Giant cell tumor of the bone

- Dr. Rahul Bevara

GIANT CELL TUMOUR

DEFINITION:

Distinct neoplasm arising from non-bone forming supportive connective tissue of marrow with network of stromal cells regularly interspersed with giant cells.

AGE OF PRESENTATION

- 75-80% OF PATIENTS 20-50 YRS
- 10% 15-20 YRS
- 10% >60 yrs
- <1.7% BELOW 15 YRS

SEX

Male : Female – 1 : 1.3 (Benign)

3 : 1 (Malignant)

SITE

- Epiphyseo-metaphyseal region of long bones
- GCT –Described from all bones EXCEPT middle ear bones
- Axial skeleton- 8%
- UL:LL-1:3

SITE

- 55% AROUND THE KNEE
- 10% in the distal radius
- 6% in the proximal humerus
- SPINE rarely involved (commoner in the sacrum)
- In the head and neck region the maxilla and mandible are more commonly involved

SIGNS & SYMPTOMS

1.PAIN

2.SWELLING

3.JOINT RESTRICTION

4.MUSCLE WASTING

5.NEUROLOGICAL SIGNS

6.PATHOLOGICAL SIGNS

Pathology

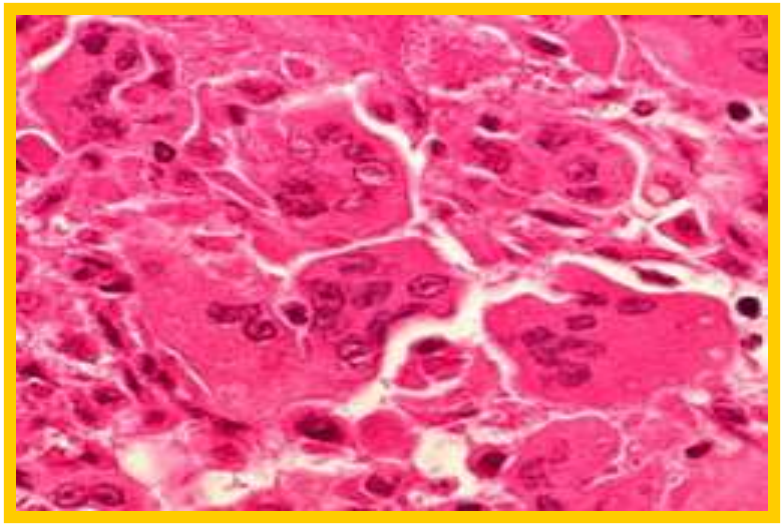
GROSS

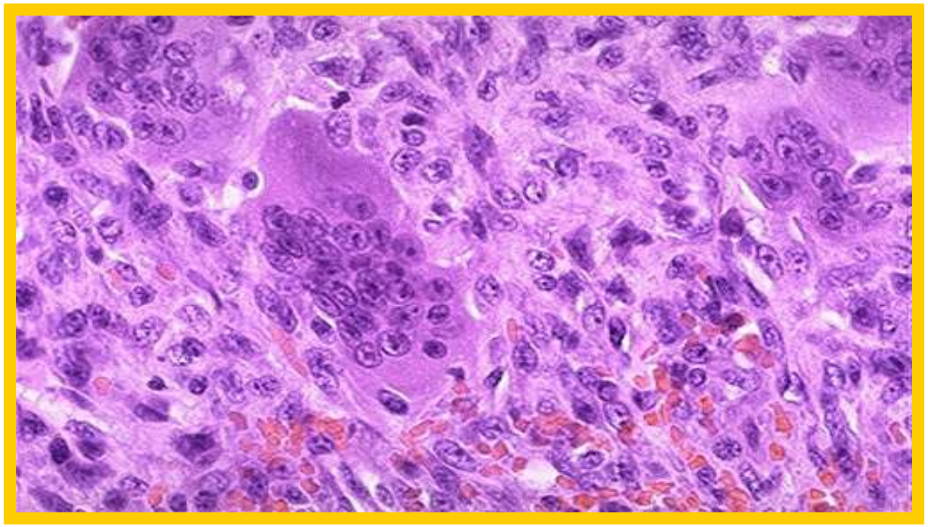
- End of bone is expanded.
- Eccentric lesion at the epiphyseo-metaphyseal region.
- Thin periosteum.
- Fleshy dark brown, soft, friable mass.
- Cystic spaces seen.

