BACKGROUND

May-Thurner syndrome (MTS) describes compression of the left common iliac vein by the right common iliac artery. It may cause deep vein thrombosis (DVT) and leg swelling. CT has a high sensitivity for detecting MTS.

CASE DESCRIPTION

A 46-year-old female presented with left leg swelling and pain for one week. Her past medical history was non-contributory. Vital signs were within normal limits. Physical exam demonstrated a warm and red left leg that was tender to palpation, with pitting edema that extended to the hip; pulses were intact. The right leg was normal. CBC, CMP, and coagulation studies within normal limits; D-dimer was elevated. A venous duplex ultrasound of the left lower extremity was performed, which demonstrated an extensive, acute DVT in the left lower extremity. Given the magnitude of the clot, a CT scan of the abdomen and pelvis was performed. It demonstrated that the left common iliac vein was compressed by the right common iliac artery, suggesting a diagnosis of MTS. She was started on a heparin infusion. Interventional Radiology (IR) was consulted and performed a venogram with mechanical thrombectomy and initiation of catheter-directed thrombolysis. A follow up venogram the next day demonstrated incomplete thrombosis, so a repeat mechanical thrombectomy with stent placement was performed, this time with clot resolution. The patient was bridged to warfarin and discharged on this medication.

DISCUSSION

May-Thurner syndrome (MTS) is compression of the left common iliac vein by an overlying right common iliac artery. It can be complicated by the development of deep vein thrombosis (DVT). The pulsations of the artery lead to changes in the wall of the left common iliac vein, leading to narrowing of the vein. If symptomatic, the typical presentation of MTS is left lower extremity swelling and pain, indicative of a DVT. Other presentations include varicose veins and, rarely, phlegmasia cerulea dolens. Symptoms in the affected left extremity can be mild, leading to underdiagnosis of MTS. DVT in patients with MTS classically occurs in females in their 20s-30s. DVT in these patients can be chronic, lasting between 4-6 weeks. It is important to consider if MTS anatomy is present in patients with left lower extremity swelling. Ultrasound is generally the initial imaging modality for patients with a suspected DVT. Typically, however, only the lower extremity is imaged in patients who present to the Emergency Department with suspected DVT. This can lead to a missed diagnosis of MTS because the iliac veins are not assessed. Iliac vein assessment on ultrasound is technically difficult, but can show high velocities in the common iliac vein, which indicates compression. CT in the venographic phase can demonstrate compression of the iliac vein. CT has a high sensitivity for detecting MTS. However, CT can potentially overdiagnose compression in a dehydrated patient. Magnetic resonance venography (MRV) can also be used to diagnose MTS, though is rarely performed in this setting due to its cost. MRV can also demonstrate spur formation in the iliac veins, as a result of pulsatile flow of the overlying iliac artery. The gold standard for MTS diagnosis is venography with intravascular ultrasound (IVUS). This can provide real-time information about the patency of the vessel lumen, as well as information regarding the presence and degree of hyperplasia in the wall of the iliac vein. The presence of hyperplasia in the setting of a thrombus indicates the process is chronic. IVUS is also important in determining iliac vein diameter, which is essential if stenting will ultimately be performed. The treatment of MTS depends upon whether DVT is present. For patients with mild symptoms without DVT, conservative therapy with compression stockings is sufficient. In patients with MTS and DVT, catheter-directed thrombolysis and/or mechanical thrombectomy can be performed to resolve the clot. Subsequently, angioplasty and endovascular stenting of the iliac vein at the point of compression can be performed. Studies have shown that stents that are placed in patients with MTS have high rates of remaining patent 1-2 years after being placed (2). Open surgery may be indicated if endovascular treatment fails. Post-operatively, anticoagulation is generally continued (3).