

Others

Others

Simple (unicameral) bone cyst (Figure 42.20) is a membrane-lined cavity filled with serous fluid within a bone. It usually occurs in the proximal long bones of children. Associated thinning of the cortex of the bone can lead to fracture. Such fractures usually heal with conservative treatment, but the cyst may only partially resolve . Aneurysmal bone cyst (Figure 42.21) is a benign cystic lesion of bone consisting of blood-filled spaces separated - by fibrous septa. The lesion is more aggressive than a simple bone cyst and often presents with pain and swelling. Plain radiographs commonly show aggressive features with eccentric expansion of the cortex and an open physis. Scans often show multiple fluid levels (Figure 42.21b). Giant cell tumour of bone (Figure 42.22) is a locally aggressive tumour with large osteoclast-like giant cells. It usually occurs between the ages of 20 and 45, after the physes have closed. Giant cell tumour of bone typically extends into the epiphysis of long bones and erodes bone under the articular cartilage, especially around the knee, proximal humerus and distal radius. 'Benign' metastases are rare.

(b) (c) Figure 42.18 (a) Lateral radiograph with a barely visible chondro blastoma in the epiphysis of the proximal tibia (arrow). (b) Coronal T2-weighted magnetic resonance imaging scan showing a chondro blastoma (arrow) in the epiphysis of the pr oximal tibia

with surrounding oedema. (c) Sagittal computed tomography reconstruction showing calcification within a chondroblastoma (arrow) of the proximal tibial epiphysis. (b) (c)

Figure 42.19 (a) Clear cell chondrosarcoma of the medial femoral condyle (arrow). (b) Sagittal T1-weighted magnetic resonance image

scan showing a clear cell chondrosarcoma (arrow) in the medial femoral condyle. (c) Computed tomography scan reconstruction shows calcification (arrow) within the lesion.

Eosinophilic granuloma is a rare neoplasm of Langerhans cells (Figure 42.23). It can be unifocal (eosinophilic granuloma), multifocal (Hand-Schüller-Christian disease) or Paul Langerhans , 1847-1888, Professor of Pathological Anatomy , Freiberg, Germany . Alfred Hand Jr , 1868-1949, American pediatrician, described the eponymous disease in 1893. Artur Schüller , 1874-1957, Austrian neuroradiologist, described the eponymous disease in 1915. Henry A Christian , 1876-1951, American physician, described the eponymous disease in 1919. Erich Letterer , 1895-1982, German pathologist. Sture A Siwe , 1897-1966, Swedish paediatrician. for the skull and the diaphyses of long bones. In the spine it can present with collapse, known as vertebra plana.

The radio - graphic appearance can be aggressive and similar to Ewing's sarcoma. Fibrous dysplasia (Figure 42.24) is a benign, develop - mental, fibro-osseous lesion that can be mono- or polyostotic. It usually a ff ects the long bones, ribs and skull. Patients can present with pain, swelling and/or fracture, but many lesions are detected incidentally . Hip fractures can produce a 'shep - herd's cr ook' deformity of the proximal femur. Radiologically there is often expansion and a ground-glass appearance, some - times with cystic change. Ewing's sarcoma (Figure 42.8) is a malignant round cell sarcoma of bone in which cells usually have a charac - teristic 11:22 translocation. However, other mutations have been described. It tends to arise in the diaphysis of a long bone, pelvis or scapula. Patients usually present with a pain - ful mass and ma y have systemic symptoms, including fever, anaemia and increased erythrocyte sedimentation rate (ESR). Radiologically the bone appears moth-eaten and may show an 'onion skin' periosteal reaction. MRI may show a large extraosseous soft-tissue mass as well as significant inflamma - tion with oedema. Bone tumours usually occur in characteristic anatomical - locations (Table 42.2), and epiphyseal tumours are likely to be benign (Table 42.3).

Figure 42.20 Pathological fracture through a simple bone cyst (arrow) with the pathognomonic fallen leaf sign. The fracture healed and the cyst consolidated without operative intervention. (a) (b)

Figure 42.21 (a) Aneurysmal bone cyst with patho logical fracture (arrow) of the proximal tibia.

Magnetic resonance imaging scan

shows multiple fluid levels (arrows). Figure 42.22 Giant cell tumour of the distal radius (arrow). Note the classic epiphyseal/metaphyseal location with subarticular

involvement, as well as a permeative margin (b) proximally in the radius indicating locally aggressive behaviour.

