

Bilateral Brodie's abscess at the proximal tibia

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ABSTRACT Brodie's abscess is a form of subacute osteomyelitis, which typically involves the metaphyses of the long tubular bones, particularly in the tibia. The diagnosis is usually made incidentally, as there are no accompanying symptoms or laboratory studies. Bilateral involvement at the proximal tibia is unusual. However, orthopaedic surgeons should be aware of this entity, as it may present without symptoms. Checking the contralateral limb for concomitant Brodie's abscess is recommended.

Keywords: bilateral, bone cement, Brodie's abscess, curettage, tibia
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INTRODUCTION

Brodie's abscess is a type of subacute osteomyelitis, which may persist for years without any symptom and with normal laboratory parameters. The most causative microorganism is *Staphylococcus aureus*. Here, we present a case of bilateral proximal tibial Brodie's abscess.

CASE REPORT

A 26-year-old Caucasian woman presented to our clinic with complaints of bilateral proximal cruris pain that started a month ago. There was no history of trauma and body temperature was normal. Mild local oedema and warmth were noted on the right side, whereas the left side remained asymptomatic. Laboratory findings (haemogram, erythrocyte sedimentation rate, C-reactive protein) were within normal limits.

Anteroposterior and lateral radiographs of the bilateral knees revealed a well-delineated cyst-like lesion of both the proximal tibiae (Fig. 1). Magnetic resonance imaging of the right proximal tibia revealed a 3.0 cm × 3.5 cm × 4.7 cm cyst-like lesion surrounded by oedema. On the left side, a well-delineated 3 cm × 2 cm × 2 cm cyst-like lesion was also detected (Fig. 2). With two differential diagnoses of a probable Brodie's abscess and a possible simple bone cyst, surgical treatment was performed on the patient.

Under general anaesthesia, the patient was prepared in the usual sterile fashion and in the supine position. No tourniquet was used. Longitudinal anterior incisions, made at the level of the cyst, were marked pre-operatively using an image intensifier. By using a drill bit, followed by an osteotome, a window to the proximal tibial cortex was created. On the right side, 3 ml of serous liquid was seen inside the cavity. We performed 'touch print' and 'frozen section' intra-operatively. A pathologist evaluated the inflammatory reactive changes. Culture samples were obtained. The fibrous lining of the cavity was scraped to obtain bleeding bone surface, and the cavity was then filled with antibiotic-impregnated bone cement (gentamicin).

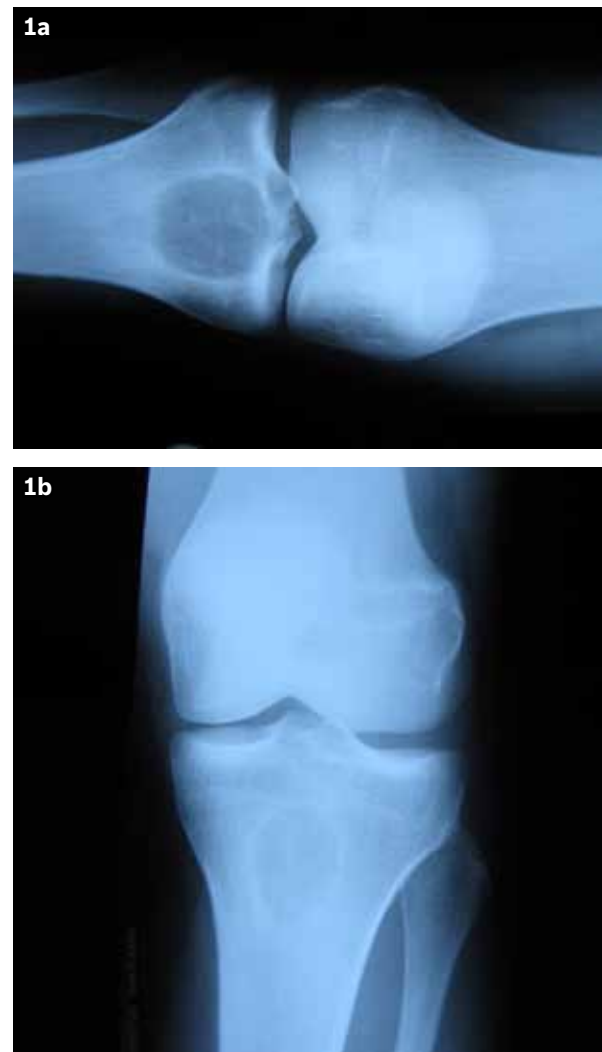


Fig. 1 (a) Anteroposterior and (b) lateral radiographs show a well-delineated cystic lesion of both tibiae.

