

## Endovascular Intervention for May Thurner Syndrome: Ideal Choice for an Unusual Case

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### Abstract

**Aim:** May Thurner syndrome (MTS) is a rare syndrome associated with Deep Venous Thrombosis (DVT). The incidence ranging from 19–49% in patients with left sided venous thrombosis. This is due to chronic compression of left common iliac vein against lumbar vertebral bodies by the Overlying right common iliac artery. Even though anticoagulation remains the treatment of acute DVT, catheter based Thrombolysis combined with stenting provides a safe and effective mode of treatment.

**Materials and Methods:** A 23 years old nursing student presented with 6 months history of left lower limb swelling with no Associated pain or paraesthesia. CT peripheral aortogram and venogram was done, which showed compression of left common iliac vein by the overriding right common iliac Artery.

**Result:** Patient was treated with Venous Self-expanding Stent 9Fr 16mm diameter x 80mm length (AbreMedtronic).

**Conclusion:** Surgical interventions are available for this ailment which carries more risk compared to Endovascular Techniques.

**Keywords:** Deep venous thrombosis; Stent; May Thurner syndrome; DVT.

### Introduction

In 1957, May and Thurner described three varieties of intra-luminal spurs occurring in the left Common iliac vein close to its junction with the inferior vena cava (IVC). The exact incidence of May-Turner syndrome is unknown, but ranges from 18%–49% among patients with left-sided lower extremity DVT.<sup>1,7</sup>

The chronic pulsations of the overriding right iliac artery (RIA) led to the development of a “spur” in the vein wall and this results in partial venous obstruction. Chronic trauma to the inner side of the vein wall due to adjacent arterial pulsations leads to the accumulation of elastin and collagen, contributing to spur. Mechanic compression of the iliac vein by the thick-walled Overriding iliac artery

also leads to extensive local intimal proliferation, which in turn causes reduced venous return and venous thrombosis.

### Material and Methods

A 23 years old nursing student presented with 6 months history of left lower limb swelling. No associated pain or paraesthesia were present. She was treated with compression stockings for 3 months with minimal improvement. She has no comorbidities and no history of deep venous thrombosis.

The swelling became worse during pregnancy and post-partum period. It was associated with mild pain and occasional muscle cramps. On

examination, she was a young lady in stable condition, 55.5kg weight and 156 cm tall. Cardiac and chest exam were normal. She had left leg swelling up to the thigh. No discoloration or ulcers were seen.

Other systems essentially normal. Routine blood work up with venous Doppler were done.

She was then started on Rivaroxaban 15mg once a day for prophylaxis.

CT peripheral aortogram and venogram was done, which showed compression of left common iliac vein by the overriding right common iliac artery (Fig. 1). She underwent endovascular stenting of the left common iliac vein.

## Result

Patient was discharged the next day of the procedure and is on regular follow up. The wound

has healed well, and the leg edema subsided and is doing well.

## Procedure notes

Spinal anesthesia, cefuroxime 1.5 gm intravenously, left femoral artery and vein Exposed via cut-down at the left groin. Purse string placed on both vessels with 6-0 prolene. Sheaths Inserted, venogram performed and bifurcation of inferior vena cava noted in antero-posterior view at lumbarvertebral level 4. Heparin 2,500 units intravenously. Pigtail inserted into aorta, sub-optimal View of aortic bifurcation with hand injection. JR3.5 advanced into right femoral artery and dual hand injection performed into aorta and vein. Image intensifier in place, venous sheath removed and Stent (Venous Self-expanding Stent 9Fr 16mm diameter x 80mm length (Abre Medtronic) advanced over hydrophilic wire to inferior vena cava and deployed. Final

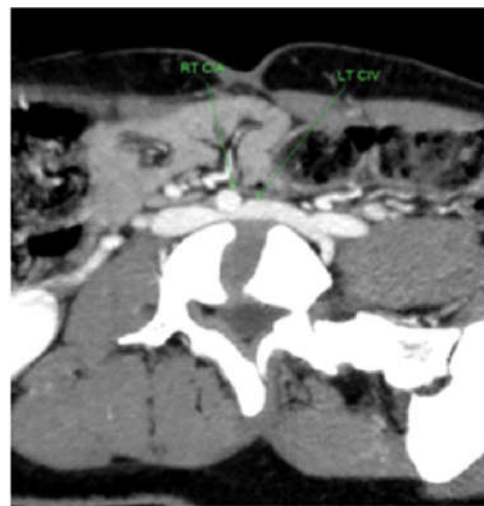


Fig. 1: CT Peripheral Angiogram.

