Clinical Manifestations

Most malignant bone tumors produce localized pain in the affected site, which may be severe or dull and may be attributed to trauma or the vague complaint of "growing pains." The pain is often relieved by a flexed position, which relaxes the muscles overlying the stretched periosteum. Frequently it draws attention when the child limps, curtails physical activity, or is unable to hold heavy objects. A palpable mass is also a common manifestation of bone tumors, but systemic symptoms (such as fever) and other clinical symptoms (such as spinal cord compression and respiratory distress) are more frequent in patients with Ewing sarcoma.

Diagnostic Evaluation

Diagnosis begins with a thorough history and physical examination. A primary objective is to rule out causes, such as trauma or infection. Careful questioning regarding pain is essential in attempting to determine the duration and rate of tumor growth. Physical assessment focuses on functional status of the affected area; signs of inflammation; size of the mass; and any systemic indication of generalized malignancy, such as anemia, weight loss, and frequent infection.

Definitive diagnosis is based on radiologic studies, such as plain films and CT or MRI scan of the primary site, CT scan of the chest, and radioisotope bone scans to evaluate metastasis and bone marrow examination in patients with Ewing sarcoma. A needle or surgical biopsy is necessary to establish the diagnosis. Ewing sarcoma most commonly involves the pelvis, long bones of the lower extremities, and chest wall and radiographically involves the diaphysis with detachment of the periosteum from the bone (Codman triangle). In osteosarcoma, lesions are most commonly located in the metaphyseal region of the bone, often involving the long bones. Radial ossification in the soft tissue gives the tumor a "sunburst" appearance on plain radiograph.

Prognosis

A better understanding of the biology of neoplastic growth has resulted in more aggressive treatment and an improved prognosis. The natural history of osteogenic sarcoma and Ewing sarcoma