: A Case of May-Thurner Syndrome

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ABSTRACT

Pregnancy is a physiologic hypercoagulable state characterized by increased clotting factors, reduced fibrinolytic activity, and venous stasis, all of which contribute to an elevated risk of venous thromboembolism. Pregnancy is associated with a gradual increase in thrombotic risk that culminates during the third trimester and extends into the postpartum period owing to physiological changes in coagulation and venous circulation. Among these stages, the puerperium is the most vulnerable, with epidemiological studies demonstrating that women are at least five times more likely to experience VTE during the first two to six weeks after delivery than during pregnancy. Among the less common causes of iliofemoral deep vein thrombosis is May-Thurner syndrome, an anatomical venous compression disorder characterized by impaired iliac venous drainage due to chronic extrinsic compression. The resulting venous stasis predisposes patients to venous stenosis, obstruction, chronic venous insufficiency, and thrombosis. Recognition of this condition is particularly important in patients with unexplained left-sided iliofemoral DVT.

I present you a case of a 30 years old, 5 weeks' post-partum lactating mother [P1L1] who came to ED with complaints of generalised weakness, pain in lower abdomen radiating towards lower back, and medial side of left thigh and ipsilateral groin since 7 to 10 days, associated with swelling of the thigh.

After careful examination, an immediate **bilateral lower limb DVT** scan was ordered which suggested echogenic thrombus within CIV, EIV, CFV, left femoral vein and popliteal vein, which were distended and non-compressible. A vascular surgeon was approached and a plan to insert fluoroscopic guided IVC filter via right IJV percutaneous approach followed by a mechanical thrombus aspiration via left popliteal vein was made and performed. Most VTE can be treated with oral or injectable anticoagulants however, the case of limb or life threatening VTE requires consideration of thrombolysis and other reperfusion therapies.

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Early recognition of atypical symptoms, prompt diagnosis and timely intervention are crucial to prevent serious morbidity and mortality. This case highlights the importance of maintaining a high index of suspicion for VTE in post-partum women. While anticoagulants with LMWH remains the cornerstone of treatment, advanced intervention such as thrombus aspiration and IVC filter placement may be required in selected patient with extensive or limb threatening thrombosis.

KEYWORDS

• May Thurner Syndrome • Deep Venous Thrombosis • IVC Filters • Post-Partum and Pregnancy

INTRODUCTION

Pregnancy is a physiologic hypercoagulable state characterized by increased clotting factors, reduced fibrinolytic activity, and venous stasis, all of which contribute to an elevated risk of venous thromboembolism (VTE).¹

The increased thrombotic risk associated with pregnancy and the postpartum period results from physiological alterations in the haemostatic system that promote a hypercoagulable state, an adaptive mechanism aimed at limiting blood loss during childbirth. These haemostatic changes include enhanced coagulation activity, suppression of fibrinolysis, and venous stasis, collectively corresponding to the principle elements of Virchow's triad.

The risk rises as pregnancy progresses, peaking in the third trimester and postpartum period, with both hormonal fluctuations and mechanical factors playing key roles.² Among all stages of pregnancy, the postpartum period represents the period of greatest susceptibility to VTE. The risk is greatest during the first two to six weeks after delivery and is estimated to be at least fivefold higher than during pregnancy. Contributing factors include vascular injury sustained during labour, ongoing inflammation, and abrupt haemodynamic changes, such as increased venous return and redistribution of extracellular fluid, which collectively favour thrombosis.³

These thrombotic complications account for a substantial proportion of maternal deaths worldwide, with an incidence estimated between 0.5 and 2.0 per 1000 pregnancies and a mortality rate of approximately 1 per 100,000 deliveries.^{4,5}

Among the less common causes of pregnancy-associated iliofemoral DVT is May-Thurner syndrome, a venous compression disorder caused by chronic extrinsic compression of the iliac vein between the overlying iliac artery and the lumbar vertebral body. The resulting impairment of venous outflow predisposes patients to venous stenosis, thrombosis, obstruction, and chronic venous insufficiency. Therefore, May-Thurner syndrome should be considered in patients presenting with unexplained or left-sided iliofemoral DVT, particularly in the postpartum period.

CASE REPORT

Case Presentation

A 30-year-old, five weeks' post-partum currently lactating mother (P1L1) came to ED with complaints of generalised weakness, pain in lower abdomen radiating towards lower back, and medial side of left thigh and ipsilateral groin since 7 to 10 days which had progressively worsened over the preceding two days rendering her unable to carry her usual day to day activities.

There was no history of trauma, fever, shortness of breath, burning micturition, blood in urine. The patient gave negative history of any coagulopathy disease running in her family, recent long travelling, previous pregnancy loss, cancer or recent surgery.

The patient was a non-comorbid and no allergic history could be acquired. 1-month prior, the patient had a recent full term vaginal delivery with episiotomy on 1/12/25 which remained uneventful until now.

