

## Solid Tumour Section

### Mini Review

## Bone: Chondroblastoma

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### Identity



Radiology of Chondroblastoma.

FIG. 1,2,3: Typical radiological findings of a lytic eccentric lesion affecting the epiphysis of the humerus (1 RX, 2 NMR and 3 bone scan)

**Note**

Chondroblastoma is a benign bone tumour typically affecting the epiphyses of long bones from individuals with an immature skeleton.

**Clinics and pathology****Epidemiology**

Chondroblastoma is a rare neoplasm accounting for less than 1% of all bone tumors. Age of occurrence is usually between 10 and 25 years with a male predominance. Older age of presentation for skull lesions is reported.

**Clinics**

Usual symptom at presentation is mild localized pain. Radiologically it occurs more often as an eccentric lytic lesion, with sclerotic borders, involving epiphyses of the long bones.

**Pathology**

The tumour is composed of cellular and matrix rich areas. Cellular areas are made up of so called 'chondroblasts': round-, or polygonal cells, with an oval to round nucleus and with well defined eosinophilic cytoplasm. Mainly in non-decalcified sections the chondroblasts appear focally delimited by a thin calcification rim, so called 'chicken wire'. Matrix rich areas are composed of different types of matrix: chondroid, osteoid, fibrous and rarely mature hyaline cartilage. Mitoses, always typical, are quite frequent, especially in the cellular areas.

Immunohistochemical stainings show reactivity of the neoplastic cells for S-100 protein and Vimentin; although several other antigens are reported to be expressed (i.e. Smooth muscle actin and Cytokeratin).

Multinucleated giant cells, especially at the periphery of matrix-rich areas, are almost always found. An associated aneurysmal bone cyst occurs in about 1/3 of the cases.

**Treatment**

Simple curettage is the standard treatment.

**Evolution**

Rate of recurrence is between 14-18% mainly occurring within 2 years, and showing a higher occurrence rate in case of temporal bone location. Rare lung metastases in benign chondroblastomas are documented. However they are not progressive and therefore simple observation is sufficient, if necessary followed by simple surgical resection.

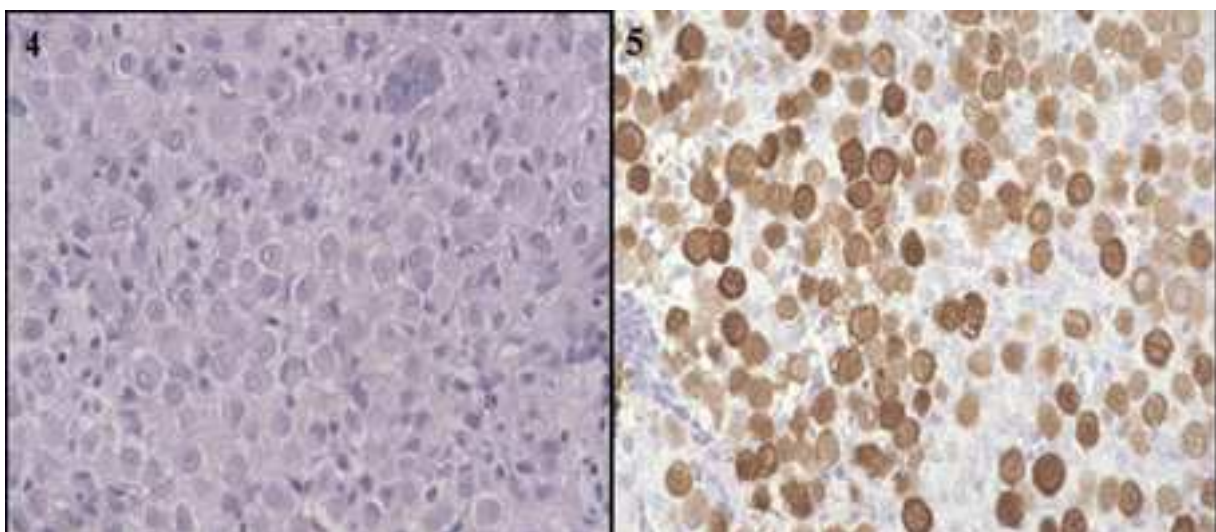
**Prognosis**

The prognosis is good. Rare and doubtful malignant progression are described, but no universal criteria for this event are currently available, and several authors consider this as cases of a misdiagnosis.

**Cytogenetics****Cytogenetics Morphological**

DNA flow cytometry studies show chondroblastoma mainly to be a low proliferative diploid neoplasm; however aneuploid near-diploid populations have been reported.

Karyotypic results of 7 cases are available in the literature. No specific cytogenetic abnormalities neither specific type of aberrations are reported so far. However some chromosomes seem to be more often involved: 3 cases for chromosome 5, 2 for chromosome 8, 2 for chromosome 11 and 2 for chromosome 17.



Histological features of chondroblastoma.

Fig.4: The cellular areas are made up of polygonal cells with scattered multinucleated giants cells (Haematoxylin-Eosin stain).

Fig.5: The polygonal cells are positive for S-100 immunostain.

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