William F Enneking, 1926–2014, American orthopedic oncologist. Summary box 42.6 Other bone tumours

Figure 42.23 (a) Eosinophilic granuloma of the scapula (arrow). (b) Computed tomography scan shows a 'punched-out' lesion (arrow). (c) Spontaneous resolution. TABLE 42.2 Classification of bone tumours by site. Site Tumour Diaphyseal Eosinophilic granuloma Osteoid osteoma Fibrous dysplasia Adamantinoma Ewing's sarcoma Metaphyseal Most Epiphyseal Chondroblastoma Intra-articular osteoid osteoma Giant cell tumour (physis closed) Clear cell chondrosarcoma Figure 42.24 Fibrous dysplasia affecting the left proximal femur (arrow). There is expansion of the bone with a ground-glass appearance. (c) TABLE 42.3 Common diaphyseal bone tumours according to age. Age Most common diaphyseal tumour <10 years Eosinophilic granuloma Teenage Ewing's sarcoma Adult Lymphoma

“ 60 years Metastasis/myeloma Simple bone cyst – proximal long bones of children Aneurysmal bone cyst – more aggressive, expanding Giant cell tumour – found in epiphyses around the knee Fibrous dysplasia – may be multiple; long bones, ribs and skull Ewing's – round cell sarcoma; patients may have fever and anaemia

Others

Simple (unicameral) bone cyst (Figure 42.20) is a membrane-lined cavity filled with serous fluid within a bone. It usually occurs in the proximal long bones of children. Associated thinning of the cortex of the bone can lead to fracture. Such fractures usually heal with conservative treatment, but the cyst may only partially resolve. Aneurysmal bone cyst (Figure 42.21) is a benign cystic lesion of bone consisting of blood-filled spaces separated by fibrous septa. The lesion is more aggressive than a simple bone cyst and often presents with pain and swelling. Plain radiographs commonly show aggressive features with eccentric expansion of the cortex and an open physis. Scans often show multiple fluid levels (Figure 42.21b). Giant cell tumour of bone (Figure 42.22) is a locally aggressive tumour with large osteoclast-like giant cells. It usually occurs between the ages of 20 and 45, after the physes have closed. Giant cell tumour of bone typically extends into the epiphysis of long bones and erodes bone under the articular cartilage, especially around the knee, proximal humerus and distal radius. 'Benign' metastases are rare.

(b) (c) Figure 42.18 (a) Lateral radiograph with a barely visible chondroblastoma in the epiphysis of the proximal tibia (arrow). (b) Coronal T2-weighted magnetic resonance imaging scan showing a chondroblastoma (arrow) in the epiphysis of the proximal tibia with surrounding oedema. (c) Sagittal computed tomography reconstruction showing calcification

cation within a chondroblastoma (arrow) of the proximal tibial epiphysis. (b) (c)

Figure 42.19 (a) Clear cell chondrosarcoma of the medial femoral condyle (arrow). (b) Sagittal T1-weighted magnetic resonance image

ing scan showing a clear cell chondrosarcoma (arrow) in the medial femoral condyle. (c) Computed tomography scan reconstruction shows calcification (arrow) within the lesion.

Eosinophilic granuloma is a rare neoplasm of Langerhans cells (Figure 42.23). It can be unifocal (eosinophilic granuloma), multifocal (Hand-Schüller-Christian disease) or Paul Langerhans , 1847-1888, Professor of Pathological Anatomy , Freiberg, Germany . Alfred Hand Jr , 1868-1949, American pediatrician, described the eponymous disease in 1893. Artur Schüller , 1874-1957, Austrian neuroradiologist, described the eponymous disease in 1915. Henry A Christian , 1876-1951, American physician, described the eponymous disease in 1919. Erich Letterer , 1895-1982, German pathologist. Sture A Siwe , 1897-1966, Swedish paediatrician. for the skull and the diaphyses of long bones. In the spine it can present with collapse, known as vertebra plana. The radiographic appearance can be aggressive and similar to Ewing's sarcoma. Fibrous dysplasia (Figure 42.24) is a benign, developmental, fibro-osseous lesion that can be mono- or polyostotic. It usually affects the long bones, ribs and skull. Patients can present with pain, swelling and/or fracture, but many lesions are detected incidentally . Hip fractures can produce a 'shepherd's crook' deformity of the proximal femur. Radiologically there is often expansion and a ground-glass appearance, sometimes with cystic change. Ewing's sarcoma (Figure 42.8) is a malignant round cell sarcoma of bone in which cells usually have a characteristic 11:22 translocation. However, other mutations have been described. It tends to arise in the diaphysis of a

