Using novel, reinforced, metal-tipped microcatheter for crossing multiple challenging infrapopliteal CTOs

Eugen Ivan, MD, Scott Kochenower, DPM

Peripheral arterial disease (PAD) is one of the leading causes of limb loss and non-traumatic amputations.

Here, we present a case of a novel use of a metal-tipped, reinforced microcatheter for the crossing of complex infrapopliteal chronic total occlusions.

This case illustrates multiple advantages of using a metal tip reinforced braided microcatheter in these challenging cases.

The crossing profile is very low, facilitating delivery all the way to the lesion site, despite extremely diseased vessels.

Another advantage is very strong backup support, which increases the wire tip pressure several fold.

Therefore, these occlusions may be crossed intraluminally in an expeditious fashion even with conventional guidewires.

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An 84-year-old Native-American female presented to our hospital with gangrene in bilateral lower extremities. She had dry gangrenous eschar of the distal hallux and 1st metatarsal head, right foot. She also had dry gangrene to the base of the dorsal 4th and 5th toes. Her underlying wound base was fibrotic with minimal granulation tissue. There was no clinical cellulitis.

Angiographic interpretation was difficult due to presence of multiple small collaterals, obscuring the course of these vessels. Additionally, the patient was unable to lie still on table, therefore introducing major motion artifact in most angiographic images, which made digital subtraction views extremely challenging.

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Angiogram performed via crossover femoral approach confirmed the 100% occlusion of the anterior tibialis artery, which was also diffusely and heavily diseased before the occluded segment. In addition, there was 100% occlusion of the entire posterior tibialis artery, starting at the ostium. The peroneal trunk was heavily diseased, and peroneal artery had 100% occlusion as well (images below).

Previous orthopedic ankle procedures. Again, wire would not advance past the lesion, therefore same Corsair Armet microcatheter was brought to the lesion site, and facilitated very quick crossing of the wire, which advanced all the way into one of the digital arteries. This was followed by angioplasty with balloon diameters up to 2.5 mm, re-establishing flow in the entire anterior tibialis artery and dorsalis pedis artery, with a very good angiographic result (right panels).

Patient had good clinical bleeding with sharp debridement at all wound sites postoperatively. She is free from amputation 8 months later.

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