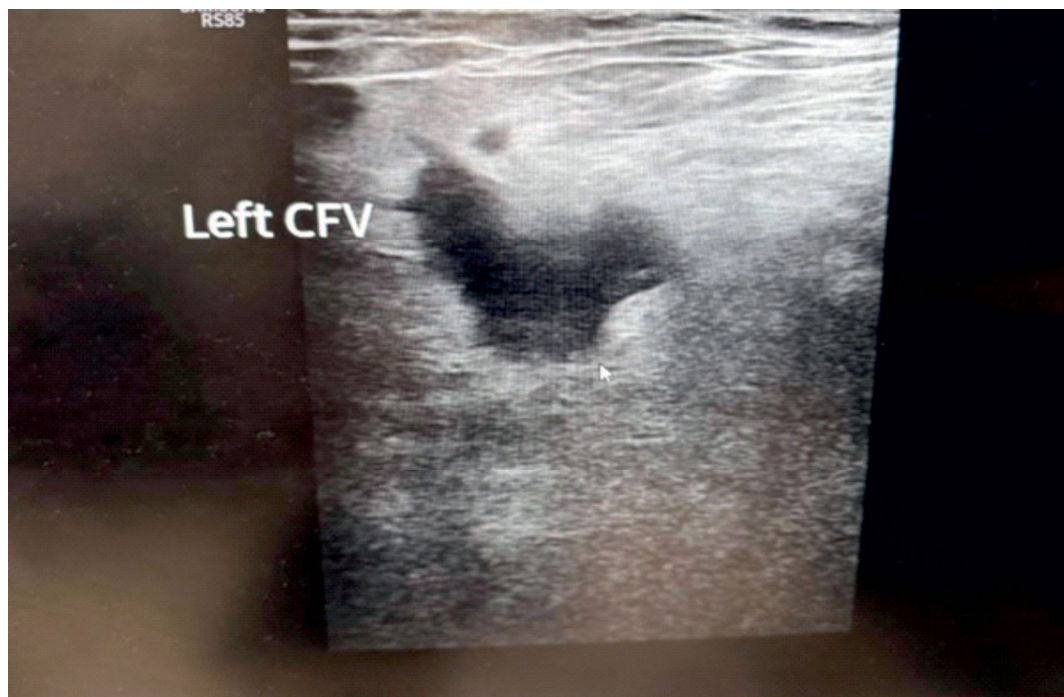


Figure 1: There is evidence of hypoechoic content in left CFV causing loss of colour flow and compressibility suggestive of acute left lower limb DVT

Clinical findings

On presentation, vitals were as follows; the patient was conscious oriented (GCS 15/15) with blood pressure 124/84mmhg, pulse 140/min, oximeter saturation 95% on room air, temperature 98.6F, respiratory rate 18 breaths/min and a pain score of 4/10.

On local examination, the patient was found to have diffuse swelling on left thigh with tenderness on medial side of thigh. left femoral and popliteal pulse were found to feeble

Rest of the systemic examination was grossly normal

ABG: PH;7.33/pco2 37/hb13/ Hco3 20 / Na 131/K4.2

Chest X-ray: Normal

Routine blood investigations were done

HB: 9.3 g/dl

TLC: 12.33

Platelets: 387K

RFT/LFT: Within normal limits

Couglation Profile: WNL

An urgent **bilateral lower limb DVT** scan was performed which suggested echogenic thrombus within CIV, EIV, CFV, left femoral vein and popliteal vein, which were distended and non-compressible.

Therapeutic intervention

Symptomatic treatment including hydration with IV fluids, antiemetic and pain management along with inj. clexane 0.4mg SC were administered.

A vascular surgeon was approached for further treatment and a plan to insert fluoroscopic guided IVC filter via right IJV percutaneous approach followed by a mechanical thrombus aspiration via left popliteal vein was made and performed in next two days, following her admission in the hospital.

Follow up: Counselling regarding the need for venoplasty with stenting at the later date was done and the patient was discharged on oral anticoagulant and other supportive management.

A detailed written informed consent has been taken from the patient prior to Case Report Submission.

DISCUSSION

The above report describes a 1-month post-partum patient who presented to emergency with history of sudden onset of lower abdominal pain and diffuse aching swelling in left thigh who got clinically evaluated and diagnosed as a case of May Thurner syndrome

with conclusive radiological evidence. Subsequently, the patient was conservatively managed with oral anticoagulants and definitive treatment with fluoroscopic guided IVC filter and mechanical thrombus aspiration was performed. She was discharged in an improved state with a planned removal of IVC filter with in next 2 months.

