POPLITEAL ARTERY PSEUDOANEURYSM CAUSED BY AN OSTEOCHONDROMA - A TRADITIONAL MEDICINE MASSAGE SEQUELAE

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ABSTRACT

We report an unusual case of a popliteal aneurysm complicating a distal femoral osteochondroma caused by the repeated massages of a traditional medicine practitioner (sinseh). Management was by excision of the exostosis and reconstruction of the damaged arterial segment by a reversed long saphenous vein graft. We advise against massage over an osteochondroma on the distal medial aspect of the femur and suggest prophylactic removal of such lesions because of this potential complication.

Keywords: *osteochondroma (exostosis), superficial femoral artery aneurysm, traditional medicine massage*

SINGAPORE MED J 1996; Vol 37: 443-445

INTRODUCTION

Osteochondromas are common bone tumours but the vascular complications documented to be associated with them are rare. Of 200 cases of osteochondroma, Lichtenstein[1] found no vascular complications. Brailsfold Ford[2] briefly referred to a patient who had diaphyeal aclasia which complicated an aneurysm of the femoral artery at the site of contact with the exostosis. Paul[3] from Colombo in Sri Lanka reported the case of a 22-year-old man who presented with a 17-day history of painful swelling behind the left knee. This was the first reported case of a pseudoaneurysm of the popliteal artery caused by an osteochondroma.

To date, there are 22 cases of pseudoaneurysm secondary to exostoses reported in the English medical literature[4]. All cases involved either the popliteal or superficial femoral artery. Most were associated with a history of trauma while a few were spontaneous[5,6]. We believe this is the first reported case caused by massage by a traditional healer.

CASE REPORT

KH, a 16-year-old schoolboy was referred to our clinic with a 7-day history of a painful swelling on the lower medial aspect of the right thigh. He was a known case of multiple exostoses, with lesions on the right distal humerus, and over both femurs and tibias around the knee.

He felt muscular ache on the medial aspect of his right thigh after a camping trip 3 weeks earlier. There was no history of trauma to the region. He was seen by his general practitioner who gave him NSAIDs with no amelioration. He turned to a practitioner of traditional Chinese medicine (sinseh) who administered 5 local massage sessions. During each session, the sinseh repeatedly rubbed the region over the osteochondroma with some force after applying herbal medicine. The massage initially relieved the pain but a swelling commenced in the region by the third session, and by the fifth session, there was intolerable pain. He went back to his general practitioner who referred him to our hospital.

Initial examination showed a healthy young man with a localised swelling on the lower medial aspect of the right thigh (20 cm x 15 cm) (Fig 1). It was warm, tender, non-fluctuant,

Fig 1 – The swelling caused by the pseudoaneurysm is shown over the right thigh. There are multiple bony exostoses around both knees.

Fig 2 – The CT scan shows the large haematoma over the posterior aspect of the distal femur with the adjacent osteochondroma on the medial side.

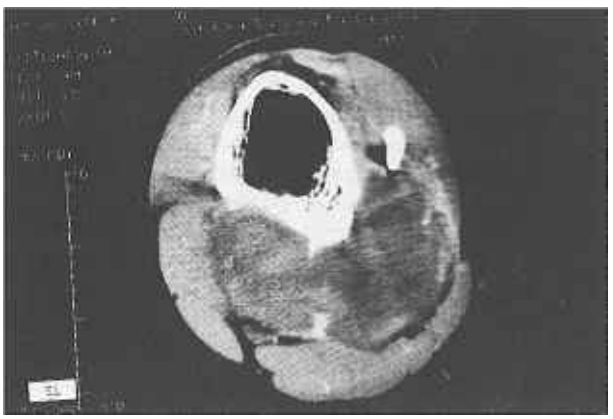

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Fig 3a and 3b – The angiogram in anteroposterior and lateral views shows the pseudoaneurysm with the leak from the perforation in the anterior wall of the popliteal artery just adjacent to the exostosis.

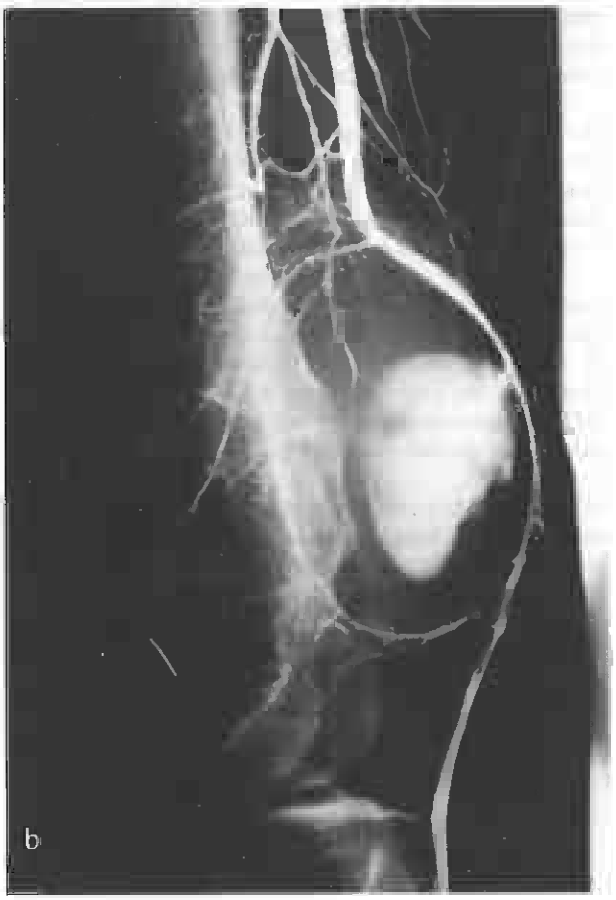

Fig 4 – Osteochondroma (arrow) adjacent to the repaired perforation in the popliteal artery (shown by vascular sling)

non-pulsatile, and not transluminant. The dorsalis pedis and posterior tibial pulses were slightly reduced. A plain radiograph of the right femur (AP and lateral) showed exostoses on its medial aspect. A CT-scan was done.

