

Manually Bent Needle Direct Puncture Technique for Crossing a Heavily Calcified CFA Anastomotic Occlusion During EVT of Long CIA-to-SFA CTO
Retrograde Direct Puncture Using a Manually Bent Needle for a Heavily Calcified CFA Anastomotic Occlusion

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Background: Endovascular treatment (EVT) of heavily calcified occlusions involving an end-to-side prosthetic graft anastomosis is technically challenging because coaxial catheter alignment is difficult to achieve, resulting in inadequate penetration force. We report a successful bailout strategy using a manually bent needle to cross an uncrossable calcified anastomotic lesion.

Case: An 82-year-old man presented with left lower-extremity rest pain. He had undergone an aorto-common femoral prosthetic bypass in 1998 and a prosthetic graft-to-above-knee popliteal saphenous vein bypass in 2018 after failed EVT. Computed tomography angiography demonstrated complete occlusion of the left iliac prosthetic graft and a heavily calcified occlusion extending from the common femoral end-to-side anastomosis to the SFA. Redo surgery was deemed infeasible because dense adhesions had already been encountered during the 2018 operation.

Intervention: Initial crossover femoral access provided insufficient backup support; therefore, an additional right radial approach was used to cross the occluded graft. After balloon dilatation and advancement of the crossover guiding sheath, multiple guidewire and catheter combinations failed to penetrate the calcified lesion. A manually bent 18-gauge, 110-mm needle with a large hook-shaped tip was percutaneously advanced from the proximal SFA toward the prosthetic graft, successfully traversing the calcified anastomosis. After guidewire externalization, antegrade wiring to the popliteal artery was achieved under IVUS guidance. Jetstream atherectomy, sequential balloon angioplasty, drug-coated balloons for the CFA-SFA segment, and iliac stent implantation completed revascularization.

Outcome: Final angiography demonstrated excellent inline flow to the foot. The patient's rest pain resolved completely and he remained free from recurrent symptoms at the 6-month follow-up.