Benign tumors

Classification

- **Bone tissue** (osteoma, osteoid osteoma, osteoblastoma)
- **Cartilage tissue** (chondroma, osteochondroma, chondroblastoma, chondromyxoid fibroma)
- **Fibrous tissue** (fibroma, fibrous histiocytoma)
- **Vascular tissue** (hemangioma, glomus tumor, hemangiopericytoma
- **Adipous tissue** (lipoma)
- **Giant cell tumor** – osteoclastoma
- Benign soft tissue tumors

Benign bone tumors

- osteoid osteoma
- osteoblastoma
- chondroblastoma
- chondromyxoid fibroma
- osteoclastoma
- fibroma
- osteochondroma
- chondroma

Surgical staging system (Enneking)

- Grade 1 – latent (G0, T0, M0)
- Grade 2 – active (G0, T0,M0)
- Grade 3 – aggressive (G0, T1-2, M0-1)

Grade 1 - latent

- No symptoms
- Scintigraphy- minimal finding
- angiography – negative
- CT – sharp edges

Grade 2 - active

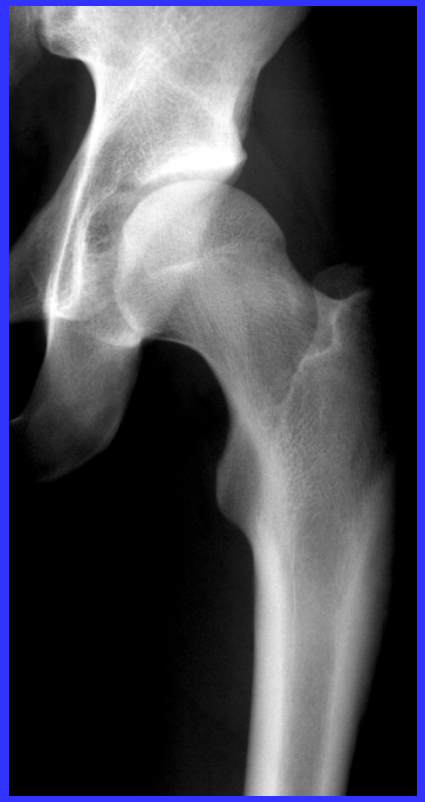
- Slight symptoms
- Scintigraphy – positive
- Angiography – mild neovascular reaction
- CT – mild expansion

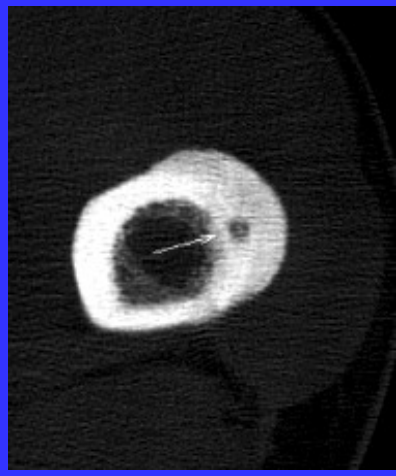
Grade 3 - aggressive

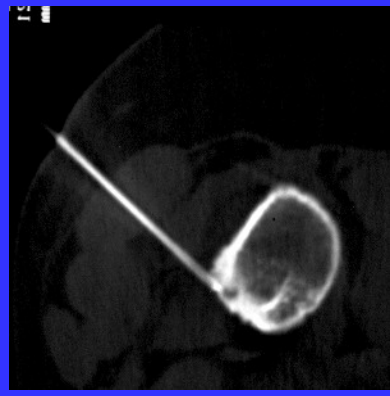
- Pain, advanced symptoms
- Scintigraphy – positive
- Angiography – advanced neovascular reaction
- CT – extracompartmental expansion

Osteoid osteoma

- 5 – 25 years
- femur, tibia, spine
- solitary
- pain
- nidus – osteoid tissue
- diff.dg.: osteoblastoma, osteomyelitis
- Surgery, RFA

