Aneurysmal Bone Cyst – A Diagnostic Challenge

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Abstract

Aneurysmal bone cyst (ABC) is an abnormality in children and teenagers. ABCs are fibrous cysts that filled with blood and cause swelling, fractures and pain. These cyst are non-cancerous and do not spread from one place to another place. We present a case of aneurysmal bone cyst which is very difficult to differentiate from the telangiectatic osteosarcoma. A fourteen year old girl reported a five month history of right ankle pain and intermittent swelling which started with an ankle sprain. Radiography of ankle showed a pathological fracture and osteolytic lesion. The patient underwent further imaging in the form of CT and MRI. The differential diagnosis included telangiectatic osteosarcoma (TO) or an aggressive aneurysmal bone cyst (ABC). The patient underwent open reduction and internal fixation with curettage and grafting of the lesion.

Keywords: Aneurysmal bone cyst; Osteosarcoma; Bone lesions

Case Presentation

We present interesting images of a case of an aneurysmal bone cyst, which in aggressive forms can be difficult to distinguish from a telangiectatic osteosarcoma. A fourteen year old girl reported a five month history of right ankle pain and intermittent swelling which started with an ankle sprain. She sustained a further right ankle injury whilst at school by being pushed by one of her classmates. The patient presented to the emergency department who referred her to the fracture clinic. On examination, there was swelling overlying the ankle joint with significant tenderness over the medial and lateral malleoli. The injury was closed and neurovascularly intact. The patient was otherwise fit and well with no major medical history. She denied any constitutional symptoms or weight loss. Blood tests revealed an ESR of 27 mm/hr; otherwise a normal full blood count, CRP and alkaline phosphatase. The radiograph of the ankle showed a pathological fracture through the distal tibia and fibula with an associated 6 cm expansile, osteolytic lesion in the distal tibia (Figure 1).

The patient underwent further imaging in the form of CT and MRI, which demonstrated features of cortical destruction, periosteal reaction and likely soft tissue involvement (Figure 2). The differential diagnosis included telangiectatic osteosarcoma (TO) or an aggressive aneurysmal bone cyst (ABC). Given the fact that imaging suggested the possibility of both the benign and malignant conditions she was referred to the bone tumour unit and a bone biopsy was performed. This demonstrated histological features of an ABC. The patient underwent open reduction and internal fixation with curettage and grafting of the lesion.

Aneurysmal bone cysts are benign expansile tumour-like bone lesions of uncertain aetiology, composed of numerous blood filled channels, and mostly diagnosed in children and adolescents.

Figure 1 a & b: The anteroposterior (1a) and lateral (1b) radiographs of the ankle showing a pathological fracture through the distal tibia and tibial plafond and an associated displaced transverse fracture of the distal fibula. There is a 6 cm expansile, osteolytic lesion in the distal tibia which extends to the joint surface. The radiographs demonstrate a wide zone of transition, periosteal reaction and surrounding soft tissue swelling.
Figure 2 a & b: Sagittal sections of T1-weighted (2a) and T2-weighted (2b) magnetic resonance images (MRI) of the right ankle. There is a multiloculated expansile heterogeneous mass containing multiple fluid-fluid levels involving the distal tibial diaphysis and epiphysis, extending to the articular surface of the distal tibia. The lesion extends through the cortex and there was marked irregular endosteal scalloping and thinning of the cortex suggesting an aggressive lesion. It measured approximately 4.7 cm in transverse diameter, 4.4 cm in anteroposterior and 7.5 in craniocaudal diameter.

References

