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An Unusual Case Presentation of the May–Thurner Syndrome

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Summary: A 56-year-old woman underwent abdominoplasty with no immediate complications. She had no known bleeding history nor any relevant past surgical history. Adequate preventive measures for venous thromboembolism were performed, including sequential compression devices, good hydration, and early ambulation. At 17 days post operation, the patient presented to the emergency room complaining of left leg swelling and sharp, shooting pain radiating down her left leg. Workup in the Emergency Room revealed significant venous thrombosis involving complete occlusion of the major veins of the left leg. There were no indications of cardiopulmonary compromise. Angiography revealed an anatomical variant consistent with May–Thurner Syndrome (MTS). This variant first described in 1957 may present in up to one-quarter of patients, more commonly in young women. This case appears to be the first reported of MTS occurring in association with a postoperative complication of abdominoplasty. Diagnosis and management considerations are discussed. (*Plast Reconstr Surg Glob Open* 2016;4:e736; doi: 10.1097/GOX.0000000000000718; Published online 13 June 2016.)

A 56-year-old woman underwent an abdominoplasty with no immediate complications. The patient has a past medical history of depression and anxiety currently being managed with sertraline and clonazepam. Preoperative clearances were performed, including partial thromboplastin time/international normalized ratio and complete blood count. She had no known bleeding history nor any relevant past surgical history. Adequate preventive measures for venous thromboembolism were performed, including sequential compression devices, good hydration, and early ambulation. Three days post operation, the patient presented for her first follow-up visit. Physi-

cal examination showed satisfactory flap circulation, intact incision, and functioning drainage from the 2 closed suction drains placed at surgery. The bupivacaine pump placed at surgery was empty, and the 2 catheters were removed without difficulty. Liposuction areas of the back showed moderate edema with no problems noted. The patient stated that she was in mild pain and was provided an additional prescription for oxycodone/acetaminophen. At the next postoperative visit on postoperative day 10, she looked well, was standing straight, and had no fluid collection in the abdominal area or any signs of infection. At that time, the drains were removed. She was recommended to further increase her physical activity gradually. At 17 days post operation, the patient presented to the emergency room complaining of left leg swelling and sharp, shooting pain radiating down her left leg. She reported that she had been walking her dog when the sharp pain occurred and prevented her from walking any further. Physical examination was unremarkable except for left lower extremity tenderness, erythema, and swelling, most notable on the left leg and thigh. Vitals and cardiopulmonary examination were normal. She denied any shortness of breath, lower extremity numbness, or tingling. Passive movement of

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the leg elicited pain. Peripheral pulses were palpable with a negative Homan's sign. Strength and deep tendon reflexes were equal bilaterally. The abdominoplasty scar appeared well healed with no fluid collection. A venous Doppler ultrasound was ordered, which showed complete venous occlusion of the left lower extremity, including a complete occlusion of the left femoral vein, mid femoral, distal femoral, and popliteal veins. The patient was admitted and started on enoxaparin and warfarin. Partial thromboplastin time/international normalized ratio studies were normal. A subsequent computed tomographic angiogram of the abdominal aorta with runoff and venous phase was ordered, which showed a thrombus extending from the external iliac vein to the crossover at the level of the left and right iliac artery, an anatomic configuration consistent with MTS¹ (Figs. 1 and 2). The patient was started on Lovenox and Coumadin in the emergency department after results of the ultrasound and computed tomographic angiogram confirmed the diagnosis of DVT caused by MTS. The patient opted to receive catheter thrombolysis with angiojet for removal of the clot followed by placement of a wall stent in compressed area of the vein (Figs. 3 and 4). The patient also had an inferior vena cava filter placed for further prophylaxis of venous thromboembolism. The patient was discharged home with Lovenox and a 6-month course of Coumadin treatment. She developed no new complications at her 3- and 6-month follow-ups and was subsequently taken off her Coumadin and placed on daily aspirin.



Fig. 1. Axial computed tomography with intravenous contrast. Red arrow points to left common iliac vein; X indicates right common iliac artery.

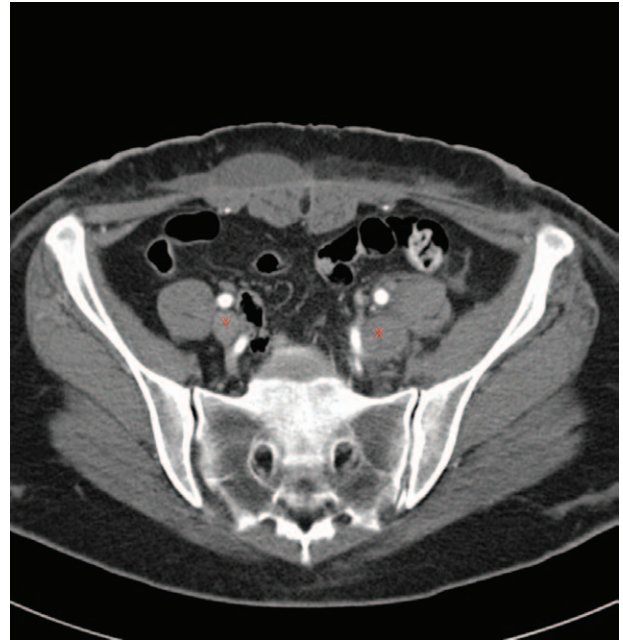


Fig. 2. Axial computed tomography with intravenous contrast slightly inferior to Figure 1. X indicates the thrombosed (expanded) left external iliac vein; Y indicates the nonthrombosed right external iliac vein.

