Case Summary. A popliteal artery entrapment syndrome and subsequent bypass surgery could cause severe, hard, fibrous occlusion of the native popliteal artery. Endovascular therapy that opens the native vessel is important to keep patency.

It was impossible to advance the antegrade wire, as the entry of the native artery was not found by angiography or intravascular ultrasound imaging, making retrograde approach mandatory in our case. However, retrograde angiography also indicated that there was no entry point. Therefore, we firstly opened the bypass graft to monitor the distal anastomosis site, and to guarantee that there would be straight flow in the event that the native vessel could not be opened.

Persisting Rest Pain and Claudication of a Critical Limb Ischemia Patient After Performing a Superficial Femoral Artery Antegrade Approach Procedure

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[CLINICAL INFORMATION]
Patient initials or identifier number. Mr. Sun

Relevant clinical history and physical exam. A 63-year-old diabetes and heart failure with impaired LV function patient suffered from severe left leg pain and had an unhealed ulcerative wound at his left heel. The symptoms turned worse after he received endovascular treatment in another hospital 3 months prior to consulting with me. During his previous endovascular treatment, the lesions of his left superficial femoral artery and anterior tibial artery were treated with the antegrade approach from his left superficial femoral artery.

Relevant test results prior to catheterization. Old MI with CAD-3VD.
Impaired LV function with general hypokinesia and LVEF 21%.

Relevant catheterization findings. I performed the crossover approach from his right common femoral artery. The angiography showed left external iliac artery diffuse 70-90% stenosis, left proximal superficial femoral artery 70-80% stenosis at the previous puncture site, left superficial femoral artery shaft diffuse minimal in-stent restenosis, left anterior tibial artery distal diffuse stenosis with good vessel runoff, left peroneal artery total occlusion, and left posterior tibial artery chronic total occlusion with collateral.

[INTERVENTIONAL MANAGEMENT]
Procedural step. From right common femoral artery crossover approach with the 7 French shuttle sheath, I performed balloon dilatation and treated his left external iliac artery with the undersized 5.0 x 40 mm balloon. After balloon dilatation, the patient complained of severe abdominal and groin pain and the angiography revealed acute arterial occlusion due to severe dissection. I deployed the 7.0 x 60 mm self-expanding stent to seal the entry tear and prevented pseudoaneurysm, retroperitoneal hematoma and vessel perforation. After stenting, the vessel showed very good vessel runoff and the distal iliac artery had residual 20-30% stenosis. Because I needed to treat the superficial femoral artery and the lesions below the knee, I decided not to stent his distal iliac artery to reduce the rate of stent migration. If this was to happen, it would be very dangerous because it was close to the hip joint. We treated superficial femoral artery and also stented with the metallic stent. When treating the wound of the Rutherford classification stage 6, the single stenotic tibial vessel runoff might not be enough to heal it well. From the angiosome concept, I needed to treat his posterior tibial artery because the calcaneal branch supplies the heel. Due to these reasons, I re-canalized the vessel with a 0.014 wire and treated the vessel with the 2.5 x 40 mm balloon and was able to achieve very good vessel runoff.
Case Summary. The SFA antegrade approach for treating the multilevel lesions of peripheral artery disease always runs the risk of missing lesions. Moreover, the vessel access increases the chances of making the puncture site become stenotic. Despite this, the iatrogenic iliac artery dissection can be resolved easily by the metallic stent. We need to observe any of the patient’s peri-operational symptoms carefully. Furthermore, the angiosome concept is very useful for treating multilevel and multi vessel peripheral artery disease especially in a patient with heart failure and renal insufficiency. For this kind of patient, we need to try our best to shorten the operation time and reduce the contrast amount.

TCTAP C-225
Complete Revascularization by Endovascular Treatment for CLI Patient After ALI
Naoki Hayakawa1
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[Clinical Information]
Patient initials or identifier number. IT

Relevant clinical history and physical exam. A 62 years old male was referred for rest pain and pale of his right lower limbs. He felt rest pain of his right leg from two days ago. His peripheral arteries were not palpable from right popliteal artery. So he was introduced to our vascular surgery department.

Relevant test results prior to catheterization. ECG showed sinus rhythm and UCG showed there were no thrombus in the left atrium. The enhanced CT showed total occlusion from his right popliteal artery. And there were atherosclerotic change in his BTK lesions. So it seemed to be acute occlusion of his right popliteal artery based on ASO. At first vascular surgeon tried to treat by Fogaty catheter. They could remove the thrombus, however his symptom got worse maybe because they didn’t treat BTK lesion. So we decided to treat him by EVT.

Relevant catheterization findings. We started from left femoral approach, and control angiography showed a total occlusion from his right SFA ostium. Using Command wire with IVUS catheter, we could pass the lesion from SFA to PTA. IVUS showed a large amount of thrombus in his SFA to popliteal artery. After the aspiration we performed ballooning from BTK to SFA. Finally, we deployed two SMART stent in his SFA, and performed catheter thrombolysis. 2 days after the angiography showed the thrombus was almost disappeared.

[Interventional Management]
Procedural step. His right leg was salvaged. However, 3 months after, large wound of his right leg was appeared and not healed, so we decided to perform the EVT for BTK lesions. We performed ipsilateral antegrade approach, and control angiography showed total occlusion from his right SFA ostium. Using Command wire with IVUS catheter, we could pass the lesion from SFA to PTA. IVUS showed a large amount of thrombus in his SFA to popliteal artery. After the aspiration we performed ballooning from BTK to SFA. Finally, we deployed two SMART stent in his SFA, and performed catheter thrombolysis. 2 days after the angiography showed the thrombus was almost disappeared.

Next in the ATA, we suffered to advance the CTO lesion because the CTO was abrupt type from ostium. We used Astato XS9-12 with bending the tip and could penetrate. We advanced the antegrade wire with parallel wire technique but couldn’t reach the distal true lumen. So we perform the retrograde approach by trans-pedal approach from PTA to plantar artery to dorsal artery. We used the Chevalier floppy wire with Prominent BTA microcatheter and could reach the antegrade wire. Finally we could pass the lesion by kissing wire technique. We performed the long inflation by Cross perio 2.5/200 mm, we could get almost complete revascularization in his BTK. After the procedure, SPP was elevated dramatically.