

Osteoid osteoma of the tibia

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Section: Musculoskeletal system

Case Type: Clinical Cases

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Patient: 28 years, male

Clinical History:

Chronic evening pain in the lower limb relieved by aspirin.

Imaging Findings:

Chronic evening pain in the leg relieved by aspirin.

Discussion:

Osteoid osteomas are benign osteoblastic tumors consisting of a central core of vascular osteoid tissue and a peripheral zone of sclerotic bone. They usually occur in the second or third decades. The classical clinical presentation is of evening pain, relieved by aspirin. The femur is the bone involved most frequently followed by the tibia but bones in the hands and feet can also be affected. Within long bones, osteoid osteoma usually is located in the diaphysis but it may extend into the metaphysis. Epiphyseal and intraarticular osteoid osteoma are rare. Vertebral osteoid osteoma usually arise from the posterior elements. The lumbar vertebrae may also be affected. Other infrequent sites of localization include the skull, the mandible, the maxilla, the clavicle the scapula and the ribs. The typical radiological appearance of osteoid osteoma in the long bones is of a small rounded lucency within the cortex of the bone, the nidus. Surrounding sclerosis and dense periosteal reaction occurs frequently. In the carpal or tarsal bones an osteoid osteoma usually arises in the medullary spongiosa and radiographically appears as a well circumscribed lesion that is partially or completely calcified. In the small bones of the hands and foot, cortical osteoid osteoma provoke a periosteal response similar to that observed in the diaphysis of the long tubular bones. Osteoid osteoma may also arise from intra auricular sites. A synovial inflammatory response may lead to irreversible cartilaginous and osseous destruction. Uniform narrowing of the articular space and periarticular subperiosteal bone apposition may be encountered. In the spine, the lesion is located on the concave aspect of the scoliotic curve. Osteosclerosis of a pedicle, lamina or articular space can be observed. Identification of the nidus frequently requires computed tomography. In the bones of the pelvis, scapula, rib and clavicle, osteoid osteoma most typically appears as a radiolucent or partially calcified lesion with limited surrounding bone sclerosis. The nidus itself may be uniformly radiolucent or contain variable amounts of calcification. These characteristic features generally allow its differentiation from a stress fracture (which is accompanied by a linear radiolucent cortical area) and an osteoblastoma (which is commonly a larger lesion). As a general rule, the nidus is located in the center of the sclerotic reaction. Sometimes, a Brodie's abscess of chronic osteomyelitis may be extremely difficult to distinguish radiologically from an osteoid osteoma. The surgical excision of an osteoid osteoma, to be curative, must include removal of the nidus. Thus radiological examination of the excised block of bone is advisable, to confirm that the central nidus has been removed. When Osteoid osteoma is suspected or demonstrated on plain film radiograms, computed tomography (CT) is performed in order to confirm the diagnosis. CT is also an interesting imaging technique for interventionnal procedures ; percutaneous computed tomography guided radiofrequency excision is an effective, safe, and cost effective method of treatment of osteoid osteoma. Percutaneous interstitial laser photocoagulation is thermal destruction of the nidus using low-power laser energy. These CT guided minimally

invasive techniques may be an alternative to traditional surgical ablation.

Differential Diagnosis List: Osteoid osteoma of the tibia

Final Diagnosis: Osteoid osteoma of the tibia

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Figure 1

a



Description: Typical radiolucent nidus (arrow head) of osteoid osteoma. **Origin:**

b



Description: Same patient, antero-posterior view. Periosteal bone sclerosis and cortical reaction next to the nidus. **Origin:**