

MICOD –13/08/2024

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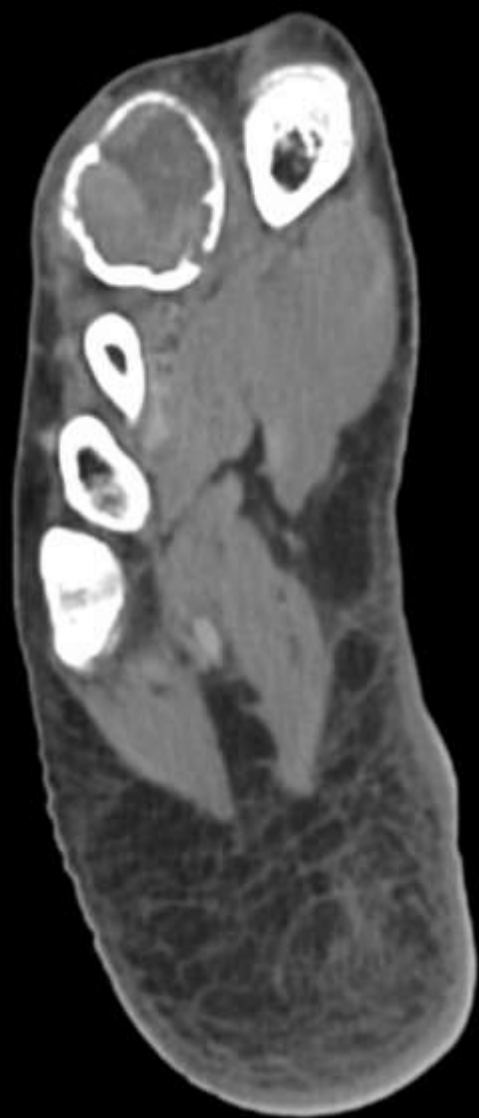
MI-COD

MSS INDIA- Case Of the Day



30-year-old male patient with
h/o slowly increasing swelling
in right foot





GCT- head of second metatarsal

Giant cell tumors (GCT) of bone are locally aggressive and rarely malignant or metastasizing bony neoplasms, typically found at the end of long bones which is the region around the closed growth plate extending into the epiphysis and to the joint surface.

- They are classified as osteoclastic giant cell-rich bone tumors of uncertain behavior.
- They almost invariably (97-99%) occur when the growth plate has closed and are therefore typically seen in early adulthood.
- 80% of cases are reported between the ages of 20 and 50, with a peak incidence between 20 and 30.
- There is overall a mild female predilection, especially when located in the spine.

Diagnostic criteria

Diagnostic criteria according to the [WHO classification of soft tissue and bone tumors](#)

- Circumscribed osteolytic bone tumor involving the epiphysis.
- Usual occurrence in a skeletally mature person.
- Histological evidence of numerous non-neoplastic osteoclastic giant cells and fewer neoplastic mononuclear cells usually without atypia.

Complications

Complications include:

- Pathologic fracture.
- Lung metastases.
- Tumor recurrence.
- Nerve root compression in vertebral location.

Subtypes

Giant cell tumors of bone can be classified into the following subtypes:

- Conventional giant cell tumor of bone
- Malignant giant cell tumor of bone

CT

- On CT giant cell tumors of bone are usually depicted as eccentrically located solitary lucent bone lesions.
- The absence of matrix mineralization, cystic changes and aggressive features such as cortical involvement/thinning, pathological fractures, aggressive periosteal reaction and soft tissue extension can be better delineated than on plain radiographs.

MRI

MRI imaging findings are nonspecific. Features that can be demonstrated on MRI include:

- hemorrhagic areas
- fluid-fluid levels suggesting aneurysmal bone cyst-like changes
- surrounding bone marrow edema
- soft tissue extension
- solid tissue components.

Signal characteristics

•T1

- low to intermediate signal (solid component)
- low signal rim

•**T2**: heterogeneous high signal with areas of low signal intensity due to hemosiderin or fibrosis.

