Osteoid Osteoma and Osteoblastoma

Osteoid Osteomas and Osteoblastomas are two benign primary bone tumors that are derived from osteoblasts. Osteoid Osteomas preferentially affect the cortex of long bones and present with nocturnal pain that is relieved by NSAIDS. Osteoid osteomas typically grow to be less than 2 cm in diameter and present as a radiolucent nidus with surrounding sclerosis on imaging. Conversely, osteoblastomas preferentially affect the spine and the pain associated with them is not relieved by NSAIDS. Osteoblastomas grow to be over 2 cm in diameter. Radiographic findings include a radiolucent nidus without surrounding sclerosis. Surgery can be used to treat both conditions.

PLAY PICMONIC

Characteristics

Benign Bone Tumors
Benign Bunny with Tumor-Guy
Osteoid Osteomas and Osteoblastomas are both benign primary bone tumors.

Osteoid Osteoma

Osteoid Osteoma
Asteroid Ostrich
Osteoid osteomas are slow growing bone tumors that typically present in patients under 25 years old. The exact pathophysiologic mechanism for this disease remains unknown. However, bones undergo rapid growth between the age of 4 to 25. As such, both osteoclastic and osteoblastic activity is increased during these years which can contribute to the development of pathophysiologic changes.

Cortex of Long Bones
Cortez with Long Bone
The most common location for osteoid osteomas is the cortex of long bones. The most commonly involved bones are the femur, tibia, and humerus.

Pain Relieved by NSAIDs
Pain-bolt Broken by N-sad
The pain associated with Osteoid osteomas is relieved by NSAIDs. Typically, a well vascularized zone in the middle of the tumor, called a nidus, is present. High levels of cyclooxygenase-2 expression, prostaglandin E2 and prostacyclin are found in the proximity of the nidus. These mediators promote neovascularization of the nidus.

Pain Worse at Night
Up-arrow Pain-bolts and Knight-with-nightcap
In patients with osteoid osteomas, pain is typically increased at night. This pain can be dull, achy, or so severe as to wake up patients from sleep.

<2 cm
Less-than (2) Tutu Cent
Osteoid osteomas are slow-growing tumors that rarely grow above 2 cm in diameter.

Radiolucent Nidus with Surrounding Sclerosis
Radiolucent Radio Nidus-knight with Surrounding Skull-roses
The surrounding sclerosis is due to inflammatory changes that damage adjacent bone tissue. Attempted cellular repair of this tissue yields altered bone structure and composition. Subsequently, high levels of collagen and reticulin can be seen in the sclerotic area.

Osteoblastoma

Osteoblastoma
Ostrich-blast
Osteoblastomas, like osteoid osteomas, are benign slow growing primary bone tumors. They are typically encountered in patients between the ages of 10 - 20 years old.

Spine
Spine
In contrast to osteoid osteomas, osteoblastomas typically involve the vertebrae. In select cases, the tumor can grow and exert compression on the spinal cord. This can lead to neurological symptoms.

Pain Not Relieved by NSAIDs
N-sad Can't stop Pain
In contrast to osteoid osteomas, the pain associated with osteoblastomas is not relieved by NSAIDs. In contrast to osteoid osteomas, the pain which occurs in osteoblastomas does not have a nocturnal predominance. Instead, the pain is chronic and localized to the area of the tumor.

> 2 cm
More-than (2) Tutu Cent
Osteoblastomas typically grow to be more than 2 cm in diameter.

Radiolucent Nidus without Surrounding Sclerosis
Radiolucent Radio Nidus-knight with No-sign over Skull-roses
Osteoblastomas present as radiolucent lesions without surrounding sclerosis on bone X-ray. This is in contrast to Osteoid Osteomas which present with surrounding sclerosis.

Management

Surgery
Surgeon
Surgery is preferentially used to treat osteoblastomas given their larger size. The preferred treatment option is curettage with bone grafting. However, surgery can also be used sparingly in osteoid osteomas in cases in which the pain is not responsive to medical treatment.