

SUPERFICIAL FEMORAL ARTERY PSEUDOANEURYSM SECONDARY TO BONE EXOSTOSES

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Peripheral arterial pseudoaneurysm is a rare but well-documented complication of osteochondromas (exostoses).¹⁻⁵ Popliteal artery pseudoaneurysms are the most commonly reported cases with exostosis,⁶⁻⁸ but other arteries have also been reported, such as superficial femoral artery,⁹ brachial artery,¹⁰ and posterior tibial artery.¹¹ Although selective angiogram is the method of choice in diagnosis,^{12,13} MRI and MRA are reported as excellent noninvasive methods of diagnosis.¹⁴ Surgical excision of the pseudoaneurysm is recommended due to the risk of distal embolization and rupture.¹⁵

Case Report

A 16-year-old girl presented with a swelling of the right knee of three months' duration, rapidly increasing in size and associated with pain and heaviness of the right lower limb. The patient was known to have diaphysial achalasia and had a positive family history of exostoses (mother and one uncle). There was no previous history of trauma.

Physical examination showed an anxious, thin girl, with normal vital signs. Respiratory, cardiac and abdominal examinations showed no abnormalities. There was no carotid bruit, both legs were warm with good capillary refill, there were no ulcerations, and all peripheral pulses were palpable.

Examination of the right knee showed a huge, non-pulsating and non-tender swelling extending proximally to the middle of the right thigh. A preliminary diagnosis of sarcoma was made. Laboratory examinations showed the following: WBC $12.5 \times 10^9/L$ (normal 4-11), PT 12.4, Hb 63 g/L (normal 118-148), PTT 22.6, platelet $606 \times 10^9/L$ (normal 150-430), and ESR 50 (0-5) mm/hr. X-ray of the lower limb showed a huge soft tissue mass in the posterior distal thigh, measuring 25x14 cm in anteroposterior (AP) dimension x 15 cm in transverse dimension.

Bone scan showed intense irregular uptake in the distal right femur. CT scan of the chest showed no evidence of pulmonary metastases. MRI showed a large well-circumscribed soft tissue mass in the posterior distal thigh, 21 cm in craniocaudal dimension x 15 cm in transverse dimension x 11 cm in AP dimension, as well as the bone exostosis (Figures 1 and 2).

Right distal femur open biopsy was done via lateral approach, which showed hemorrhage and chronic inflammation. A second biopsy revealed exostosis of the right femur and no sarcoma.

Doppler ultrasound of right superficial femoral and popliteal arteries showed that the common and proximal half of the right superficial femoral arteries appeared normal, but the distal half had been displaced and compressed by the large complex mass. No leaks were seen.

Right femoral artery angiograms showed an altered course of the distal half of the superficial femoral and popliteal arteries by the distal thigh and popliteal swelling, with a small aneurysm in relation to the distal superficial femoral artery. No evidence of extravasation was seen (Figure 1).

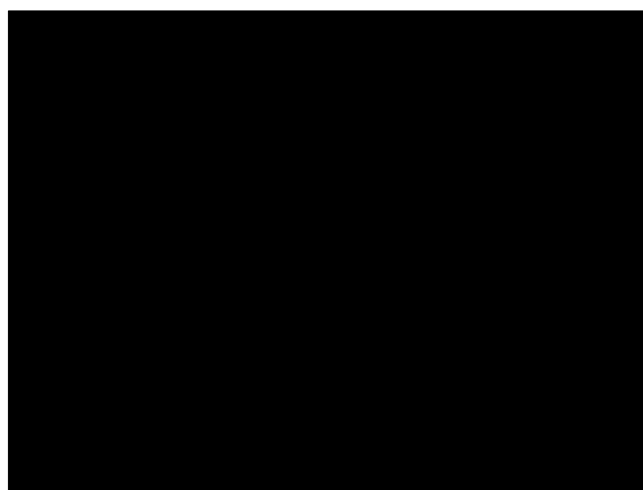


FIGURE 1. Angiogram of right femoral artery showing pseudoaneurysm (upper black arrow), displaced artery (lower black arrow) by soft tissue (white arrow).

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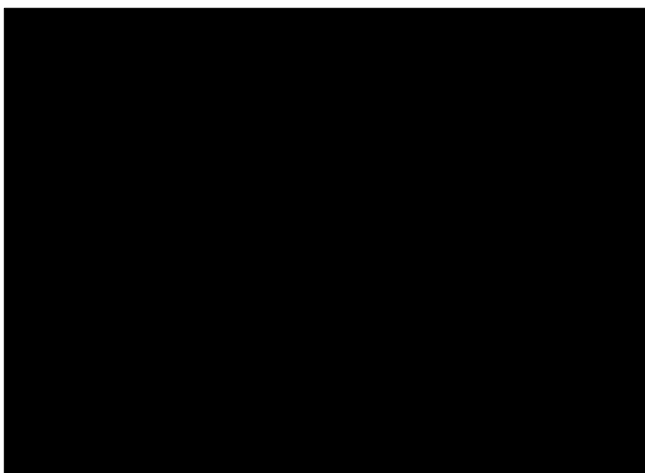


FIGURE 2. Intraoperative photograph, arrow pointing to exostosis.

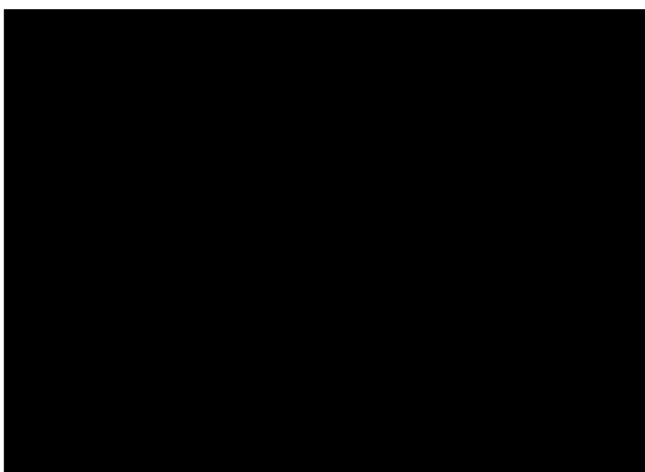


FIGURE 3. Intraoperative photograph of the aneurysmal cavity with resection of pseudoaneurysm of superficial femoral artery and interposition venous graft.

The patient was taken to the operating room and, intraoperatively, a large false aneurysm weighing two liters with a lot of clots, and two holes in the artery, were found. The patient underwent right superficial femoral artery aneurysmectomy and grafting, using reversed long saphenous vein and excision of bone exostoses from the right femur (Figures 2 and 3). The patient did well postoperatively, with good distal perfusions on a year-long follow-up.

Discussion

Osteochondromas are associated with a number of complications, including skeletal deformity, growth

abnormality, nerve compression, limitation of joint mobility and malignant degeneration. One of the rare complications is pseudoaneurysm formation of popliteal artery.^{1,2} The distal femur and proximal tibia are the most common sites for osteochondromas.^{6,12} Approximately 50% of patients who develop pseudoaneurysms report a history of trauma, and in about 50% of these, the mass is nonpulsatile. The pain symptoms should alert the surgeon to the possibility of a vascular complication.¹ Arteriography, ultrasonography and MRI are helpful in confirming the diagnosis.^{1,9,12}

Operation is recommended because of the risk of distal embolization.¹⁵ After excision, the wall of the artery should be approximated if possible,⁶ and end-to-end anastomosis,⁸ saphenous vein grafting,¹ or a synthetic graft² carried out. The osteochondroma should then be excised.

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