

Successful Endovascular Treatment of a Heavily Calcified Superficial Femoral Artery Chronic Total Occlusion After Axillobifemoral Bypass Using a Transbrachial Approach and Three Distal Punctures

Hirokazu Miyashita¹

Hikaru Tanemura¹, Kazuki Kumagai¹, Shun Sawada¹, Eiji Koyama¹, Motoaki Kai¹, Kazuki Tobita², Shigeru Saito¹

¹ Department of Cardiology, Shonan Kamakura General Hospital, Japan

² Department of Cardiology, Ikegami General Hospital, Japan

A patient with a previous right axillary artery–bilateral femoral artery bypass presented with a severely calcified chronic total occlusion (CTO) of the left superficial femoral artery (SFA). An initial transbrachial approach was attempted; however, device delivery through the bypass graft was unsuccessful because of marked friction within the graft and insufficient backup support. Therefore, a retrograde puncture of the mid-SFA was performed, and a pull-through system was established by rendezvous with the antegrade system. Subsequently, direct antegrade puncture of the proximal SFA was added, but intraluminal crossing into the distal true lumen remained unsuccessful. An additional retrograde puncture of the P3 segment of the popliteal artery enabled successful wire externalization via a rendezvous technique.

After predilation of the entire lesion, externalization between the brachial and popliteal access sites was attempted but was abandoned because of excessive resistance within the bypass graft. Consequently, the two direct SFA access sites were utilized as the treatment route for endovascular reconstruction. Following aggressive lesion preparation, VIABAHN stent grafts were implanted. Because marked underexpansion persisted due to heavy calcification, additional scaffolding with a SMART Radianz stent was required. Residual gaps between the VIABAHN stent grafts and distal edge dissection were treated with SUPERA stents, and the residual P3 stenosis was treated with an IN.PACT drug-coated balloon. Final angiography demonstrated excellent antegrade flow without significant residual stenosis.

This case highlights that a multimodal access strategy combining a transbrachial approach with three distal punctures can be an effective bailout technique for complex, heavily calcified SFA CTOs in patients with previous extra-anatomic bypass surgery when conventional transfemoral access is not feasible.