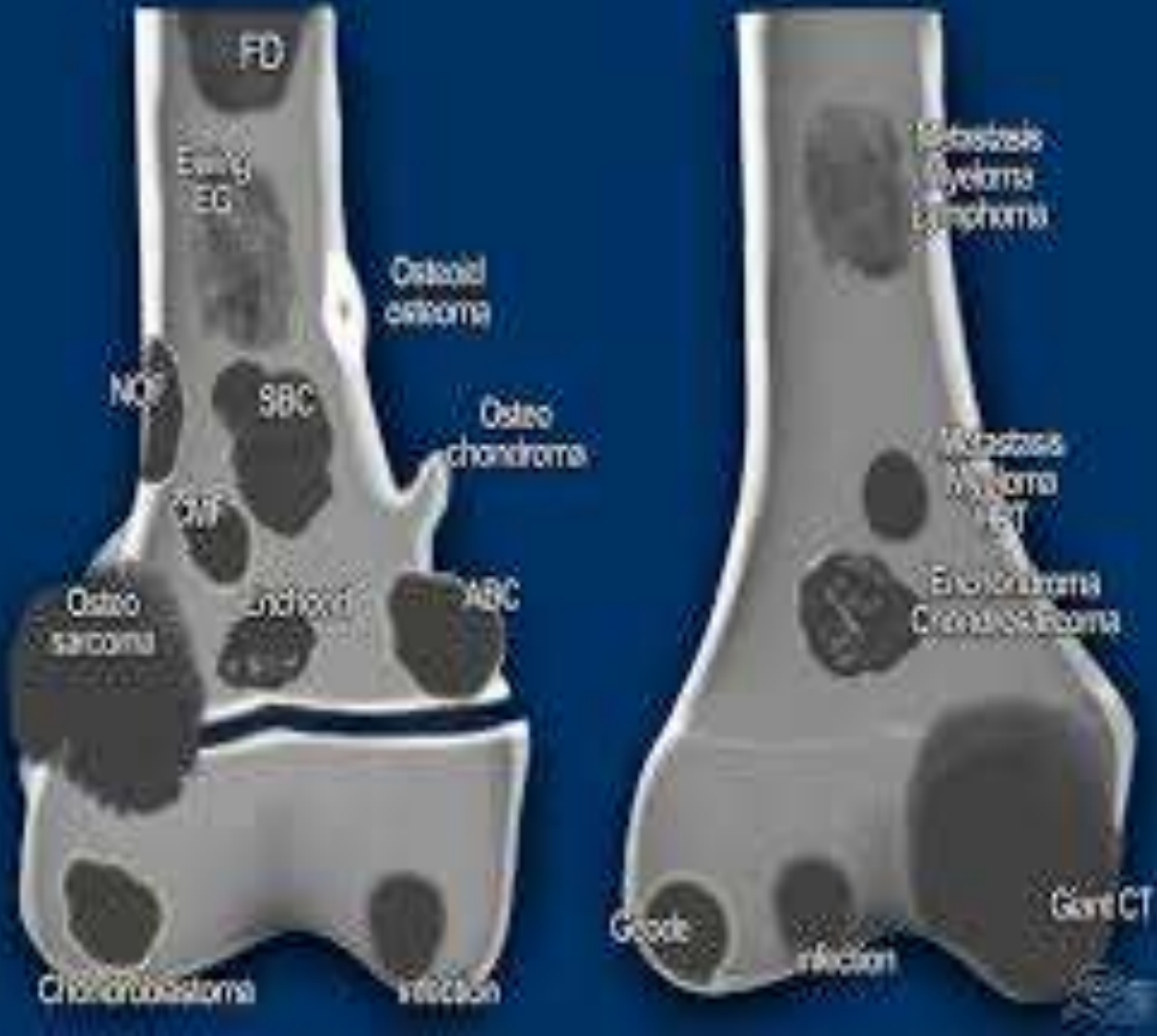
•**T1 C+ (Gd)**: solid components will enhance.

- Enhancing solid components can help to distinguish giant cell tumors of bone with hemorrhagic areas and aneurysmal bone cyst-like changes from a pure aneurysmal bone cyst.

- Giant cell tumor of bone with a positive response on denosumab should show the following characteristics:
 - reduction in tumor size
 - lower signal intensity on both T1 and T2 weighted images
 - shrinkage of cystic tumor components.

< 30 years

> 30 years



• THANK YOU

