

Popliteal artery false aneurysm secondary to tibial osteochondroma

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Osteochondromas are benign bone tumours of growth plate origin. Although vascular complications of these are rare, the most commonly reported is a popliteal artery pseudoaneurysm.¹ Most pseudoaneurysms have been related to femoral osteochondromas, with only 3 previous reports of a popliteal pseudoaneurysm secondary to a tibial exostosis.^{2,3} We report a case of a popliteal pseudoaneurysm secondary to a tibial osteochondroma and discuss its etiology and management.

Case report

An otherwise healthy and physically active 30-year-old man presented with progressive discomfort and swelling of his upper medial left calf without any antecedent trauma. He had a known left tibial osteochondroma and had undergone excision of bilateral femoral osteochondromas a decade previously. At presentation his left foot was well vascularized with palpable pulses. There was an obvious bony protuberance on the medial aspect of the upper calf as well as a soft-tissue fullness in this area. Plain radiography (Fig. 1) and Doppler ultrasonography revealed a popliteal artery pseudoaneurysm, measuring 4.5 × 5 cm, originating from the lateral aspect of the artery with tenting of the artery around the exostosis. Arteriography further delineated this pseudoaneurysm and showed evidence of chronic compres-

sion of the artery by the osteochondroma (Fig. 2).

The area was explored via the medial approach. The large tibial protuberance was appreciated and the normal proximal popliteal artery identified. The pseudoaneurysm was lateral to the artery just above the popliteal bifurcation. After sufficient arterial control was obtained the pseudoaneurysm was opened. A small 1 to 2-mm hole was found in the lateral aspect of the popliteal artery as well as a sharp shard of bone originating from the tibial osteochondroma (Fig. 3). The artery was repaired with a vein patch and the exostosis excised. The patient was discharged on the third postoperative day and continued to do well at follow-up 12 months later.

Discussion

Osteochondromas occur during adolescence and most commonly involve the distal femur. As the person grows the osteochondroma is covered by a soft cartilaginous layer. However, this covering ossifies and becomes hard when the growth period ends. When the osteochondroma is adjacent to the relatively fixed popliteal artery the constant friction may cause the arterial wall to break down. Also, trauma may lead to pseudoaneurysm formation by fracturing the exostoses, causing a sharp piece of bone to pierce the artery.¹ This appears to be the pathologic mechanism in this



FIG. 1. Plain radiograph shows the tibial and femoral osteochondromas (arrows).

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FIG. 2. Angiograms showing the popliteal pseudoaneurysm (arrows) and tenting of the popliteal artery around the tibial osteochondroma.

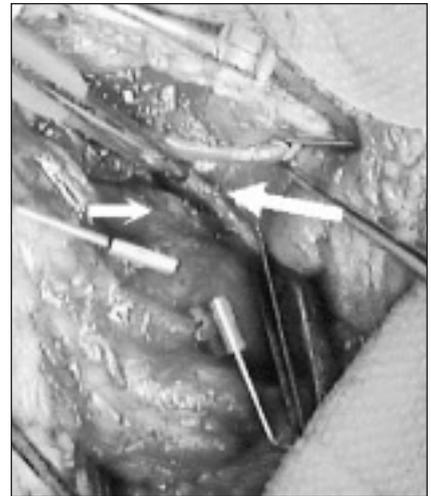


FIG. 3. Operative view revealing a small defect (forceps) in the popliteal artery (large arrow) and the open pseudoaneurysm capsule (small arrow).

case although there was no history of acute trauma. However, our patient was extremely physically active and repeated episodes of trauma may have resulted in deterioration of the osteochondroma into a sharp bony projection.

There are several reports of arterial complications of osteochondromas, with only 7.7% of these lesions originating from the tibia as in this case.^{2,3} Most pseudoaneurysms have occurred in the second decade of life and have originated from the below-knee popliteal artery.¹ Although it was helpful in this case, arteriography can be misleading and is felt to be unnecessary in most cases.⁴ Computed tomography, magnetic resonance imaging and duplex ultrasonography are considered more useful as they clearly delineate the anatomic relationship between

the exostosis and the artery or aneurysm.¹ In previous reports surgical repair involved excision of the osteochondroma and a number of methods of dealing with the usually small arterial defect, including primary repair, vein patch angioplasty, resection with reanastomosis or, less commonly, bypass grafting.¹ These healthy, young patients have consistently done well postoperatively although there are no reports of long-term follow-up.

Although rare, significant arterial complications can occur as the cartilaginous cap of an osteochondroma deteriorates. The potential for pseudoaneurysm formation should be appreciated when these bony protuberances lie adjacent to an artery, and elective excision of the osteochondroma should be considered.

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