Pathology

Microscopy-

Vascularized network of round,oval or spindle shaped stromal cells and multinucleated giant cells with numerous centrally placed nuclei





Enneking staging for GCT

Stage 1-(10-15%)

- Patients asymptomatic
- Discovered incidentally
- May cause pathological fracture
- Has sclerotic rim on x-ray or CT
- Relatively inactive on bone scans
- Histologically benign

Enneking staging for GCT

Stage 2 – (70%)

- Symptomatic
- Often associated with path: fracture
- Has expanded cortex but no break through
- Is active on bone scans
- Histologically benign

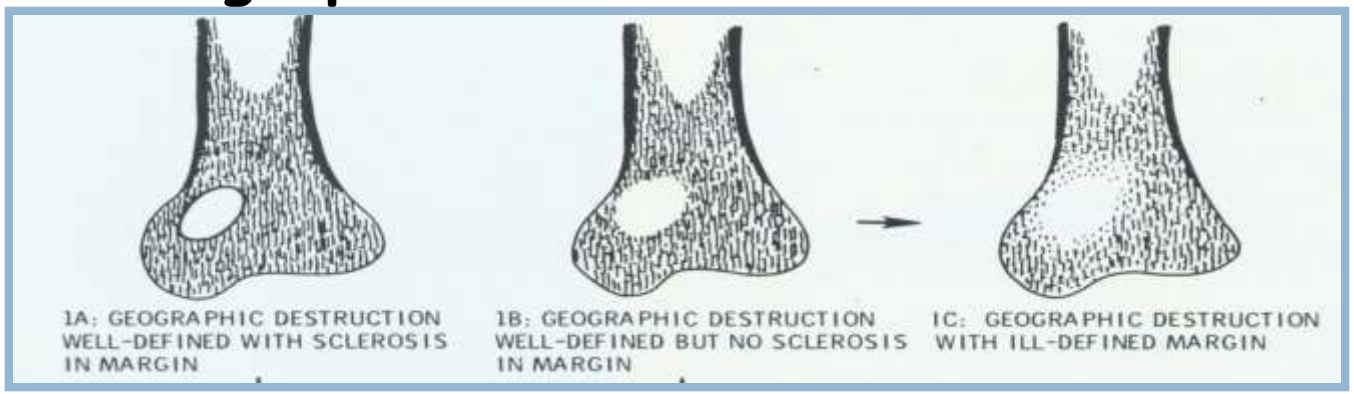
Enneking staging for GCT

Stage 3-(10-15%)

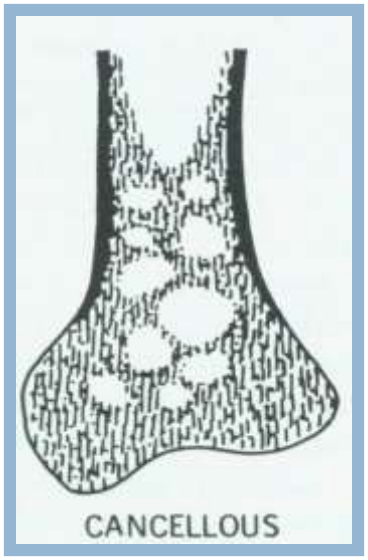
- Symptomatic
- Rapidly growing mass
- Has cortical perforation with accompanying soft tissue mass
- Activity on bone scan extends beyond the lesion in x ray
- Shows intense hypervascularity on angiogram
- Histologically benign

