Primary Bone Cancer Flashcard

**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, Ca²⁺
- 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

**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](http://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:

<table>
<thead>
<tr>
<th>Type</th>
<th>Most common in</th>
<th>Malignant mass of</th>
<th>Biphasic incidence Peak:</th>
<th>Highest incidence:</th>
<th>Common sites:</th>
<th>Typical radiology:</th>
<th>Tx:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chondrosarcoma</td>
<td>adulthood</td>
<td>chondrocytes</td>
<td>15-19 years old, 70-89 years old</td>
<td>30-60 years old</td>
<td>long bones</td>
<td>popcorn calcification</td>
<td>excision only (chemotherapy and radiotherapy resistant)</td>
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<tr>
<td>Osteosarcoma</td>
<td>children and young adults</td>
<td>osteoblasts</td>
<td>10-20 years old</td>
<td>15-19 years old, 70-89 years old</td>
<td>long bones, especially around the knee</td>
<td>sunray spiculation, Codman triangle</td>
<td>surgery, chemotherapy</td>
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<tr>
<td>Ewing sarcoma</td>
<td>children and young adults</td>
<td>neural crest cells</td>
<td>10-20 years old</td>
<td>15-19 years old, 70-89 years old</td>
<td>long bones, pelvis, ribs, vertebrae</td>
<td>onion ring sign</td>
<td>chemotherapy, surgery, radiotherapy</td>
</tr>
</tbody>
</table>

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.