May-Thurner Syndrome: A Rare Cause of Deep Vein Thrombosis

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INTRODUCTION

May-Thurner Syndrome is a rare anatomic variant in which the right common iliac artery compresses the left common iliac vein.[1] This compression predisposes vessels to endothelial damage and increased risk of deep vein thrombosis (DVT).[2] While the exact incidence and prevalence of May-Thurner Syndrome is unknown, it is estimated to occur in 2-5% of patients who present with a lower extremity venous disorder.[3] May-Thurner syndrome typically exists as an asymptomatic period in young females and progresses to iliofemoral DVT presenting as left lower extremity swelling following a period of hypercoagulability such as surgery, immobilized period, or pregnancy/post-partum.[4]

We present the case of a 39-year-old Hispanic female with low back pain found to have an iliofemoral deep vein thrombosis secondary to May-Thurner Syndrome.

CASE REPORT

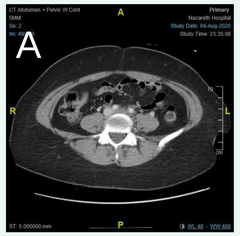
A 39-year-old Hispanic female presented to the emergency department with low back pain radiating to the left buttocks, thigh, and left lower abdominal quadrant for two days. The patient denied fever, nausea, vomiting, diarrhea, dysuria, urinary retention, incontinence, and saddle anesthesia. There was no history of prior DVTs.

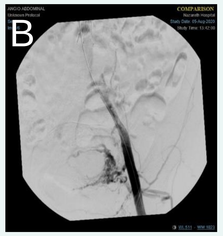
The patient's vitals were BP 105/74 mmHg, HR 107 bpm, RR 16, Pulse Ox 100 on room air, and Temperature 36.7 C. The patient's physical exam was remarkable for tenderness in the left medial thigh and left buttock and significant swelling throughout the left leg with normal pulses throughout the lower extremities bilaterally. The initial laboratory workup included a CMP, Coagulation studies (including PT, PTT), and D-Dimer which were within normal limits. The patient was tested for SARS-CoV-2 RNA and was found to be negative. The patient's initial CBC was remarkable for low Hb of 8.8 g/dL (normal 12.3-15.3 g/dL) and low Hct of 27.7% (normal 35.9-44.6%). A Heparin drip was initiated with repeat CBC, Coagulation Studies, and D-dimer. Repeat labs were remarkable for elevated D-Dimer of 2.67 (normal <0.4 mcg/mL), low Hb of 8.1 g/dL, and low Hct of 25.6%. The patient was evaluated with an abdominal computed tomography (CT) which showed thrombosis of the left common, external, and internal iliac veins with compression of the left common iliac vein against the lumbar vertebral bodies by the right common iliac artery, consistent with May-Thurner Syndrome. A lower extremity CT showed normal opacification of the left common femoral, femoral, and popliteal veins. Diagnosis was confirmed with a venogram which demonstrated complete occlusion of the common iliac and external iliac veins with a thrombus extending onto the ilio-femoral transition.

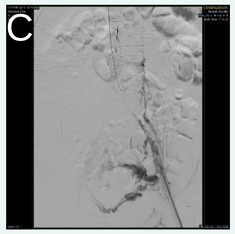
Treatment was initiated with pharmacomechanical lytic therapy utilizing an AngioJet pharmacomechanical thrombectomy catheter and Tissue Plasminogen Activator (TPA). Digital Subtraction Angiography and fluoroscopy were utilized for visualization and positioning of the Inferior Vena Cava (IVC) filter via the right femoral vein to avoid touching the DVT and serve as protection from an embolic event. A lysis catheter was left in place for continued deliverance of TPA. The patient was transferred to the ICU and managed with hourly neurovascular and neurosurgical checks and serial lab draws (CBC, fibrinogen, and coagulation panels). The patient was monitored for evidence of bleeding.

IMAGING & RESULTS

While in the ICU, the patient's fibrinogen level dropped from 326 to 70 mg/dL (normal 200-400 mg/dL) over the next 30 hours and TPA was discontinued. The patient was brought back to the OR for further management. Ilio-cavogram and intravenous ultrasound demonstrated worsening in comparison to post-treatment venogram. Repeat pharmacomechanical lytic therapy was conducted utilizing an AngioJet pharmacomechanical thrombectomy catheter and TPA to the left external and common iliac veins. An intravenous ultrasound catheter was utilized for sizing and placement of kissing iliac stents at the level of the iliac bifurcation. Completion digital subtraction venography demonstrated excellent result in the bilateral iliac system with inline flow and patency throughout the IVC. Postoperatively the patient was managed with anticoagulation for 3 months, after which the IVC filter was removed.







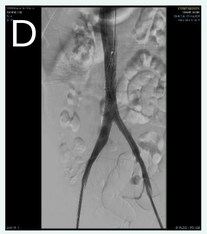


Figure A: Abdominal CT with contrast showing compression of the left common iliac vein by the right common iliac artery, suggestive of May-Thurner Syndrome.

Figure B: Abdominal Angiogram demonstrating original thrombus of left common iliac vein and left external iliac vein.

Figure C: Abdominal Angiogram demonstrating re-thrombosis of left common iliac vein and left external iliac vein following discontinuation of TPA due to patient's falling fibrinogen level.

Figure D: Digital subtraction venography demonstrating revascularization with placement of kissing iliac stents in the left and right common iliac veins.

DISCUSSION

The pulsatile nature of the compression in May-Thurner Syndrome complicates treatment, resulting in a poor response to conservative medical therapy.[3] Current standard treatment involves catheter-delivered thrombolytics and percutaneous mechanical thrombectomy, with or without stent placement.[5] Stenting typically involves placement in the affected left common iliac vein with either extension into the IVC or with the stent ending flush at the iliocaval junction.[6] Endovascular management with pharmacomechanical thrombolysis and stent placement has been shown to have successful resolution of May-Thurner Syndrome with maintained 1-year patency.[7]

CONCLUSION

We presented the case of a young woman with low back pain caused by an iliofemoral DVT secondary to May-Thurner Syndrome treated with pharmacomechanical thrombolysis and kissing iliac stent placement. This case report demonstrates that pharmacomechanical lysis alone is not sufficient for the treatment of May-Thurner Syndrome. The underlying pathology must be corrected, which is done in the modern day with stenting and balloon angioplasty. This case shows that pharmacomechanical thrombolysis with placement of kissing iliac stents is a viable option for achieving excellent resolution of May-Thurner Syndrome.

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