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Case Report

Delayed Tibioperoneal Trunk Aneurysm after Atherectomy and Balloon Angioplasty

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True infrapopliteal aneurysms occur very rarely; the majority of reported cases are secondary to trauma or infection. We report the development of a tibioperoneal trunk aneurysm 6 months after atherectomy and angioplasty and describe subsequent open surgical repair via a great saphenous vein bypass graft.

CASE REPORT

Endovascular treatment of peripheral arterial disease has been rapidly adopted over the last 2 decades, with the treatment of infrapopliteal arteries being no exception.[1] Complications associated with atherectomy and balloon angioplasty have been extensively reported, including dissections, hematomas, and pseudoaneurysms.[1,2] However, a true infrapopliteal arterial aneurysm has yet to be reported as a complication of either procedure.[1,2] We present a patient who underwent atherectomy, balloon angioplasty, and catheter thrombectomy and subsequently developed a tibioperoneal trunk (TPT) aneurysm. Patient consent for this publication was obtained during follow-up.

A 49-year-old obese female patient with hypertension, hyperlipidemia, type 1 diabetes mellitus, and a 12 pack-year nonactive smoking history presented with left calf tiredness and cramping after walking less than 1 block. Her ankle-brachial indices (ABI) were 1.0 and 0.67 on the right and left, respectively. An aortogram with runoff revealed stenoses in the left distal popliteal artery, TPT, and anterior tibial artery (ATA) (Fig. 1).

Given her lifestyle-limiting symptoms, the decision was made to proceed with endovascular treatment. Atherectomy of the left popliteal artery and TPT was performed using a 6-French SS + SilverHawk extraction device (Medtronic, NJ), after which angioplasty of the left popliteal artery, TPT, ATA, posterior tibial artery (PTA), and peroneal artery was performed using a 3 mm × 80 mm compliant balloon. Because atherectomy failed to completely resolve the thrombus observed on aortogram, this was followed by manual suction thrombectomy using a glide catheter in the aforementioned vessels to remove residual thrombus. Her immediate postoperative left ABI was 0.94. Her postoperative course was unremarkable, and she was discharged the same day. By 1 week postoperatively, her symptoms had fully resolved, and her left ABI improved to 1.0. Follow-up at 4 months postoperatively showed continued symptom resolution, and the ABI remained 1.0. However, at 6 months postoperatively, she presented to the office with new onset of left calf pain. On this occasion, her pain was much more severe than her initial symptoms; furthermore, her pain was present at rest and not associated with exercise.

On physical examination, an increased popliteal pulse was notable, but with nonobstructive peripheral pulses and no evidence of ischemia. Outpatient ultrasound was negative for deep vein thrombosis but revealed a 1.22-cm left TPT aneurysm. Subsequent angiography showed a left TPT aneurysm extending to the bifurcation of the posterior tibial and peroneal arteries (Fig. 2). An open surgical repair was planned, and the patient was brought to the operating room after 1 week. A below-knee medial approach was taken, and further dissection revealed a TPT aneurysm involving the distal end of the TPT as well as the origin of the PTA and peroneal artery. The aneurysm appeared uniform throughout, and no discoloration was observed. Arteriotomy of the aneurysm sac confirmed a thick-walled, true TPT aneurysm

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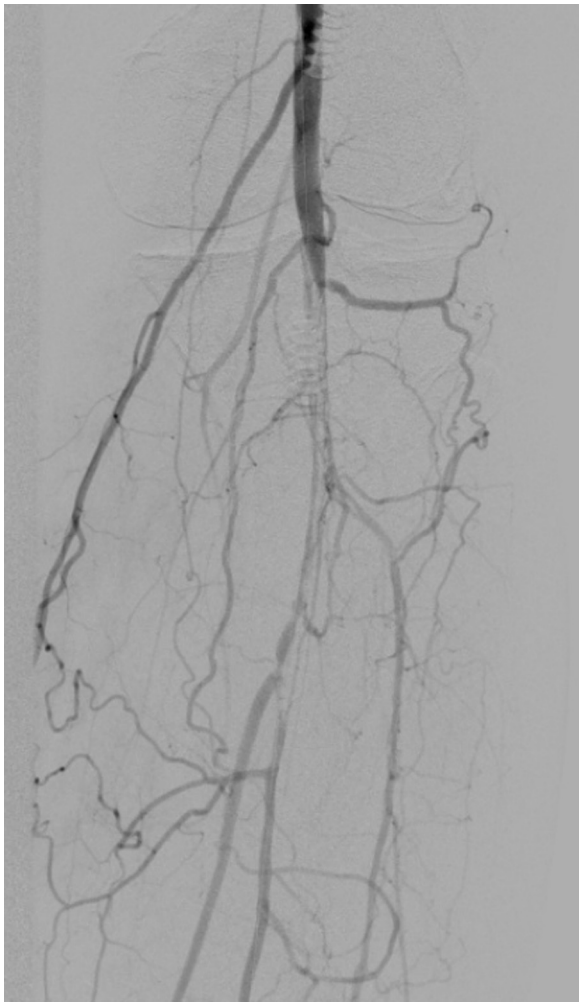

