

## Intolerable limb pain in proximal femur osteoid osteoma with four nidus

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### ABSTRACT

Osteoid osteoma is a benign tumor with peculiar severe pain disproportionate to its small size (less than 2 cm). Osteoid osteoma usually is monofocal and has single nidus. The reported case is a patient with intolerable leg pain and four nidus in proximal femur.

**Keywords:** Bone scan, bone tumor, nidus, night pain, osteoid osteoma

### Introduction

Osteoid osteoma is a benign primary tumor of young ages, more common in men with peculiar pain characteristics disproportionate to its small size (less than 2 cm). Osteoid osteoma often is monofocal with single nidus and although it is supposed to be self-limited, its extraordinary severe pain almost always mandates some sort of intervention.

### Case Report

A 19-year-old man was admitted to orthopedic clinic with severe left lower limb pain. The duration of pain was 2 years, moderate severity, was more severe at night, and relieved with nonsteroidal anti-inflammatory drugs (NSAIDs). It had been aggravating in intensity, extension, and duration in the recent 6 months and progressing to a very severe strenuous intolerable 24-h left lower limb pain with no response to analgesics.

In recent 6 months, he had less than 3 h sleep a night and been treated with various medical and paramedical modalities. Since his pain was irresponsive to medical therapies and for having a history of severe emotional distress (broken engagement), it was thought that he was suffering from a psychological disorder. Once he was offered to undergo a disc surgery because his lumbosacral magnetic resonance imaging (MRI) was indicative of L4-L5

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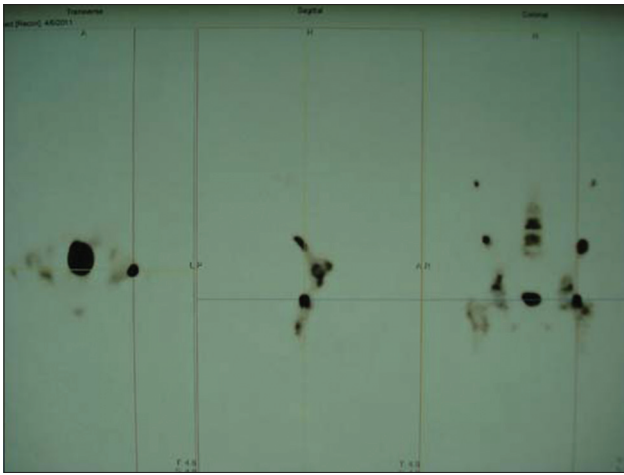
intervertebral disc herniation. When he presented to orthopedic clinic, his pain was obvious in his face and his parents and himself were fearful of possible psychological disorder.

Natural history and characteristic of the pain was indicative of osteoid osteoma. Three-phase technetium-99m whole-body scan revealed triple foci of increased uptake in left femoral head and neck [Figure 1]. Thin-slice computed tomography (CT) scan demonstrated four nidus of osteoid osteoma [Figure 2]; one in the femoral head (subchondral), one in the neck, and a double nidus in intertrochanteric region [Figure 3].

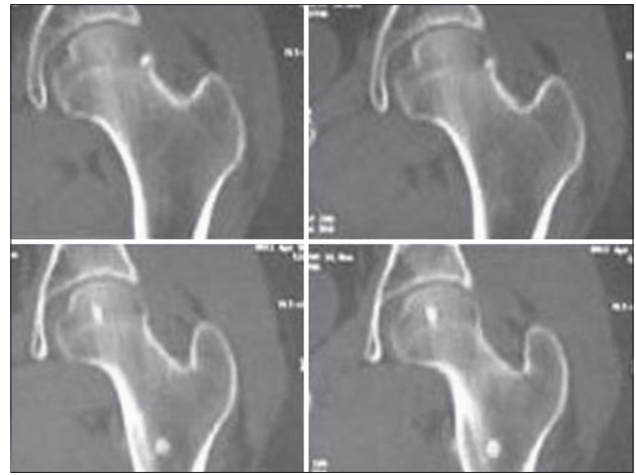
Pin-guided drilling of the femoral head and neck lesions was performed. The intertrochanteric lesion was curetted and the cavity was filled with bone cement [Figure 4]. Toe-touch partial weight bearing began immediately after the surgery and continued for 3 weeks. Histological evaluation confirmed the diagnosis of osteoid osteoma. The patient experienced a moderate pain for another 3 weeks, which could be managed with 200 mg of Celebrex (selective cyclooxygenase 2 (COX2) inhibitor) and gradually became completely pain free.

