

Osteosarcoma



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INTRODUCTION

- Malignant primary sarcomas of bone are very rare. The most common of these is **Osteosarcoma**.
- **Osteosarcoma** is most common in the distal femur, followed by proximal tibia, proximal humerus and distal tibia.
- Radiologically and histologically the tumour can be sclerotic chondroblastic, teleangiectic and of other more unusual histological forms.
- Usually, osteosarcomas are intraosseous, but they can also arise from the surface of the bone.



EPIDEMIOLOGY

- Osteosarcoma has two peaks in incidence, one in adolescence, the other later in life, arising in patients with Paget's disease and those who have had previous radiotherapy.
- Bimodal age distribution
 - 10-20 yrs
 - After 50yrs



AETIOLOGY

- Exact cause is unknown.
- May associated with teenage growth spurt or Paget's disease- Because of rapid bone turn over.
- Some genetic conditions are associated.
 1. Osteogenesis imperfect
 2. Li-Fraumani syndrome
 3. Rothmund-Thomson syndrome
 4. Retinoblastoma- 300 times risk



PATHOLOGY

- Tends to occur in the metaphyseal region. But can occur anywhere.
- Common place-around the knee(70%)- Lower femur and upper tibia Next- proximal humerus
- Hematogenous spread- metastasize to lung.
- Paraosteal osteosarcoma is a lowgrade osteosarcoma that arises from the surface of the bone. It frequently affects the distal femur and proximal tibia.



POOR PROGNOSTIC FACTORS

- Increased alkaline phosphatase- lung mets
- Increased LDH
- Increased size
- Stage 3- Mets
- Poor response to chemotherapy



CLINICAL FEATURES

- The clinical symptoms are often mild and longstanding.
- Presents with progressive pain (rest/night) refractory to analgesia. Swelling, reduced joint movement, limp.
- Commonest in lower femur and upper tibia.



INVESTIGATIONS

- X-ray- affected area
- CT scan- extent of the tumour and metastasis.
- MRI scan- shows extent of tumour, skip lesions, soft tissue involvement
- CXR- Signs of metastasis
- Bone biopsy- Confirm the diagnosis



TYPICAL RADIOLOGICAL FEATURES

- Codman triangle (periosteal elevation)
- Sun ray or sun burst appearance
 - Calcification of capillaries from the periosteum
 - Calcification of adjacent soft tissue
- Osteolysis



TREATMENT

- Osteosarcoma is treated with neoadjuvant chemotherapy and surgery.
- The surgical options for malignant primary bone tumours are:
 1. amputation or van Ness rotationplasty;
 2. excision alone (for dispensable bones);
 3. excision and replacement with a graft or prosthesis.



TREATMENT

- If surgical excision is undertaken it is important for the biopsy track to be excised en bloc with the surgical specimen to avoid local recurrence through the biopsy track.
- In most cases, limb salvage with excision and reconstruction is possible. Only a minority of cases have neurovascular invasion and require amputation.
- There is no difference in survival between amputation and limb salvage

