Primary Bone Cancer Flashcard

Primary bone cancer can occur at any age

14% of all primary bone cancers occur in the bones of the skull, face and mandible

Clinical Presentations

- Bone pain
  - **Worse at night**
  - Constant or intermittent
  - Resistant to analgesia
  - May increase in intensity
- **Atypical bony or soft tissue swelling/masses that might be red and painful to touch**
- **Pathological fractures**
- Unexplained tooth loss (without decay or trauma)
- Toothache/abscess, difficulty moving the jaw, headache, ear and sinus pain, problems with vision
- Inflammation and tenderness over the bone
- Systemic symptoms (most commonly fatigue and weight loss)

Investigations

- A 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

NICE Guidelines Red Flag Symptom

What to do if you suspect a primary bone cancer:

X-ray: Carry out or refer for a plain X-ray via the 2 week wait (adult) or within 48 hours (child).

Refer: Refer to the closest maxillofacial clinic via the 2 week wait pathway (adults) or within 48 hours (child).

The four most common types of primary bone cancer and tumours in the jaw 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, ribs, skull and jaw
- Typical radiology: popcorn calcification
- Tx: excision only (chemotherapy and radiotherapy resistant)

Ewing sarcoma

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

Ameloblastoma

- Represent 1% of tumours involving the jaw and 10%
- of all odontogenic tumours
- Slow growing non-cancerous locally aggressive tumours that occur in the jaw, especially the mandible
- Highest incidence: 30-40 years old
- Tx: Surgery

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 include upper and lower extremities, pelvis, ribs, shoulder, skull and jaw
- Typical radiology: sunray spiculation, Codman's triangle
- Tx: surgery, chemotherapy

Other types of primary bone cancer:

- Chordoma, Spindle Cell Sarcoma of the Bone, Angiosarcoma of the Bone, Giant Cell Tumour of the Bone (benign but locally aggressive), Adamantinoma

For more information visit bcrt.org.uk/awareness

Sources: Bone Cancer Research Trust website; Oxford Handbook of Clinical Specialties; Bone sarcomas: ESMO–EURACAN–GENTURIS–ERNPaedCan Clinical Practice Guideline for diagnosis, treatment and follow-up (2021, SJ Strauss et al). Suspected cancer: recognition and referral (NICE).
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