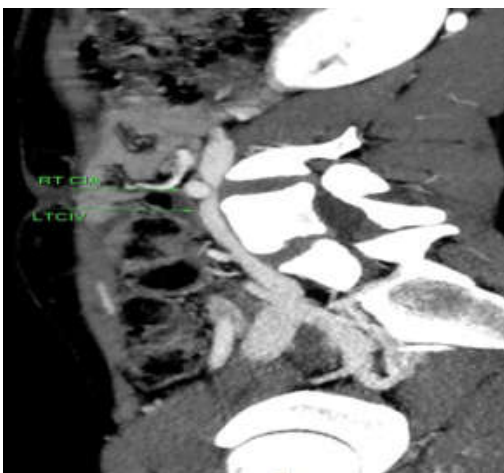


Fig. 2: CT Peripheral Angiogram.

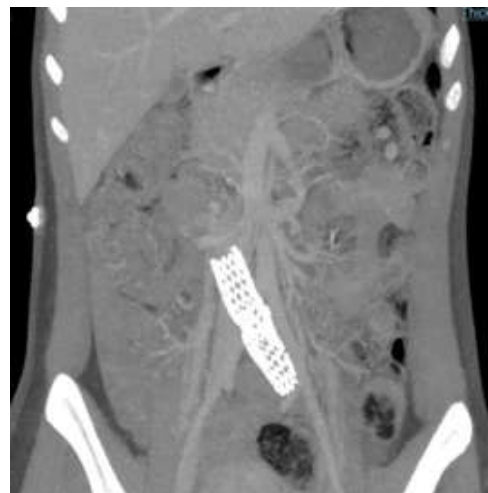
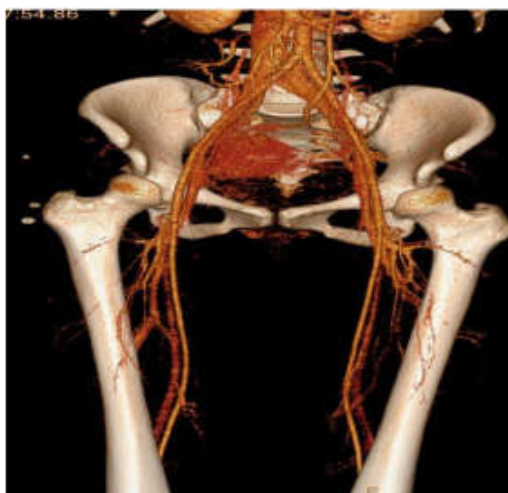


Fig. 3: CT Peripheral Angiogram.

venogram performed and views of Stent in LAO 60 to confirm no stenosis (Fig. 2 and 3). Vein and artery repaired with purse string suture and Wound closed in layers. Pressure dressing applied.

She was then observed in HDU overnight and was discharged home the next day with Acetaminophen and rivaroxaban 15mg once a day.

She was seen in the clinic 5 days later for wound inspection. She reported swelling of left leg to have reduced and had minimal pain.

She is scheduled to be seen in the clinic after 5 weeks. In the meantime to continue with rivaroxaban 15mg once daily and leg stockings.

## Discussion

May-Thurner syndrome (MTS) is due to an anatomical abnormality of the right common Iliac artery compresses the left CIV anterior to the sacral promontory and the fifth Lumbarvertebra. Arterial pulsation not only compresses the vein but also induces endothelial Injury within its wall<sup>3</sup>. MTS may present more commonly, as chronic venous insufficiency with varying degrees of Trophic changes, varicose veins, pedalodema, leg pain, skin pigmentation, ulceration etc.<sup>4,5</sup> Very few cases of iliac vein rupture have also been reported<sup>2,5</sup> in the literature. History and physical examination along with blood workup especially for thrombophilia as 67% of patient could be associated with some form of thrombophilia as described by Kolbel et al.<sup>5</sup>

Our patient had classic form of MTS and had no evidence of thrombophilia.<sup>5</sup> CT venography, MR venography, intravenous ultrasound, or conventional venography can be used to confirm

diagnosis of MTS in the suspected cases. With simple Doppler ultrasound it is very difficult to find pathology in the iliac vessels. There are few case reports where Diagnosis of the MTS was suspected on Doppler examination of the iliofemoral vessel.<sup>5</sup> The initial management of patients with symptomatic MTS or MTS-related DVTs with endovascular procedures remains the treatment modality.

Several case reports surgical approaches to MTS. One study compared the efficacy of Catheter directed thrombolysis (CDT) versus percutaneous mechanical thrombectomy (PMT) in addition to percutaneous stenting.<sup>6</sup>

Many times endovascular management alone is often insufficient for treatment of symptomatic MTS. A dual therapeutic approach with endovascular intervention and medication with Anticoagulation is the ideal new standard of care. This requires a multidisciplinary approach.<sup>6</sup>

## Conclusion

May-Thurner syndrome is often missed as a cause of DVT and chronic venous insufficiency. In all young and middle aged patients who present with left sided ilio-femoral DVT or isolated left sided chronic venous disease, the element of suspicion of May Thurner Syndrome should be thought . We advocate an aggressive approach in appropriate candidates using catheter based thrombolysis, with mechanical thrombectomy and stenting of the common iliac vein. Endovascular procedure is more accepted as they carry less morbidity in comparison to surgery.

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