ASPIRE: Minimizing Complications in Complex Intervention

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"The Aspire Mechanical Thrombectomy Kit serves as a distal protection device for the tibial vessels when we do atherectomy. I use a blood pressure cuff to occlude the tibial vessels, then the Aspire system to remove any emboli from my interventions."

– Thomas P. Davis, MD, FACC

Figure 1. 100% occluded superficial femoral artery (SFA).

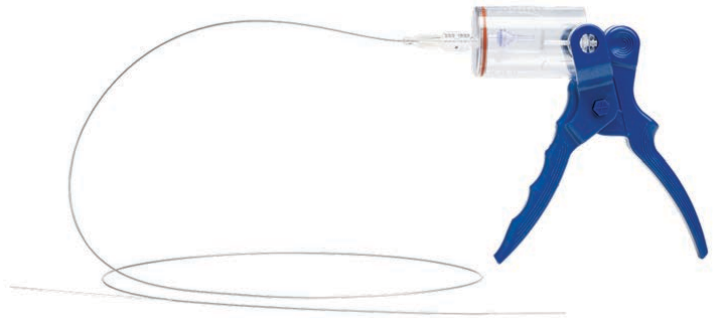

Figure 2. The Aspire Catheter (Control Medical Technologies). The Aspire Mechanical Thrombectomy Kit delivers new control during thrombectomy. Users instantly start, stop, increase, decrease, maintain, and pulse thrombectomy force. Squeezing the handles increases force and releasing handles stops it.

Disclosure: Dr. Jalal reports no conflicts of interest regarding the content herein. Dr. Davis reports reports he is a consultant for Bard, Boston Scientific, Volcano, Avinger, and Cordis.
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Case Report

A 48-year-old female with a past medical history of hypertension, hyperlipidemia, paroxysmal atrial fibrillation, chronic obstructive pulmonary disease, and tobacco abuse, came to our cardiology office complaining of left leg claudication with walking one block. On physical examination of the left leg, skin was intact without any ulcer, both motor and sensory system were intact, there was a good femoral pulse and weak popliteal, post tibial and dorsalis pedis pulses. Ankle-brachial index on left leg was abnormal at 0.45. A computed tomography angiography of the left leg showed 100% occlusion of the superficial femoral artery (SFA). The patient was scheduled for a peripheral angiogram.

The patient was brought to cath lab and her right groin was prepped in sterile fashion. Right common femoral access was obtained using modified Seldinger technique. A 6 French (Fr) monitoring sheath was inserted over a .035-inch J wire. A 6 Fr internal mammary artery (IMA) catheter advanced over a .035-inch J wire to the abdominal aorta. An aorto-iliac angiogram was performed and showed patent right and left common and external iliac arteries. The IMA catheter was advanced to the left common iliac artery over a .035-inch stiff angled Glidewire (Terumo). A runoff angiogram of the left leg showed a patent common femoral artery and a 100% occluded SFA that was a chronic total occlusion (CTO). The popliteal artery filled up through collaterals with 3-vessel runoff distally. The 6 Fr monitoring sheath was exchanged to a 7 Fr long sheath over an .035-inch super core wire.

Before attempting to cross the SFA CTO, a blood pressure cuff was placed around the left leg at calf muscle level and inflated 20 mm Hg above systolic pressure to function as a distal embolic protection device.

The SFA CTO was successfully crossed by using Ocelot (Avinger). A Regalia .014-inch wire (Asahi Intecc) was placed across the lesion. An Eagle Eye intravascular ultrasound (IVUS) catheter (Philips Volcano) was advanced over the wire and confirmed that the wire was intra-luminal. A 2.5mm 7Fr HawkOne rotational atherectomy catheter (Medtronic) was inserted to the SFA and two passes were performed. After atherectomy, the SFA was ballooned using a 5 mm x 200 mm balloon, with an excellent result.

Before the leg blood pressure cuff was deflated, an RX-LP6 ASPIRE Mechanical Thrombectomy Kit (136 cm RX catheter included with ASPIRE device) (Control Medical Technology) was inserted over the Regalia wire to suction any possible debris. The long sheath was exchanged to a 7 Fr monitoring sheath and right groin hemostasis was achieved by manual compression. ■

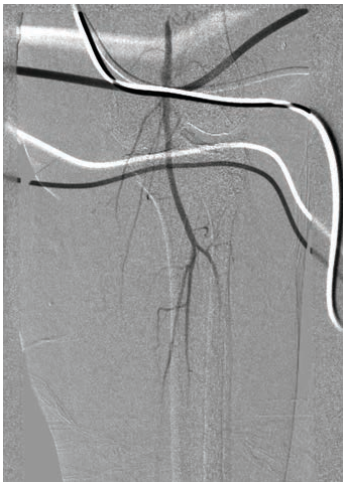

Figure 3. Three-vessel runoff.

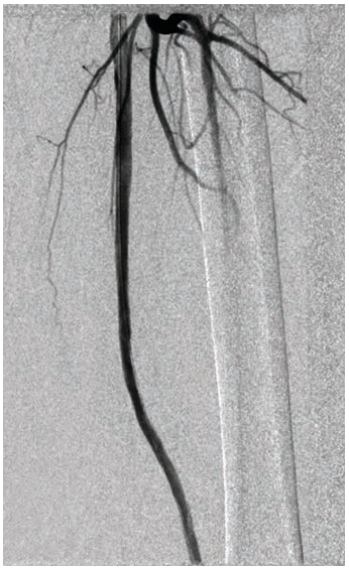

Figure 4. Post Aspire and PTA.