Primary bone tumors of the spine

Primary bone tumors of the spine are rare growths that originate in the bones of the spinal column. These tumors develop within the spine itself, as opposed to metastatic tumors, which are cancers that have spread to the spine from other parts of the body.

Epidemiology

They typically occur in younger adults. Osteogenic sarcoma (osteosarcoma) is the most common malignant bone tumor. Most primary spinal tumors are quite rare and usually grow slowly.

Primary bone tumors account for 5% of Spinal tumors.

The most common of these rare tumors are spinal chordoma, chondrosarcoma, osteosarcoma, and Ewing sarcoma.

Classification

Primary bone tumors of the spine can be benign (non-cancerous) or malignant (cancerous).

Paraspinal vertebral tumors are less common.

see Spinal metastases

see Osteoid osteoma.

see Vertebral tumor classification.

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are much less common than secondary metastatic disease:

plasmacytoma/multiple myeloma

most common primary bone cancer

chordoma

more common in sacrum (50%) and clivus (35%) than cervicothoracic vertebral column (15%)

chondrosarcoma

Ewing sarcoma

lymphoma

osteosarcoma

giant cell tumor

osteoblastoma

osteochondroma

Langerhans cell histiocytosis (eosinophilic granuloma)

vertebral body; can cause vertebra plana

osteoid osteoma

neural arch predominance

Secondary metastatic disease

Vertebral metastases are significantly more common than primary bone tumors, especially in an older patient or one with known primary disease elsewhere.

Assessment of whether the bone lesions are sclerotic or lytic may help to narrow the differential diagnosis of primary disease if it is unknown.

Clinical

Patients with primary bone tumors usually present with nonspecific axial pain over a period of time, with radicular or myelopathic symptoms absent in most cases.

Diagnosis

Obtaining a histological diagnosis is essential, and CT-guided biopsy yields the best oncological results compared to those obtained with open biopsy.

Metastatic spinal disease, myeloma, and lymphoma are the most common malignant spinal tumors. Hemangioma is the most common benign tumor of the spine. Other primary osseous lesions of the spine are more unusual but may exhibit characteristic imaging features that can help the radiologist develop a differential diagnosis. Radiologic evaluation of a patient who presents with osseous vertebral lesions often includes radiography, computed tomography (CT), and magnetic resonance (MR) imaging. Because of the complex anatomy of the vertebrae, CT is more useful than conventional radiography for evaluating lesion location and analyzing bone destruction and condensation. The diagnosis of spinal tumors is based on patient age, topographic features of the tumor, and lesion pattern as seen at CT and MR imaging. A systematic approach is useful for recognizing tumors of the spine with characteristic features such as bone island, osteoid osteoma, osteochondroma, chondrosarcoma, vertebral angioma, and aneurysmal bone cyst. In the remaining cases, the differential diagnosis may include other primary spinal tumors, vertebral metastases and major

nontumoral lesions simulating a vertebral tumor, Paget disease, spondylitis, echinococcal infection, and aseptic osteitis. In many cases, vertebral biopsy is warranted to guide treatment [1)].

Treatment

Primary bone tumors of the spine treatment.

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Rodallec MH, Feydy A, Larousserie F, Anract P, Campagna R, Babinet A, Zins M, Drapé JL. Diagnostic imaging of solitary tumors of the spine: what to do and say. Radiographics. 2008 Jul-Aug;28(4):1019-41. doi: 10.1148/rg.284075156. Review. PubMed PMID: 18635627.