

## A hidden cause of troublesome bone pain in an adult-Brodie's abscess

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### Abstract

Subacute osteomyelitis ( Brodie's abscess) a rare type of bone infection which mainly present as pain of involving site, here a case of proximal left tibia which was initially missed on clinically alone. Diagnosis was done on radiological grounds (MRI).

**Keywords:** Brodie's abscess. Knee pain. X-ray. Tibia. MRI.

### Introduction

Brodie abscess (subacute osteomyelitis) is an infectious disease localized in metaphyseal bone<sup>(1)</sup>. Brodie first described a localized abscess of the tibia in an amputated limb that did not produce systemic signs and developed without prior febrile illness. Subsequently, the term 'Brodie's abscess' was applied to localized bone abscess that developed without prior systemic illness<sup>(2)</sup>. Due to its location in the bone, Brodie's abscess can mimic benign and malignant diseases.

### Case Report

A 25 year old male presented with complain of pain around knee mainly proximal tibia since last 3 month. His pain was localized and constant in nature. On examination there was a healing scar mark on medial aspect of popliteal fosse for which he gives history that someone put a nick on that site about 1 week ago to give him relief from pain.

Patient advised for an x-ray ap and letral view with some NSAIDs. Plain X-ray of left knee joint revealed a focal lytic lesion surrounded by a sclerotic bone rim, in the metaphyseal region extending up to the just below the joint line. No pathological fracture was visualized. Joint line of the knee joint was normal. Based on the clinical history and radiological picture, a provisional diagnosis of Brodie's abscess was made.

On MRI moderate size, irregular 3.3 (vertical) x4.3 (AP) x3.1 (TR) cm, Irregular T2 hyper intense and T1 hypo intense lesion is seen in upper end of tibia extending to the intercondylar region and letral tibial condyle. Rest of visualized bone, ligaments and joint space was normal.

Patient was initially managed with ceftriaxone and amikacin in the ward. However, his symptoms were not relieved and patient persistently complained of pain. Surgical exploration of the lesion was planned. The lesion was curetted completely, abscess was drained and wound was closed. Histopathology of the specimen revealed chronic granulomatous infection with presence of inflammatory cells. No evidence of any benign

tumor was seen on histopathology. High dose antibiotics were continued for 2 months. Patient made an uneventful recovery and his pain settled. Presently, he has no pain or any symptom of recurrence.





Fig. 1: MRI



Fig. 2: X-Ray



Fig. 3(a): Intraoperative View



Fig. 3(b): Intraoperative View

### Discussion

Brodie abscess is a form of sub-acute osteomyelitis; but because the diagnostic delay ranges from a few weeks to up to several years, the distinction between sub-acute and chronic osteomyelitis is not clear<sup>(3)</sup>. Brodie's abscess is difficult to diagnose because characteristic signs and symptoms of the acute form of the disease are minimal and non-specific.

The initial infection is localized to a small area and is walled off by inflammatory fibrous tissue, usually in the metaphysis of tubular bones rarely traversing the physis into the epiphysis. These lesions are accompanied by minimal or absent periosteal reaction and may be so small that detection on plain radiograph is not possible<sup>(4)</sup>.

The differential diagnosis of Brodie's abscesses radiologically includes osteoid osteoma, non-ossifying fibroma, giant cell tumor, eosinophilic granuloma, chondroblastoma and fibrous dysplasia, as the major lesions<sup>(5)</sup>.

On MR scan, the central abscess cavity is of low-signal on T-1 weighted and high-signal intensity on T-2 weighted images<sup>(6)</sup> as in this case.

*Staphylococcus aureus* is the most common organism cultured from Brodie's abscess<sup>(7)</sup>, but in this case there was no growth on culture.

The treatment of Brodie's abscess varies. There are reports of successful treatment with antibiotics combined with cast immobilization in children<sup>(8)</sup>, curettage with postoperative antibiotics<sup>(9)</sup>, and recently, the use of antibiotic-impregnated beads. The curettage of abscess cavity with cancellous bone grafting has been reserved mainly for those with large cavity diameters > 3cm<sup>(10)</sup>.

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