long bone, pelvis or scapula. Patients usually present with a pain - ful mass and ma y have systemic symptoms, including fever, anaemia and increased erythrocyte sedimentation rate (ESR). Radiologically the bone appears moth-eaten and may show an 'onion skin' periosteal reaction. MRI may show a large extraosseous soft-tissue mass as well as significant inflamma - tion with oedema. Bone tumours usually occur in characteristic anatomical - locations (Table 42.2), and epiphyseal tumours are likely to be benign (Table 42.3).

Figure 42.20 Pathological fracture through a simple bone cyst (arrow) with the pathognomonic fallen leaf sign. The fracture healed and the cyst consolidated without operative intervention. (a) (b)

Figure 42.21 (a) Aneurysmal bone cyst with patho logical fracture (arrow) of the proximal tibia.

Magnetic resonance imaging scan shows multiple /f_l uid levels (arrows). Figure 42.22 Giant cell tumour of the distal radius (arrow).

Note the classic epiphyseal/metaphyseal location with subarticular

involvement, as well as a permeative margin (b) proximally in the radius indicating locally aggressive behaviour.

William F Enneking , 1926–2014, American orthopedic oncologist. Summary box 42.6 Other bone tumours

Figure 42.23 (a) Eosinophilic granuloma of the scapula (arrow). (b) Computed tomography scan shows a 'punched-out' lesion (arrow). (c) Spontaneous resolution. TABLE 42.2 Classification of bone tumours by site. Site Tumour Diaphyseal Eosinophilic granuloma Osteoid osteoma Fibrous dysplasia Adamantinoma Ewing's sarcoma Metaphyseal Most Epiphyseal Chondroblastoma Intra-articular osteoid osteoma Giant cell tumour (physis closed) Clear cell chondrosarcoma Figure 42.24 Fibrous dysplasia affecting the left proximal femur (arrow). There is expansion of the bone with a ground-glass appearance. (c) TABLE 42.3 Common diaphyseal bone tumours according to age. Age Most common diaphyseal tumour <10 years Eosinophilic granuloma Teenage Ewing's sarcoma Adult Lymphoma

“ 60 years Metastasis/myeloma Simple bone cyst – proximal long bones of children Aneurysmal bone cyst – more aggressive, expanding Giant cell tumour – found in epiphyses around the knee Fibrous dysplasia – may be multiple; long bones, ribs and skull Ewing's – round cell sarcoma; patients may have fever and anaemia

Others

Simple (unicameral) bone cyst (Figure 42.20) is a membrane-lined cavity filled with serous fluid within a bone. It usually occurs in the proximal long bones of children. Associated thinning of the cortex of the bone can lead to fracture. Such fractures usually heal with conservative treatment, but the cyst may only partially resolve . Aneurysmal bone cyst (Figure 42.21) is a benign cystic lesion of bone consisting of blood-filled spaces separated by fibrous septa. The lesion is more aggressive than a simple bone cyst and often presents with pain and swelling. Plain radiographs commonly show aggressive features with eccentric expansion of the cortex and an open physis. Scans often show multiple fluid levels (Figure 42.21b). Giant cell tumour of bone (Figure 42.22) is a locally aggressive tumour with large osteoclast-like giant cells. It usually occurs between the

ages of 20 and 45, after the physes have closed. Giant cell tumour of bone typically extends into the epiphysis of long bones and erodes bone under the articular cartilage, especially around the knee, proximal humerus and distal radius. 'Benign' metastases are rare.

(b) (c) Figure 42.18 (a) Lateral radiograph with a barely visible chondro blastoma in the epiphysis of the proximal tibia (arrow). (b) Coronal T2-weighted magnetic resonance imaging scan showing a chondro blastoma (arrow) in the epiphysis of the proximal tibia with surrounding oedema. (c) Sagittal computed tomography reconstruction showing calcification within a chondroblastoma (arrow) of the proximal tibial epiphysis. (b) (c)

Figure 42.19 (a) Clear cell chondrosarcoma of the medial femoral condyle (arrow). (b) Sagittal T1-weighted magnetic resonance imaging scan showing a clear cell chondrosarcoma (arrow) in the medial femoral condyle. (c) Computed tomography scan reconstruction shows calcification (arrow) within the lesion.

ing scan showing a clear cell chondrosarcoma (arrow) in the medial femoral condyle. (c) Computed tomography scan reconstruction shows calcification (arrow) within the lesion.