May-Thurner syndrome is an anatomical venous compression disorder in which the iliac vein is compressed between the overlying iliac artery and the lumbar vertebral body, leading to impaired venous outflow that may progress to venous stenosis, chronic insufficiency, or obstruction.⁶ Patients with this condition are particularly predisposed to left-sided lower-extremity DVT, with iliofemoral thrombosis representing a common clinical manifestation. Imaging studies have reported underlying May-Thurner anatomy in approximately 22%–76% of individuals presenting with left lower-extremity DVT. Despite this association, many affected individuals remain asymptomatic because an extensive collateral venous network compensates for the obstructed venous drainage. Thrombotic events generally occur when the underlying anatomical compression is accompanied by additional prothrombotic factors, such as venous stasis, endothelial injury, or hypercoagulability.⁷

Pathophysiology

In May-Thurner syndrome, repeated pulsatile compression by the overlying iliac artery causes chronic damage to the venous endothelium. This injury promotes fibrosis through the accumulation of collagen and elastin, resulting in the formation of characteristic intraluminal fibrous spurs. The combination of these fibrotic changes and persistent external venous compression compromises venous drainage, ultimately increasing the risk of venous stenosis, obstruction, and deep vein thrombosis.

Clinical features

The clinical manifestations of May-Thurner syndrome are often subtle and may remain undetected because collateral venous channels can compensate for impaired iliac venous drainage. Early features are typically nonspecific and may include intermittent

tightness of the left lower limb that improves with rest or overnight recumbency, mild unilateral swelling, skin hyperpigmentation, telangiectasias, or venous ulceration. Symptoms frequently become apparent when additional precipitating factors, such as surgery, pregnancy, the postpartum period, or the use of oral contraceptives, further increase the risk of venous thrombosis. In such cases, patients classically present with a painful, swollen left lower extremity. Although uncommon, severe complications, including phlegmasia cerulea dolens and other limb-threatening manifestations of extensive venous thrombosis, may also occur.⁸

Diagnostic consideration

The initial assessment of suspected May-Thurner syndrome generally begins with duplex ultrasonography, which can demonstrate evidence of venous reflux or distal thrombosis. Because ultrasound has limited sensitivity for evaluating the iliac veins, equivocal or technically inadequate studies should be followed by cross-sectional imaging, such as CT venography or MR venography, to establish the diagnosis.

CT venography has greater than 95% sensitivity and specificity to detect iliac vein compression and can visualize stenosis, collaterals, and DVT. However, in pregnancy MR venography is preferred due to risk of radiation exposure to developing foetus.

Management Principles

Management of May-Thurner syndrome is guided by the patient's clinical manifestations and the presence or absence of associated thrombosis. In patients with non-thrombotic disease, endovascular treatment with balloon angioplasty and iliac vein stenting is considered for symptomatic venous obstruction, whereas those with mild symptoms may be managed conservatively through graduated compression therapy, limb elevation, counselling on modifiable thrombotic risk factors, and regular clinical follow-up. When deep vein thrombosis is confirmed, anticoagulation remains the cornerstone of treatment, provided there are no contraindications. Initial therapy typically consists of unfractionated heparin or low-molecular-weight heparin, with fondaparinux serving as an alternative in selected patients.⁹

However, anticoagulation alone provides suboptimal relief. The Catheter-Directed Venous Thrombolysis (CaVenT) is definitive treatment of choice to treat May Thurner syndrome after careful exclusion of contradictions related to thrombolysis.

Surgical resection of the involved venous segment is rarely performed and is reserved for patients who fail endovascular procedures. Surgical approaches include saphenofemoral crossover bypass, cross-pelvic venous bypass, femoro-femoral prosthetic bypass, femoro-caval bypass, ilio-ilial prosthetic bypass, and aortic elevation.¹⁰

Prognosis and outcome

The clinical manifestations of May-Thurner syndrome are frequently mild or nonspecific in the early stages, which may delay recognition until significant venous obstruction or thrombosis becomes apparent. Thrombotic complications typically arise when the underlying anatomical compression is compounded by additional prothrombotic conditions, including venous stasis, endothelial injury, pregnancy, or the postpartum hypercoagulable state. Early identification and appropriate management aimed at relieving venous compression can result in favorable long-term outcomes and preservation of functional status. Ongoing clinical surveillance is essential to detect recurrent symptoms, monitor stent patency when applicable, and reduce the risk of recurrent venous thromboembolism while maintaining quality of life.

CONCLUSION

The case reinforces several key principles:

- **High index of suspicion:** for DVTs and May Thurners syndrome is warranted in patients with symptoms of diffuse aching swelling of lower limbs with no significant past or familial history correlating it.
- **Prompt examination and diagnostic evaluation** can expedite diagnosis in atypical or subtle presentations.
- **Early oral anticoagulation and planned catheter directed venous thrombolysis** are essential to reduce morbidity, length of stay, quality of life and mortality due to complication.

Given the observed risk of crisis in pregnant and postpartum patients along with the frequency of this anatomic variation, clinicians should maintain diagnostic vigilance in all patients with idiopathic and unprovoked left iliofemoral deep vein thrombosis.

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