**Osteoid Osteoma**

The osteoid osteoma is the most common osteoid-forming tumor seen in the skeletal system, accounting for 10 per cent of all benign bone tumors. It is more common in males than females with the peak incidence in the second decade of life. These lesions typically produce symptoms of a dull, aching pain that is more severe at night. The pain is relieved with anti-inflammatory medication such as aspirin or non-steroidal anti-inflammatory drugs (NSAIDS) that inhibit the high concentration of prostaglandins found in the nidus of the osteoid osteoma. These lesions occur typically in the cortical structures of long bones such as the femur or tibia, but can also be found in small bones of the ankle, wrist or vertebral column. The lesion is characteristic for its dense, sclerotic response in the cortical bone resulting in a fusiform enlargement on the surface of the cortex as a response to the small inflammatory nidus or granuloma (measuring up to one centimeter in diameter) in the central area of the sclerotic response. If the lesion is located in a central medullary area, such as the metaphysis, or on the very superficial surface of a bone, the sclerotic response is less severe. If the nidus is located close to or within a joint structure, such as in the femoral neck area, there will be a significant inflammatory synovitis in the adjacent joint that may give the clinical appearance of a pyarthrosis. In the spine, the lesions are usually located in the posterior elements of the spine such as the laminae or pedicles. The lumbar spine in the most common location followed next by the dorsal spine. A typical secondary painful scoliosis will develop with the convex seen on the side opposite the inflammatory lesion.

The two most significant diagnostic imaging studies consist of a CT scan through the nidus area to identify its anatomic location and a bone isotope scan which is invariably positive, especially in a symptomatic lesion. It is the current feeling that the osteoid osteoma is a true benign neoplasm of bone in which both osteoclastic and osteoblastic activity are seen. There are no inflammatory cells such as lymphocytes or plasma cells as would be seen in a Brody's abscess. Non-steroidal anti-inflammatory medications, such as prostaglandin inhibitors, can be very effective in controlling the disabling symptoms and helping the patient get through a period of one or two years during which time the lesion will typically involute into a painless lesion that will not require surgery. However, if the patient is unable to live with the pain during this period of time, a surgical approach is indicated. Following exposure of the lesion, a high-speed burr is used to burr into the inflammatory bone that is characterized by a pinkish hyperemia. When the nidus is found, a small curette is used to core the inflammatory nidus for pathological diagnosis and the cavity of the nidus is burred an additional 2 or 3 mm which usually results in very dramatic relief of symptoms and a permanent cure from the disease process. It is not necessary to remove the large dense sclerotic bone

surrounding the nidus; doing so could result in a pathologic fracture following surgery. In the spine, a simple laminectomy is frequently carried out. If the lesion in located in the pedicle a simple burring into the pedicle will relieve the patient of the inflammatory pain.

More recently, relatively non-invasive techniques have been tried to relieve the nidus of the osteoid osteoma by means of CT-guided burrs placed through a protective trocar or by placement of a heat-producing radio frequency probe that, when properly positioned, can destroy the nidus through thermal coagulation. These techniques are particularly valuable for deep-seated lesions, such as those located in the acetabulum, or those lesions located in the pedicle of the spine where damage to the adjacent spinal cord is a real possibility.