Fig. 1. Aortogram with runoff demonstrating occlusions in the left distal popliteal artery, TPT, and ATA.

without thrombus (Fig. 3). The ipsilateral great saphenous vein was then harvested, reversed, and used as an interposition bypass (Fig. 4). The postoperative period was uncomplicated, and the patient was discharged on the same day. The patient's symptoms resolved postoperatively, and she remained asymptomatic at 3 months, 6 months, and 2 years of follow-up.

DISCUSSION

Balloon angioplasty and atherectomy are commonly used endovascular procedures for treatment of peripheral arterial disease, particularly in poor surgical candidates. Outcomes for aortoiliac interventions are better than those for femoral popliteal interventions, though all are subject to various procedural complications.[1,2] Infrapopliteal angioplasty has procedural complications similar to angioplasty in general; access-site complications such as hematomas, arteriovenous fistulas, and pseudoaneurysms in

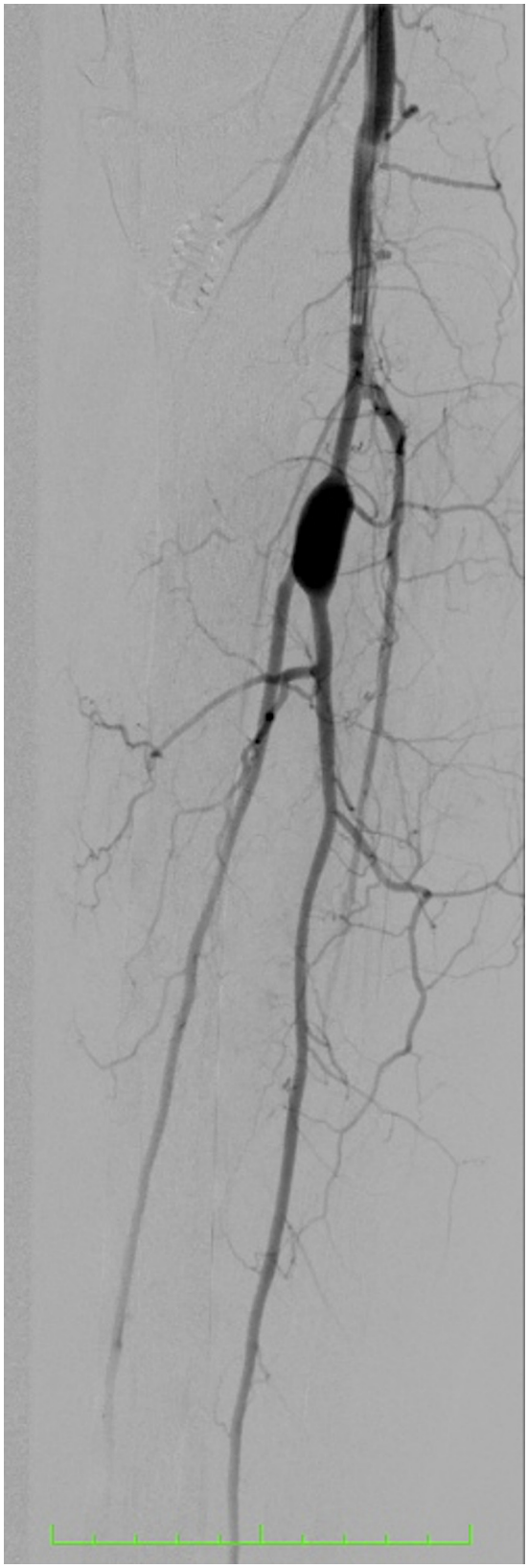

Fig. 2. Lower left extremity angiography showing a 1.22-cm TPT aneurysm at 6 months after atherectomy and angioplasty.