Rare Cause of Pulmonary embolism: May-Thurner Syndrome

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BACKGROUND

- May-Thurner syndrome (MTS), also known as iliacal venous compression syndrome, is defined as compression of left iliac vein by the right common iliac artery against the lumbar vertebra.
- MTS may account for 2 to 5 percent of patient with symptomatic lower limb venous disorder.
- It is estimated that 80% of the patient with thrombotic MTS will experience post-thrombotic syndrome if not treated with thrombolytic therapy, compared to less than 10% in those who receive thrombolytic therapy.
- Risk factors: young female, surgery, pregnancy, oral contraceptive use, dehydration, cancer, and infection

CASE PRESENTATION

- A 20-year-old female with no significant past medical history presented to ED with left flank pain radiating to the groin, associated blue discoloration and swelling on left lower extremities for a day. She also noticed shortness of breath, sharp pleuritic chest pain for a month.
- Social Hx: non-smoker, no history of alcohol use disorder, denies recreational drug use. No recent Long-distance travel.
- Family Hx: No family history of hypercoagulable diseases.
- Medications: Nikki (Oral contraceptive)
- Physical Exam: Vital signs WNL. The patient had 1+ edema and mild erythema in the left lower extremity with intact sensation to light touch and 2+ distal pulses. No remarkable findings on general, heart, lung, abd exam.
- Labs: D-dimer 1590 ng/ml. PT, aPTT, CBC and CMP were within normal limits. COVID 19 PCR-.
- CTA of chest, abdomen and pelvis revealed pulmonary embolism on bilateral lower lobes(fig. A) and incidental finding of diminished attenuation of the left common and external iliac veins(fig. B) compared to the normal right common and external iliac veins. Additionally, both the left common and external iliac veins appear slightly larger in caliber than the right iliac veins. These finding was suggestive of DVT of left iliolumbar vein.
- Repeat Doppler Ultrasound found deep vein thrombosis involving the left common iliac vein, left external iliac vein, and left central common femoral vein(fig. C, D, E, F)
- Venography and intravascular ultrasound showed a high-grade stenosis in the proximal left common iliac vein.

IMAGES

- Fig A (CTA chest): bilateral lower lobe segmental pulmonary artery filling defect indicating pulmonary emboli.
- Fig B (CTA abd): decreased attenuation of left common iliac vein suggesting DVT or compression.
- Fig C, D, E (US duplex): thrombosis in left common iliac vein, left external iliac vein, and left central common femoral vein.
- Fig F (US duplex): non-compression of left common femoral vein suggesting thrombosis.
- Fig G (venography): filling defects and enlargement of the venous caliber in LCIV.
- Fig H (venography): persistent stenosis of LCIV after thrombolysis.
- Fig I (venography): patent LCIV poststenot placement

MANAGEMENT

- Management: The patient was started on therapeutic enoxaparin for pulmonary embolism. As MTS was highly suspected given her clinical feature and ultrasound finding of extensive proximal DVT. She underwent endovascular thrombolysis with tissue plasminogen activator(tPA) and mechanical thrombectomy. IVUS after thrombolysis showed stenosis of LCIV. A stent was placed and venogram showed no residual stenosis. Enoxaparin was switched to apixaban upon discharge.
- Follow up: Repeat duplex US two months later showed good patency and no evidence of thrombosis.

DISCUSSION

- When to pursue the diagnosis of MTS: MTS is a rare etiology of DVT. Aggressive investigations are usually reserved for patients with high risks such as young female, left sided proximal DVT, stigmata of post-thrombotic syndrome (venous reflux and hyperpigmentation), venous claudication, persistent symptoms with adequate treatment, or Ipsilateral, recurrent, proximal DVT after completing treatment.
- DDx: DVT w/o MTS, other causes of iliacal vein compression
- Management: Due to the rarity of the syndrome, there was no randomized controlled trial to guide our treatment currently. For MTS with DVT, early surgical intervention is warranted to prevent post-thrombotic syndrome. Catheter directed thrombolysis with stent placement is preferred. Suction thrombectomy or open surgical thrombectomy are considered if thrombolysis is contraindicated. Open surgery is indicated if endovascular surgery fails to improve outcome. For MTS w/o DVT, compressive stockings are sufficient to relieve symptoms.

REFERENCES