### Discussion

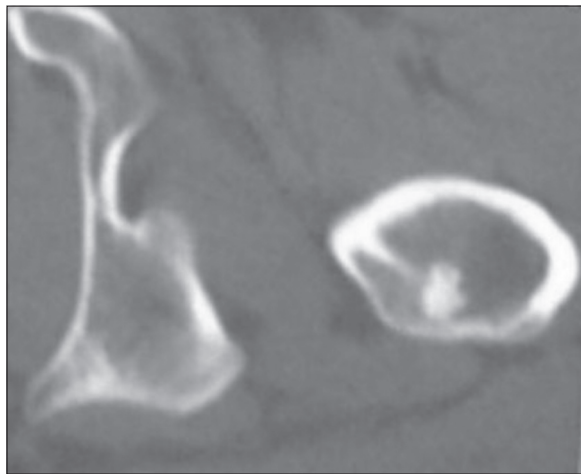
Much has been written about unique clinical, pathological, and imaging characteristics of this relatively common, benign, small but bothersome tumor of young ages. The most prominent and annoying feature of osteoid osteoma is its peculiar pattern of severe pain disproportionate to its size. Although it is assumed



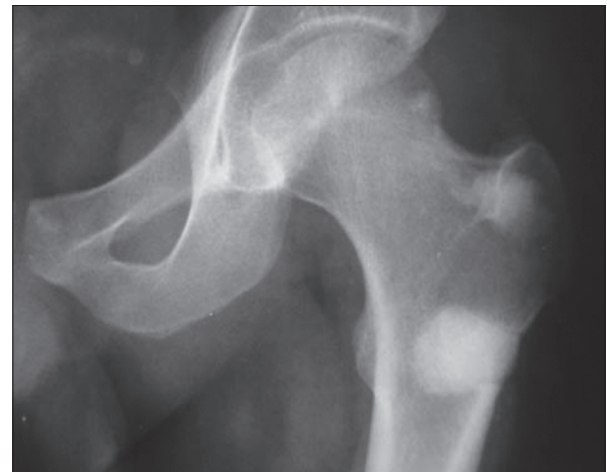
**Figure 1:** Delayed phase of three-phase technetium-99m whole-body scan showing multiple foci of increased uptake in left proximal femur



**Figure 2:** Computed tomography (CT) scan shows four distinct nidus in proximal femur



**Figure 3:** High resolution CT scan showing double nidus in intertrochanteric region



**Figure 4:** Plain radiography of pelvis after surgery

to have a self-limited natural history, the intolerable pain always necessitates immediate treatment. The pain characteristics are defined as severe, aching, sometimes radicular, worse at night, and markedly relieved by NSAIDs.<sup>[1]</sup>

COX1 and COX2 production coenzymes, prostaglandin E1 (PGE1) and prostaglandin E2 (PGE2), presented in high concentrations in the nidus, are supposed to be responsible for extraordinary pain perception in osteoid osteoma.<sup>[2]</sup> Numerous articles have documented presence of unmyelinated nerve fibers close to prominent arterial blood supply of the lesion which are both characteristics of osteoid osteoma and may give some explanations for the odd nature of the pain.<sup>[3-5]</sup> Referred and radicular patterns of pain and signs and symptoms, sometimes taken for intervertebral disc herniation as diminished deep tendon reflexes and muscle atrophy, might be interpreted by some of above mentioned pathologic findings.<sup>[6,7]</sup> When osteoid osteoma is near a joint in the subchondral bone it may mimic arthritis causing joint pain, swelling, and stiffness.<sup>[8]</sup> The mainstay of the diagnoses is accurate

history taking and paying special attention to characteristics of pain.

Three-phase technetium-99m whole-body scan and high resolution CT scan can detect the lesion and localize the nidus.<sup>[1]</sup> Although some reports of multicentric osteoid osteoma and osteoid osteoma with multiple nidus have been documented, four nidus in one bone has not been reported. In the reported case, four nidus of osteoid osteoma in proximal femur produced a very severe intolerable extraordinary pain.

The intracapsular lesions with a fear of chondrolysis and degenerative joint disease after percutaneous radiofrequency ablation was treated with pin-guided drilling and the other two lesions were treated as a bone tumor with curettage and bone cement.<sup>[8,9]</sup> The patient was satisfied with the treatment and returned to normal active life.

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