Eosinophilic granuloma is a rare neoplasm of Langerhans cells (Figure 42.23). It can be unifocal (eosinophilic granuloma), multifocal (Hand-Schüller-Christian disease) or Paul Langerhans , 1847–1888, Professor of Pathological Anatomy , Freiberg, Germany . Alfred Hand Jr , 1868–1949, American pediatrician, described the eponymous disease in 1893. Artur Schüller , 1874–1957, Austrian neuroradiologist, described the eponymous disease in 1915. Henry A Christian , 1876–1951, American physician, described the eponymous disease in 1919. Erich Letterer , 1895–1982, German pathologist. Sture A Siwe , 1897–1966, Swedish paediatrician. for the skull and the diaphyses of long bones. In the spine it can present with collapse, known as vertebra plana. The radiographic appearance can be aggressive and similar to Ewing's sarcoma. Fibrous dysplasia (Figure 42.24) is a benign, developmental, fibro-osseous lesion that can be mono- or polyostotic. It usually affects the long bones, ribs and skull. Patients can present with pain, swelling and/or fracture, but many lesions are detected incidentally . Hip fractures can produce a 'shepherd's crook' deformity of the proximal femur. Radiologically there is often expansion and a ground-glass appearance, sometimes with cystic change. Ewing's sarcoma (Figure 42.8) is a malignant round cell sarcoma of bone in which cells usually have a characteristic 11:22 translocation. However, other mutations have been described. It tends to arise in the diaphysis of a long bone, pelvis or scapula. Patients usually present with a painful mass and may have systemic symptoms, including fever, anaemia and increased erythrocyte sedimentation rate (ESR). Radiologically the bone appears moth-eaten and may show an 'onion skin' periosteal reaction. MRI may show a large extraosseous soft-tissue mass as well as significant inflammation with oedema. Bone tumours usually occur in characteristic anatomical locations (Table 42.2), and epiphyseal tumours are likely to be benign (Table 42.3).

Figure 42.20 Pathological fracture through a simple bone cyst (arrow) with the pathognomonic fallen leaf sign. The fracture healed and the cyst consolidated without operative intervention. (a) (b)

Figure 42.21 (a) Aneurysmal bone cyst with pathological fracture (arrow) of the proximal tibia.

Magnetic resonance imaging scan shows multiple fluid levels (arrows). Figure 42.22 Giant cell tumour of the distal radius (arrow). Note the classic epiphyseal/metaphyseal location with subarticular

involvement, as well as a permeative margin (b) proximally in the radius indicating locally aggressive behaviour.

/uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF
William F Enneking , 1926–2014, American orthopedic oncologist. Summary box 42.6 Other bone tumours /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF

Figure 42.23 (a) Eosinophilic granuloma of the scapula (arrow). (b) Computed tomography scan shows a ‘punched-out’ lesion /uni00A0 (arrow). (c) Spontaneous resolution. TABLE 42.2 Classi /f_i
cation of bone tumours by site. Site Tumour Diaphyseal Eosinophilic granuloma Osteoid osteoma
Fibrous dysplasia Adamantinoma Ewing’s sarcoma Metaphyseal Most Epiphyseal Chondroblastoma
Intra-articular osteoid osteoma Giant cell tumour (physis closed) Clear cell chondrosarcoma Figure
42.24 Fibrous dysplasia affecting the left proximal femur (arrow). There is expansion of the bone
with a ground-glass appear ance. (c) TABLE 42.3 Common diaphyseal bone tumours according to
age. Age Most common diaphyseal tumour <10 years Eosinophilic granuloma Teenage Ewing’s
sarcoma Adult Lymphoma

“ 60 years Metastasis/myeloma Simple bone cyst – proximal long bones of children Aneurysmal bone cyst – more aggressive, expanding Giant cell tumour – found in epiphyses around the knee Fibrous dysplasia – may be multiple; long bones, ribs and skull Ewing’s – round cell sarcoma; patients may have fever and anaemia

Revision #1

Created 2025-12-31 15:16:22 UTC by Omar Ayman

Updated 2025-12-31 15:16:22 UTC by Omar Ayman