

# Giant cell tumor

classmate

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Giant cell tumor is characterized by presence of numerous multinucleated osteoclast-type giant cells, and is also called osteoclastoma.

Although giant cell tumors are benign, they can be locally aggressive. This uncommon tumor usually arises in third through fifth decades of life.

## PATHOGENESIS

Most cells with giant cell tumors are non-neoplastic osteoclast and their precursors.

The neoplastic cells are primitive osteoclast precursors that express high levels of RANKL, which in turn promotes proliferation of osteoclast precursors and their differentiation into mature osteoclasts.

absence of normal feedback between osteoblast precursors that express high levels of RANKL, which in turn promotes and osteoclast results in localized, but highly destructive, bone resorption.

The neoplastic cells have acquired mutations in gene encoding histone 3.3, a chromatin packaging protein; precisely how this leads to tumour formation is unknown.

- Giant cell tumors develop within the epiphysis, and may extend into metaphysis. The majority are near the knee, involving distal femur or proximal tibia, but virtually any bone can be involved.

Because they typically arise near joints, giant cell tumors may cause arthritis-like symptoms. They can present with pathological fractures.

## CLINICAL FEATURES

Giant cell tumors are located by cartilage 40% - 60% near locally.

- although upto 4% metastasize to lungs, these can regress spontaneously and are seldom fatal.

## MORPHOLOGY

Giant cell tumors often destroy overlying cortex, resulting in bulging soft tissue mass delineated by a thin shell of reactive bone.

### GROSS

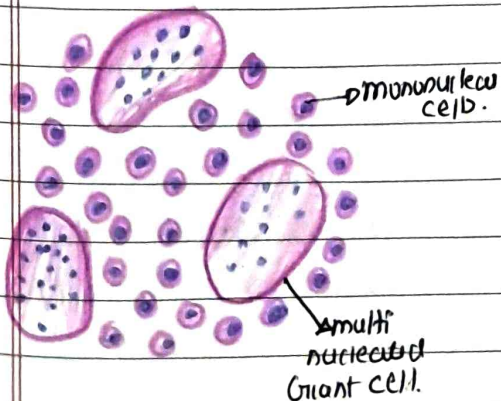
tumors are large, red-brown masses that frequently undergo cystic degeneration.

### Histologically

tumor consists of uniform oval mononuclear tumor cells and abundant osteoclast-type giant cells with 100 or more nuclei.

Necrosis and mitosis may be prominent.

- although reactive bone may be present, especially at periphery, tumor cells do not synthesize bone or cartilage.



# GIANT CELL CONTAINING TUMOR.

Reactive

Benign

Malignant.

Brown tumor.

Giant cell tumor.  
(GCT).

malignant GCT.

Giant cell  
reparative  
granuloma.

Aneurysmal  
bone cyst.

Clear cell cs.

pseudomalignant  
myositis ossificans.

Chondromyxoid  
fibroma.

Giant cell rich  
OS.

Non-ossifying  
fibroma.

metastatic CA.

Langhans  
cell histiocytosis

BFH of bone