This showed a benign exostosis with a cartilaginous cap and blood clot of the surrounding area (Fig 2).

Excisional biopsy and clot evacuation were planned. Preoperative examination prior to surgery showed the mass to be pulsatile with a thrill and bruit. A pseudoaneurysm was suspected and a femoral artery angiography was carried out. This showed a pseudoaneurysm of the popliteal artery with a leak into the pseudoaneurysm sac at the level adjacent to the osteochondroma. Proximal and distal vessels were patent. No tumour circulation was observed (Fig 3).

Under general anaesthesia, a 15 cm incision was made over the medial aspect of the right thigh. The superficial femoral artery was identified, adductor hiatus opened and proximal and distal control of the artery was secured. A large blood clot was found. A 5 mm hole on the anterior wall of the femoral artery was seen opposite the osteochondroma (Fig 4). Repair with a vein patch was attempted after inspection showed proximal and distal vascular patency. However distal pulsations were poor after the repair and it was decided to resect the fibrotic and oedematous arterial segment (3 cm). A reversed long saphenous vein graft was used to reconstruct the resected segment. The adjacent exostosis was removed with an osteotome and sent for histology which showed normal lamellar bone with fatty marrow and a cartilaginous cap. No evidence of malignant change was observed. The patient recovered uneventfully and was discharged after 7 days.

DISCUSSION

Multiple exostoses are not uncommon lesions and are often encountered in orthopaedic practice. The trait is transmitted by autosomal dominant genes and its incidence averages about 1 per 100,000. Impingement syndromes are common especially at the time of the growth spurt during adolescence. The age of our patient was 16 years, similar to other case reports, centering around skeletal maturity when epiphyseal closure and calcification of the cartilaginous cap are thought to present an increased risk of sharp impingement to surrounding structures and increased likelihood of vascular penetration[4].

The popliteal artery is relatively tethered at the osteo-aponeurotic adductor hiatus in adductor magnus and at the point where it gives off the superior geniculate branches in the popliteal fossa[7]. It is therefore rigid to displacement and sensitive to extrinsic compression due to the stenting effect of the hiatus and the geniculate branches respectively. Fixation predisposes to penetration by a protruding exostosis when vessels are stretched over them as in jumping in sports or other activities, and in this case, we think the repeated massage resulted in the erosion of the vessel adjacent to the tip of the exostosis.

The diagnosis was not clinched at our first examination, an observation also encountered in other reported cases. Had we proceeded to exploration and evacuation of the haematoma as originally planned, we would have been in for a nasty surprise. Woolsen emphasised careful examination of swellings around previously asymptomatic exostoses[4]. Auscultation for vascular bruits and palpation of the distal pulses are essential. An angiogram would be prudent if a pseudoaneurysm is suspected.

Symptomatic exostoses should make clinicians wary of impingement syndromes (vessels, tendons, muscles, nerves), fractures of exostoses, malignant change, cystic bursitis, tendinitis and pseudoaneurysms. In the Asian population, the aches and pains associated with these impingement syndromes are often treated by traditional healers who utilise massage and topical herbal preparations. Prophylactic excision of multiple symptomatic exostoses is thought to be too involved and unjustified by many authors[8]. This case and other reported cases of pseudoaneurysms of the popliteal artery and the superficial femoral artery caused by osteochondromas may make a case for prophylactic removal of osteochondromas of the distal femur growing on the medial side. Our patient has indicated a very mild discomfort over the left femur. There is an exostosis present, similar in size and site to the one on the right. This will require close surveillance in subsequent follow-up visits. We are inclined to remove it.

REFERENCES

1. Lichtenstein L. Bone tumours. 5th ed. St Louis: CV Mosby, 1977: 17-25.
2. Brailsford JF. The radiology of bones and joints. 4th ed. Baltimore: Williams and Wilkins, 1948.
3. Milroy Paul. Aneurysm of the popliteal artery from perforation by a cancellous exostosis of the femur: Aspect of a case. J Bone Joint Surg Br 1953; 35: 270-1.
4. Woolson ST, Maloney WJ, James DR. Case report: Superficial femoral pseudoaneurysm and arterial thromboembolism caused by an osteochondroma. J Paediatr Orthop 1989; 9: 335-7.
5. Cassie GF, Dawson AS, Sheville E. False aneurysm of femoral artery from cancellous exostosis of femur: Report of a case in a boy of fourtcen. J Bone Joint Surg Br 1975; 57: 379.
6. Masson AF, Pullan JM. Aneurysm complicating exostosis. Br J Surg 1966; 53: 929.
7. Schoene HR, Berthelsen S, Nchangwoo AH. Aneurysm of femoral artery secondary to osteochondroma. J Bone Joint Surg Am 1983; 55: 847-9.
8. Solhaugh JH, Olerud SE. Pseudoaneurysm of the femoral artery caused by osteochondroma of the femur. J Bone Joint Surg Am 1975; 57: 867-8.