

ILLUSTRATIVE CASE STUDY: PHARMACOMECHANICAL THROMBECTOMY OF ILIOFEMORAL DVT

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This case study illustrates the endovascular management of an acute iliofemoral DVT utilizing the pharmacomechanical thrombectomy approach. A 46-year-old woman presented to the emergency room with a 2-day history of left-leg swelling. She reported significant swelling of the left calf and thigh, which were warm to the touch. The patient also described severe lower-leg pain, which worsened with ambulation. She denied any trauma to her lower extremity. Physical examination revealed marked swelling of the left lower extremity involving the calf and the thigh, which were tender to the touch. Although the calf was soft to the touch, it became painful with both passive and active dorsiflexion of the foot. The right lower leg was unremarkable in its appearance and examination.

Diagnostic Evaluation

Venous duplex ultrasound of the lower extremities revealed a large echolucent density in the left common femoral vein that was noncompressible and was consistent with acute DVT. There was a complete venous occlusion, with venous thrombus extending proximally to the external and common iliac veins, as well as distally to the superficial femoral and popliteal veins. Doppler signals showed absence of normal phasic flow, which was consistent with venous occlusion. Based on the venous duplex ultrasound, the diagnosis of acute left iliofemoral DVT was made.

Treatment Approach

Given the significant swelling of her left leg, as well as her symptoms, our treatment approach included pharma-

comechanical thrombolysis using the AngioJet Thrombectomy System with urokinase thrombolytic agent via the left popliteal vein approach. To accomplish this, the patient was first placed in the prone position whereby her left popliteal fossa was prepared and draped in a sterile manner. Under ultrasound guidance, the left popliteal vein was percutaneously cannulated using a micropuncture needle (Boston Scientific Corporation, Natick, MA). A 6-F introducer sheath (Boston Scientific Corporation) was placed over a guidewire into the popliteal vein. Initial venography showed a significant thrombus burden in the superficial femoral vein and extensive DVT in the iliofemoral venous system (Figures 1A and 1B). After placement of a guidewire through the iliofemoral DVT, pharmacomechanical thrombectomy therapy was initiated using an AngioJet thrombectomy catheter to infuse the thrombolytic agent. Shortly after a brief period of thrombolytic agent infusion, serial thrombectomy was performed by activating the AngioJet system, which percutaneously removed the thrombus from the superficial femoral vein and the iliofemoral venous system. Completion venography demonstrated a significant improvement of DVT in the iliofemoral venous system (Figure 1C). A focal stenosis was noted in the left iliac vein, which was consistent with May-Thurner syndrome (Figure 1D), and was effectively treated with stent placement (Figure 1E).

The patient was given systemic heparin (100 U/kg) and oral warfarin anticoagulation 3 days later. Repeat venous duplex ultrasound was performed on the following day, which demonstrated complete resolution of the femoral and iliac vein without evidence of DVT. At the time of discharge 4 days later, her left leg swelling had completely subsided without any pain. She remained free of symptoms and had no recurrence of DVT at 1-year follow-up. ■



Figure 1. Initial venogram demonstrating thrombus in the superficial femoral vein (A). Pelvic venogram demonstrating iliac vein thrombus (B). Venogram of the superficial femoral vein demonstrating resolution of venous thrombus after pharmacomechanical thrombectomy (C). Pelvic venogram after pharmacomechanical thrombectomy demonstrating May-Thurner syndrome (D). Final venogram shows a satisfactory radiographic result after stenting of the common iliac vein stenosis (E).