INTRODUCTION

Brodie's abscess is a subacute form of hematogenous osteomyelitis, which results if an organism is less virulent or a child's resistance is strong. 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. The preponderance of Brodie's abscesses in the lower extremities is probably due to trauma.

This case report describes the uncommon condition involving distal left tibia.

CASE REPORT

A 13 years old male child presented with fever and low-grade pain in the left ankle region for 3 months. The pain was localized and occurred continuously. Local examination revealed slight tenderness without any redness of overlying skin.

Plain X-ray of left tibia revealed a focal lytic lesion surrounded by a sclerotic bone rim, in the metaphyseal region extending up to the growth plate. No pathological fracture was visualized. Epiphysis of ankle joint was normal. Based on the clinical history and radiological picture, a provisional diagnosis of Brodie’s abscess was made and his 99mTc-MDP three phase skeletal scintigraphy was advised to confirm active bone pathology. Bone scan was performed with 20 Mci of 99mTc-MDP intravenously. Dynamic flow and blood pool study of the ankle region was acquired anteriorly. Multiple anterior and posterior static images were acquired 2 hours postinjection followed by SPECT. The nuclear bone scan revealed increased blood perfusion in the left ankle region. Delayed image showed focal increased tracer uptake in the distal end of left tibia. Tracer uptake in the rest of the skeleton was uniform. SPECT reconstruction images also showed focal increased tracer uptake in the distal end of the left tibia.

Patient was initially managed with erythrocin in the ward. However, his symptoms were not relieved and patient persistently complained of pain and swelling. 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, she has no pain or any symptom of recurrence.

DISCUSSION

Brodie's abscess is localized form of osteomyelitis, is
usually found in the cancellous tissue near the end of the long bone. A well-circumscribed area of bone destruction has a surrounding zone of reactive sclerosis, sometimes accompanied by a periosteal reaction. It may have a finger-like extension into the neighbouring bone towards the epiphyseal plate, which, when present, is pathognomonic of infection tunneling. If a sequestrum is present, an osteoid osteoma is simulated. Brodie's abscess typically enhances on the delayed isotope bone scan as was seen in this case. CT demonstrates central necrosis and sequestration of the Brodie's abscess even in the presence of significant surrounding sclerosis. On MR scan, it is to be expected that the central vascular material in the osteoid osteoma will exhibit brighter signal and enhancement while necrotic tissue in the Brodie's abscess will not. It has a characteristic layered or target appearance. The central abscess cavity is of low-signal on T-1 weighted and high-signal intensity on T-2 weighted images. Alter et al. have also reported a case report with a one-year follow-up period, demonstrating the successful diagnosis and surgical treatment of a Brodie's abscess of the distal metaphysis of the right tibia in an 11-year-old female. The X-ray diagnosis is easy if the radiologist knows the clinical data. The preponderance of Brodie's abscesses in the lower extremities is probably due to trauma. Brodie's abscess of the cuboid bone has also been described in the literature. The differential diagnosis of Brodie's abscesses radiologically includes osteoid osteoma, nonossifying fibroma, giant cell tumor, eosinophilic granuloma, chondroblastoma and fibrous dysplasia, as the major lesions. Chondroblastoma occurs in the epiphysis while the lytic lesion seen in our case was in the metaphysis. Fibrous dysplasia shows marked sclerosis. This was not seen in this case. Aneurysmal bone cyst was excluded, as the lesion was non-expansile. No central nidus was seen in this case thus, excluding osteoid osteoma. Imaging with standard radiographs, bone scintigraphy, and MRI has been described in the literature. Multifocality could be excluded with bone scintigraphy. CT-guided trans-osseous biopsy and curettage can also be performed in suspected cases of Brodie's abscess. Staphylococcus aureus is the most common organism cultured from Brodie's abscess. Curettage and antibiotics for 6 weeks was adequate for treatment in most cases. Brodie's abscess involving the adjacent metaphysis and epiphysis of a long-bone, communicating through and damaging the growth cartilage of the epiphyseal plate have also been described in the literature.

REFERENCES