An unusual cause of forefoot pain: diagnosis and discussion

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Diagnosis

Osteoid osteoma (OO).

Discussion

Osteoid osteoma is a relatively uncommon osteoblastic lesion of the bone that accounts for approximately 10% of all benign bone tumors and occurs predominantly in children and young adults, with a male-to-female ratio of 3:1 [1, 2]. More than half of osteoid osteomas occur in the femur and tibia, and the proximal femur is by far the most common location [2]. Its incidence in the small bones of the foot ranges from 2% to 11%, with the talus being the most common site of pedal involvement [2, 3]. No case

specifically involving the fibular sesamoid has been reported in the literature. Except for its location, this case presents a classic history of OO, occurring in a 19-year-old woman and producing nighttime pain, relieved to some extent by salicylates.

The classic presentation is a single small (<1.5 cm) round or oval lytic focus, which may contain a variable amount of ossification with a zone of reactive sclerosis [4].

The radiographic appearance of OO may be classified according to its location into cortical, cancellous, and subperiosteal regions of bone [1, 5–7]. Typically, the tumor is cortical, comprising a small area of radiolucency less than 1 cm in diameter, subcortically placed, and associated with dense adjacent bone sclerosis and periosteal reaction. The cancellous variety of OO displays less radiographic sclerosis than does the cortical type. The cancellous and subperiosteal varieties have been reported to be more prevalent in the small bones of the hand and foot [7]. In our case there was a radiolucent nidus surrounded by an ill-defined sclerotic rim, with central calcification as in the cancellous subtype.

In patients with OO computed tomography demonstrates the radiolucent nidus with a smooth inner surface, and, in some cases, a radiodense center can be visualized, as in our case. This central calcification is suggested to represent the osteoblastic center of the lesion [8].

Bone scanning almost always produces positive findings and is valuable when plain radiographs are equivocal. A typical ‘hot spot’ is shown, due to intense radionuclide uptake by the lesion, as in our case [9].

The histopathologic appearance of the nidus may vary, depending on the maturity of the lesion [2]. The pathologic appearance of the nidus is of a small, round, mass of tissue which can be either soft or sclerotic, red, and surrounded by normal or sclerotic bone. Microscopic

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examination shows an interlacing network of osteoid trabeculae with vascular, fibrous, connective tissue, benign multinucleated giant cells, and well-differentiated osteoblasts. Cartilage is never present in the lesion [2]. The size of the nidus is usually 1 cm, and it is surrounded by normal or sclerotic bone [2]. In our pathology specimen no sclerotic bone surrounding the nidus can be seen. The microscopic findings were consistent with these descriptions, confirming the diagnosis.

The histological appearance of osteoblastoma is very close to that of OO. Osteoid trabeculae are usually broader and longer, and the lesion is more vascular than an OO. Osteoblastoma appears in younger patients and is usually larger than an OO (>1.5–2 cm) and is less painful [10, 11]. It may demonstrate aggressive local behavior [10]. Osteoblastoma often arises from the medullary bone and exhibits a greater predilection for the posterior elements of the spine [4].

En bloc resection, curettage and radiofrequency ablation are surgical treatment modalities for OO [9].

This case reaffirms the possibility that OO may involve any bone. Involvement of the fibular sesamoid can be easily confused with tenosynovitis and metatarsalgia of the foot and chronic osteomyelitis. A high index of suspicion and a detailed history of the patient are required by the surgeon in order to minimize the diagnostic delay of this potentially treatable condition.

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