

RADIOLOGY ROUNDS

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Department Editor

A 24-year-old woman with hip pain

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A 24-year-old woman presents with a complaint of right hip pain that she has had for 2 years. She describes the pain as deep and persistent, radiating to the right buttocks and anterior thigh and increasing in severity at night. Its distribution is non-sciatic.

Muscle rubs and heat do not relieve the pain, but it resolves completely when she takes aspirin. She has continually increased the dosage and is now up to 600 mg q 3-4 h. Physical examination findings are essentially negative save for the aching and tender right hip.

Radiographic findings

The anteroposterior (AP) pelvis radiograph (Figure 1) displays a small, round radiolucent area marginated by an area of increased density in the cortical margin of the right femur in the intertrochanteric area adjacent to the lesser trochanter.

The AP view of the right femur (Figure 2, page 25) displays the same findings, and the enlarged AP view (Figure 3, page 25) gives greater detail of the central lucency and marginal sclerosis. A technetium 99 bone scan (not illustrated here) was positive, with intense scintigraphic activity in the central nidus and less intense activity in the area of peripheral sclerosis.

Diagnosis

Clinical considerations in the differential diagnosis should include osteomyelitis, osteoblastoma, osteochondritis, stress fracture, and aseptic necrosis. A biopsy 2 weeks after these radiographs were

done confirmed the diagnosis of osteoid osteoma.

Discussion

Osteoid osteoma is a benign, round or ovoid, osteoblastic tumor, usually smaller than 1.5 cm in diameter, although size can range from 0.5 to 2.0 cm. It is characterized by a well-demarcated nidus and a distinctive zone of bone formation and is found



Figure 1 This anteroposterior view displays the characteristic small, round, radiolucent lesion of osteoid osteoma (arrows) marginated by an area of increased bone density within the cortical margin of the femur.

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Figure 2 This anteroposterior view displays the right femur with the radiolucent nidus (bar arrow) surrounded by the increased bone density within the cortical margin of the femur (arrows).

most often in the cortex of the femur or tibia. It affects the spine in less than 15% of cases. It occurs predominantly in children, adolescents, and young adults (10-25 years of age) and has a male/female ratio of about 2:1.

Localized, usually nocturnal pain is characteristic of osteoid osteoma, and patients may also experience vasomotor disturbances such as flushing. In most cases, salicylates completely relieve symptoms. Unlike osteoid osteoma, osteoblastoma is associated with variable pain, and it more often affects the axial skeleton (about one third of lesions occur in the spine). Osteoblastomas are generally larger (more than 2 cm in diameter) than osteoid osteoma and



Figure 3 This enlarged anteroposterior view more clearly defines the central lucency of the lesion (bar arrow) and marginal sclerosis (small arrows).

have a less well-defined sclerotic border.¹ Osteomyelitis usually has a larger peripheral area of radiolucency (due to increased edema and necrosis).²

Definitive treatment requires surgical excision or percutaneous thermocoagulation or radiofrequency ablation with computed tomographic (CT) guidance. Percutaneous techniques are usually preferred over open surgical excision because complications are fewer and recovery is shorter.³

The take-home message from this case

The key to diagnosis of osteoid osteoma is that aspirin completely relieves the pain. A second helpful finding is tenderness over the site.³ ■

REFERENCE

1. Greenspan A. Benign bone-forming lesions: Osteoma, osteoid osteoma, and osteoblastoma. Clinical, imaging, pathologic, and differential considerations. *Skeletal Radiol* 1993;22:485-500.
2. Miller SL, Hoffer FA. Malignant and benign bone tumors.