

Percutaneous interventions in recurrent peripheral artery disease: A case of total popliteal artery occlusion addressed with a multi-modality approach

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Case Presentation:

A 67-year-old male with a medical history of hypertension, hyperlipidemia, and coronary artery disease with multiple prior interventions presented with acute-onset pain in his right lower extremity following bicycle exercise. Concurrent symptoms included dyspnea, chest pain, diaphoresis, and non-bloody emesis. Physical examination revealed notable pallor in the right lower limb, absent left pedal pulses, and an EKG indicating normal sinus rhythm with PVCs and signs of a prior inferior MI. Doppler ultrasound confirmed complete occlusion of blood flow beyond the popliteal artery. Lower extremity angiography was performed, revealing acute thrombosis in the right popliteal artery. Catheter-directed tPA thrombolysis cleared the thrombus, confirmed by peripheral vascular angiography demonstrating patent anterior and posterior tibial arteries. The right peroneal artery remained occluded in the proximal-to-middle segment. A month later, the patient returned with claudication symptoms secondary to ALI. The subsequent intervention included balloon angioplasty and mechanical thrombectomy with a pulse device at the distal popliteal artery into the anterior and posterior tibial trunk, resulting in a three-vessel runoff. The patient successfully regained ambulatory function and resumed cycling soon after the procedure.

Discussion:

The approach to managing PAD involves a step-wise advancement of treatments, beginning with conservative measures, with the first line being supervised exercise therapy. The intent is to relieve claudication symptoms and reduce the risks of a cardiovascular event. Clinical assessment of a patient's symptoms is crucial to guiding the treatment modalities employed. Prior to considering revascularization, it is important to utilize all methods, including exercise rehabilitation and medical management. Minimally invasive advanced treatments, such as endovascular revascularization, can be considered in cases of recurrent severe PAD that have failed conservative modalities. Concurrently, it is crucial to manage comorbidities like type 2 diabetes and hypertension, as they lead to higher rates of re-stenosis post-stenting. Endovascular techniques typically involve angioplasty and stenting. In our case, we discussed a comprehensive approach involving the utilization of multiple concurrent endovascular procedures along with pulse device thrombectomy to successfully restore blood flow through the distal popliteal artery.