RADIOLOGY
Type of Osteolysis

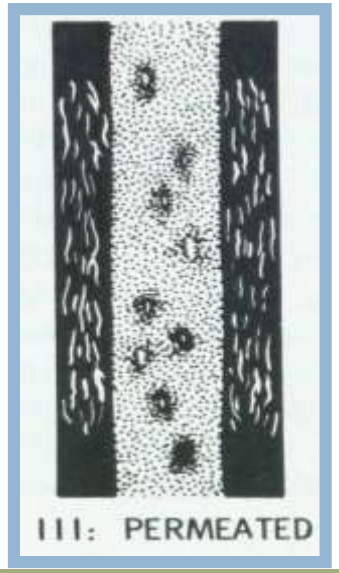
1. Geographic destruction



2. Moth-eaten

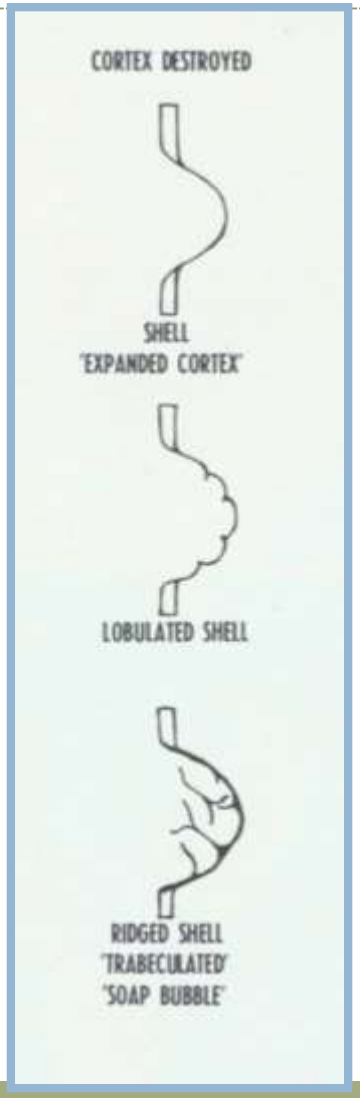


3.Permeative



RADIOLOGY

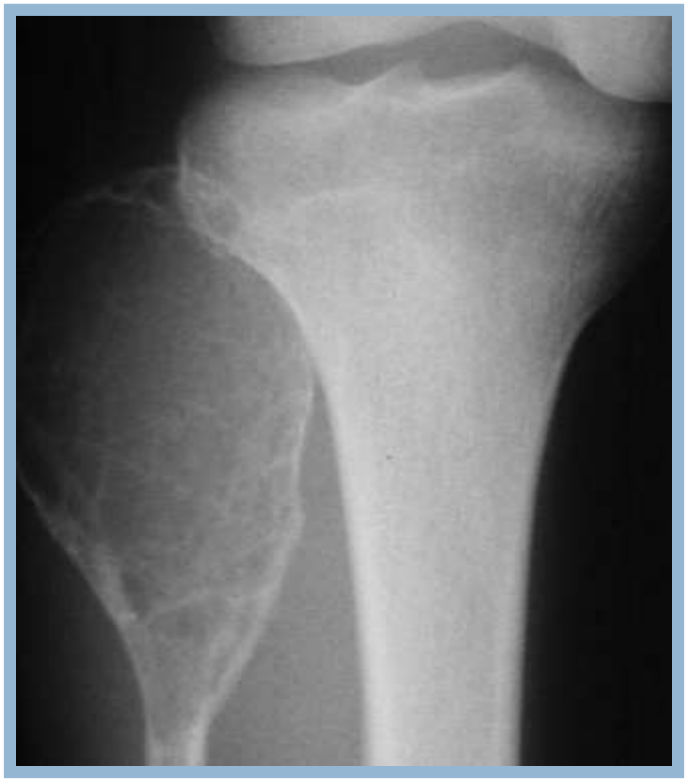
1. Expansile
2. Trabaculation



RADIOLOGY

PURE LYTIC (60%)

FINE TRABACULTION(40%)



DIFFERENTIAL DIAGNOSIS

1.ANEURYSMAL BONE CYST

2. GIANT CELL REPARATIVE GRANULOMA

3.CHONDROBLASTOMA

4.BROWN TUMOR

5.INTRA OSSEOUS GANGLION

6.BENIGN FIBROUS HISTEOCYTOMA

TREATMENT

1. Stage1 & Stage2 – Intra lesion or Marginal Excision

Stage3 - Wide resection with Reconstruction

Radiation, Embolisation

2. Curettage & Bone Grafting

3.Reconstruction with
Auto graft
Allograft
Arthrodesis
Custom made prosthesis