SHORT REPORT

Endovascular Stenting of a Persistent Sciatic Artery Aneurysm via Retrograde Popliteal Approach: A Durable Option

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Abstract We report a case of acute lower limb ischaemia caused by a persistent sciatic artery aneurysm in a 55-year-old woman who was successfully managed by endovascular stenting via a retrograde popliteal approach. Four years following the procedure, she remains well, confirming the durability of the endovascular option.

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The sciatic artery is the continuation of the internal iliac artery into the popliteal–tibial vessels that represents the major blood supply to the lower limb bud in early embryological development. With the development of the femoral artery, the sciatic artery involutes. Persistence of the sciatic artery in the buttock is a rare anomaly with an incidence of 0.025–0.04%, with only 22% of the incidences being bilateral on angiographic studies.1 This anomalous artery is prone to aneurysmal change in up to 46% of the cases that can lead to distal embolisation, sciatic neuropathy or rupture.1 The traditional open surgical approach to this anomaly is cumbersome, difficult and risks damage to the sciatic nerve.2 We report a case of lower limb thromboembolism from a persistent sciatic artery (PSA) aneurysm where surgery was avoided and the aneurysm was stented using endovascular techniques.

Case Report

A 55-year-old woman presented with sudden-onset severe pain in the right lower extremity, which improved over the next 8 h. The limb was colder than the opposite leg with mild paraesthesia. While her femoral and popliteal pulses were equal, but both foot pulses were absent. Acute ischaemia caused by tibial artery occlusion was diagnosed and she was heparinised. There was no previous history of atherosclerosis risk factors, occlusive disease elsewhere or causes of intracardiac thrombogenesis. Her cardiac echo study was also normal. The lower limb angiogram showed
a 3.5-cm saccular aneurysm arising from a PSA on the symptomatic side at the level of the greater trochanter. The superficial femoral artery was not visualised from 3 cm below its origin and the main supply to the popliteal artery was via the PSA (Fig. 1a). Subsequent examination of the buttoc confirmed the aneurysm, of which she was unaware. The ischaemia resolved further and the patient was pain free. The saccular aneurysm was successfully excluded with a 6-mm diameter, 15-cm long Gore Viabahn™, nitinol-reinforced expanded polytetrafluoroethylene stent inserted retrograde via ultrasound-guided ipsilateral popliteal puncture (Fig. 1b). She has been on clopidogrel since then. Four years later, she remains well and the aneurysm diameter is 1.5 cm without endoleaks on colour Doppler surveillance.

Discussion

Future risk of ischaemia recurrence or rupture necessitated aneurysm exclusion. This is straightforward when the femoral artery is well developed and the PSA can then be ligated² or embolised via catheter.³ In this case, the femoral artery was absent and the sciatic artery was the main supply and aneurysm exclusion per se would not suffice. An interposition graft in the buttock² or an anteriorly placed ileo-femoro-popliteal graft³ would be required to maintain distal perfusion. Vessel control in the buttock could be challenging because of bony structures often necessitating additional access to the internal iliac from the front. Potential sciatic nerve injury and buttoc graft occlusion from compression in the seated position are other reasons for concern.² Similarly, ileo-femoro-popliteal bypass grafts are not without problems. The PSA descends in the posterolateral thigh and continues laterally, making access difficult. Furthermore, these long grafts will course through adductor muscles that can compress and thrombose.³ In contrast, endovascular stent exclusion of aneurysms is simple and minimally invasive. Anticipated difficulties in deploying a long stent via a tortuous antegrade approach led us to the retrograde alternative. The direct popliteal approach using duplex guidance provided a straight path to the aneurysm and the 15-cm stent was easily positioned and deployed. There are two reports confirming feasibility and short-term effectiveness of stenting PSA aneurysms.⁵⁶ Four years following the procedure, our patient, free of PSA or stent-related complications, confirms the long-term durability of the endovascular option.

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None.

References