DISCUSSION

According to the initial study done on 430 cadavers by May and Thurner¹ in 1957, this unique anatomic variant was seen in 22% of all cadavers. Recently, a retrospective study showed that 24% of patients had a high degree of compression on the iliac vein consistent with MTS, confirming the initial finding of the high frequency of MTS seen by May and Thurner.^{1,2}

MTS often presents in women in their 30s. A history of multiple pregnancies, postpartum period, contraceptive pills, prolonged immobilization and dehydration all frequently accompany the presentation of patients eventually diagnosed with MTS. Therefore, other more common causes of DVT may obscure the precise anatomic diagnosis of MTS.^{3,4}

Venous thrombosis and thromboembolism are well-known potential complications of abdominoplasty, and therefore, routine preventative measures are taken, including mechanical and/or chemoprophylaxis and routine supportive measures, including adequate hydration, pain control, and early active ambulation.

Repeated DVTs unable to be explained by common risk factors causing DVT warrant the investigation into possible MTS, especially because of the high prevalence of the anatomical defect in the population.

MTS causing DVT presents with acute onset swelling and leg pain because of outflow obstruction of the common iliac vein. Homan's sign is an unreliable predictor of DVT due to relatively low sensitivity and



Fig. 3. Digital subtraction left iliac venogram with patient in the prone position. Circle indicates persistent compression and stenosis despite mechanical and pharmacologic thrombolysis.

specificity.⁵ DVT and pulmonary emboli are characterized as 2 diseases with the same manifestations and are often treated under 1 well-established algorithm, which includes clinical decision, D-dimer test, and compression ultrasonography to determine the presence of a DVT in the extremities.⁶

Follow-up treatment and management of MTS involves treating the underlying DVT along with stent implantation, and it is generally agreed upon that long-term anticoagulation is not sufficient for treatment and prevention of recurrent DVT.⁴ A study done by Kim et al⁷ showed that catheter-guided thrombolysis and angioplasty with stent implantation is a safe and effective way to prevent recurrence of clots in patients diagnosed with May–Thurner syndrome.

Of the many causes of DVTs proposed by Virchow's triad along with the ever increasing number of patients on DVT prophylaxis, anatomic variants, such as MTS as a cause of DVT, are rarely considered on the differential diagnosis of patients with clotting issues. This case report hopes to bring attention to the high variant of patient population with MTS and the necessity for surgical intervention of stent placement to prevent recurrence.

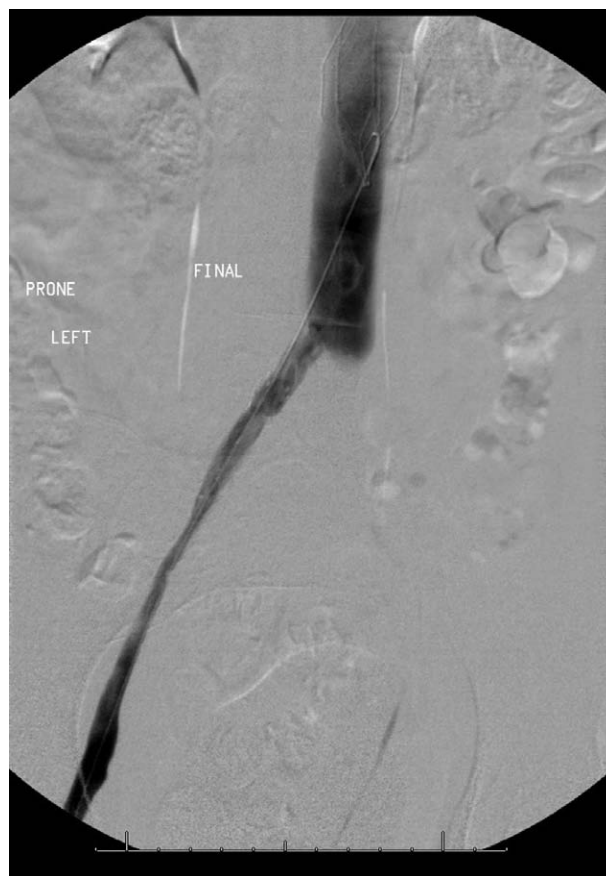


Fig. 4. Digital subtraction left iliac venogram after deployment of 2 overlapping stents. The compression and stenosis related to the right common iliac artery are no longer present.

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