Primary Bone Cancer Flashcard

Primary bone cancer can occur at any age and have the same incidence as bacterial meningitis with 560 new diagnoses each year in the UK

Clinical Presentations

- Bone pain
  - **Worse at night** 🚩
  - Constant or intermittent
  - Resistant to analgesia
  - May increase in intensity
- **Atypical bony or soft tissue swelling / masses** 🚩
- **Pathological fractures** 🚩
- Mobility issues – unexplained limp, joint stiffness, reduced ROM
- Easy bruising
- Inflammation and tenderness over the bone
- Systemic symptoms (most commonly fatigue)

Investigations

- Plain X-ray is the first line investigation (normal X-ray does NOT rule out primary bone cancer)
- If pain is persistent consider MRI if X-ray is clean
- Bloods: ESR, ALP, LDH, FBC, U&E, Ca^{2+}
- If 40+yrs, CT Chest, Abdo, Pelvis to rule out a source of metastatic bone cancer
- Biopsy is the diagnostic investigation

Radiological Features

- Bone destruction
- New bone formation
- Soft tissue swelling
- Periosteal elevation

Risk Factors

- Previous radiotherapy
- Previous primary bone cancer
- Paget's disease of bone
- Childhood cancer
- Germline abnormalities
- Benign bone lesions

🚩 **NICE Guidelines Red Flag Symptom**

What to do if you suspect a primary bone cancer. Initial investigation: **Plain X-Ray**

If the results look indicatory or suspicious for primary bone cancer: Refer directly to a specialist Bone Cancer Centre. For details on these, visit: **bcrt.org.uk/awareness**

If the results look negative or clear: Refer back to GP suggesting that if symptoms persist a referral for further imaging including MRI should be made via 2 week wait (adult) or within 48 hours (child).

The three most common types of primary bone cancer are:

Chondrosarcoma

- Most common in adulthood
- Malignant mass of chondrocytes
- Can arise from chondromas
- Highest incidence: 30-60 years old
- Locally aggressive
- Common sites: long bones, pelvis and ribs
- Typical radiology: popcorn calcification
- Tx: excision only (chemotherapy and radiotherapy resistant)

Osteosarcoma

- Most common in children and young adults
- Malignant mass of osteoblasts
- Biphasic incidence peak: 15-19 years old, 70-89 years old
- Common sites: long bones, especially around the knee
- Typical radiology: sunray spiculation, Codman triangle
- Tx: surgery, chemotherapy

Ewing sarcoma

- Second most common in children and young adults
- Malignant mass of neural crest cells
- Highest incidence: 10-20 years old
- 9x more common in Caucasians vs Black African or Chinese origin
- Common sites: long bones, pelvis, ribs, vertebrae
- ALWAYS high grade
- Typical radiology: onion ring sign
- Tx: chemotherapy, surgery, radiotherapy

Other types:

- Chordoma (occurs at the base and length of the spine and base of the skull)
- Spindle Cell Sarcoma of the Bone
- Adamantinoma
- Angiosarcoma of the bone
- Giant Cell Tumour of the Bone (benign but locally aggressive)

General Epidemiology

- More common in males
- Common sites: long bones
- Prognosis: better if younger and no metastases

Management

- Neoadjuvant and adjuvant chemo in most primary bone cancers (except Chondrosarcoma)
- Radiotherapy (in Ewing sarcoma predominantly)
- Surgery in most cases of primary bone cancer depending on location

For more information visit bcrt.org.uk/awareness

Produced by the Bone Cancer Research Trust and Medical Students from the University of Sheffield.

BONE CANCER AWARENESS INITIATIVE
SAVING LIVES THROUGH EARLIER DIAGNOSIS

A BONE CANCER RESEARCH TRUST & CHILDREN WITH CANCER UK PROJECT

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Sources: Bone Cancer Research Trust website; Oxford Handbook of Clinical Specialties, UK guidelines for the management of bone sarcomas (2016, C. Gerrand et al). Charity details: Bone Cancer Research Trust charity no 1159590, Children with Cancer UK charity no 298405.