The same intervention was performed on the left side, with the only difference in the amount of serous liquid on the left side (10 ml).

Cultures were found to be negative and no bacteria were seen microscopically. Histological sections showed acute and

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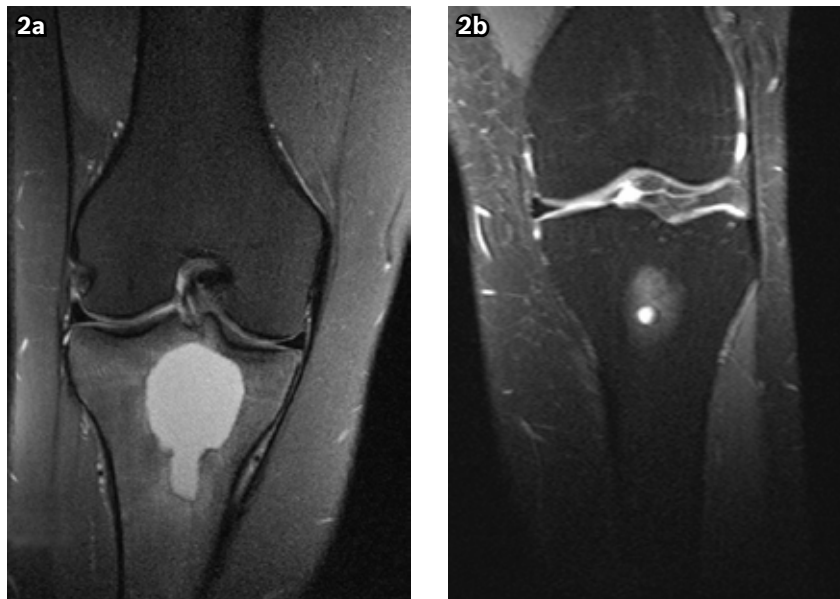


Fig. 2 Coronal T2-W MR images show (a) cyst and bone bruise on the right tibia and (b) cyst and intense liquid with no bone bruise on the left tibia.

chronic osteomyelitis, with a diagnosis of Brodie's abscess. The patient was administered intravenous cefazolin 1g three times a day for two weeks, followed by oral cefuroxime twice a day for another four weeks.

DISCUSSION

Brodie's abscess was described and reported by Sir Benjamin Collins Brodie in 1832 as a localised abscess in the tibia without acute symptoms.⁽¹⁾ Laboratory studies that detect infection are usually within normal limits.⁽²⁻⁴⁾ The abscess is typically localised in the metaphysis of tubular bones, particularly in the lower extremities, and the tibia is the most commonly affected bone.⁽⁴⁾ The most common organism cultured from a Brodie's abscess is *Staphylococcus aureus*. Approximately 25% of cultures remain sterile.^(5,6)

Differential diagnoses include unicameral bone cyst, osteoid osteoma, non-ossifying fibroma, giant cell tumour, Ewing's sarcoma, osteosarcoma, eosinophilic granuloma, chondroblastoma, fibrous dysplasia and intracortical haemangioma.^(1,3,7,8) The consensus on the treatment of Brodie's abscess is surgical debridement and curettage. If a large cavity remains at the metaphysis of the load carrying the long bone, then application of antibiotic-impregnated bone cement into the

cavity is recommended, in order to reduce the risks of pathologic fracture and recurrence of infection.^(1,2,6,9) Generally, Brodie's abscesses at the proximal tibia are diagnosed incidentally, as in this case. It is recommended that the unaffected leg be investigated, even if it is asymptomatic.

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