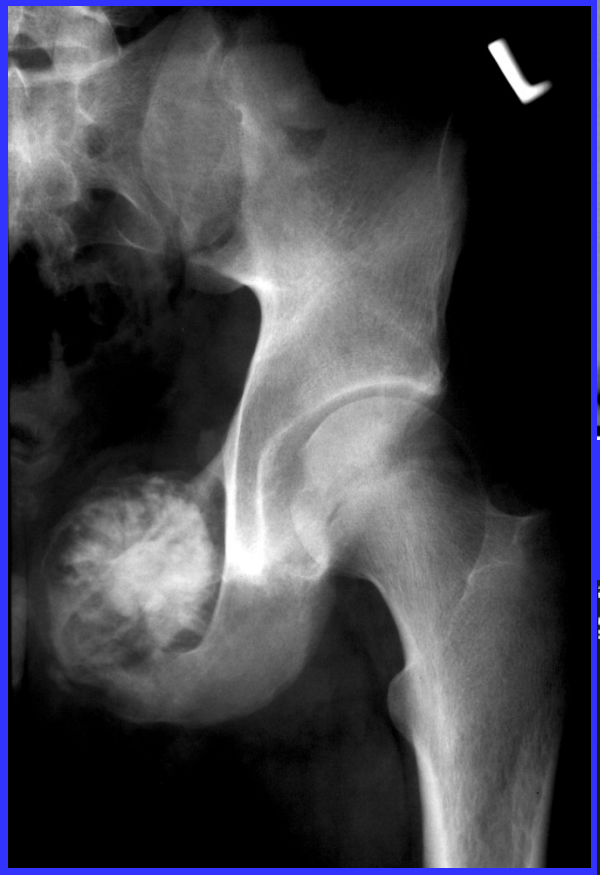


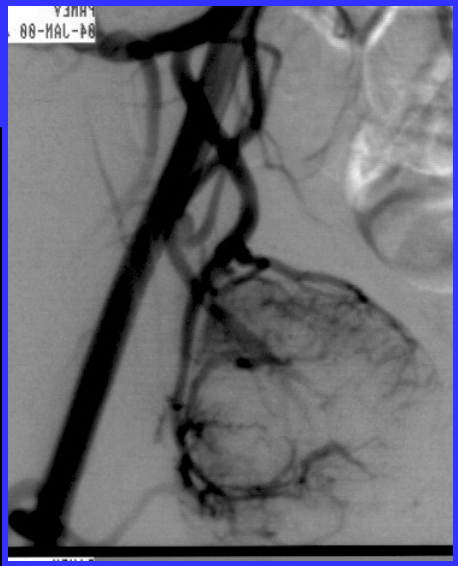


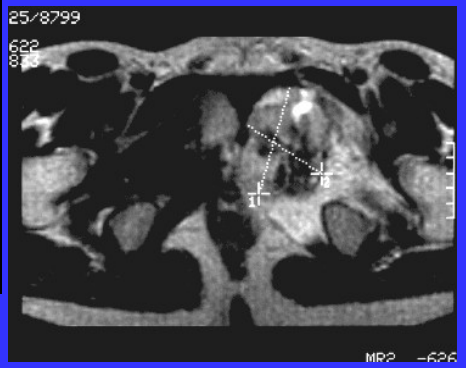


Osteoblastoma

- 10-20 let
- Spine, long bones
- Pain, neurological symptoms
- Greater nidus, calcifications, expansion into soft tissue
- diff.dg.: osteoid osteom, osteosarcpma
- Resection, curretage

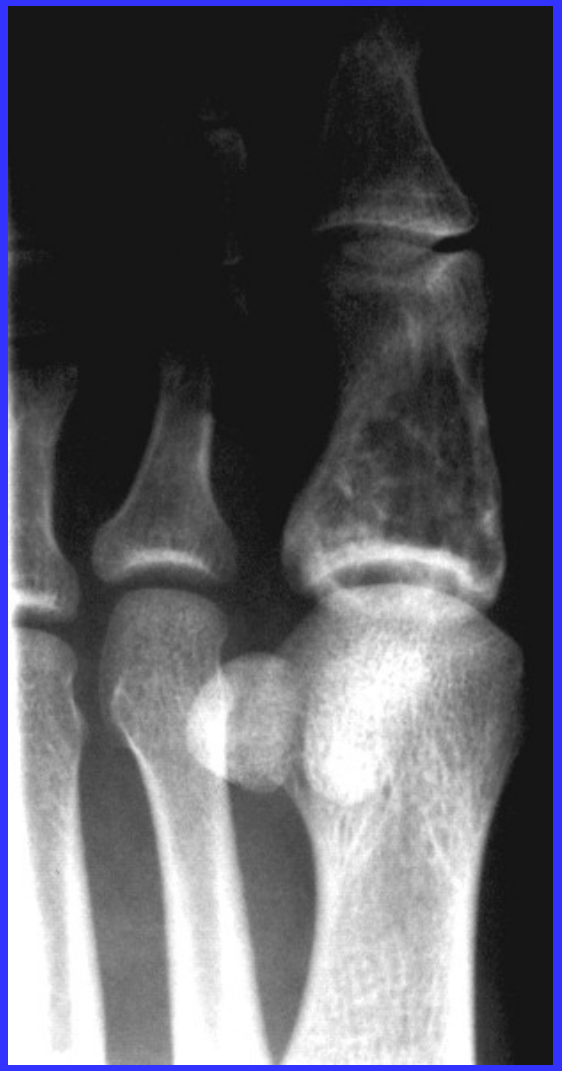






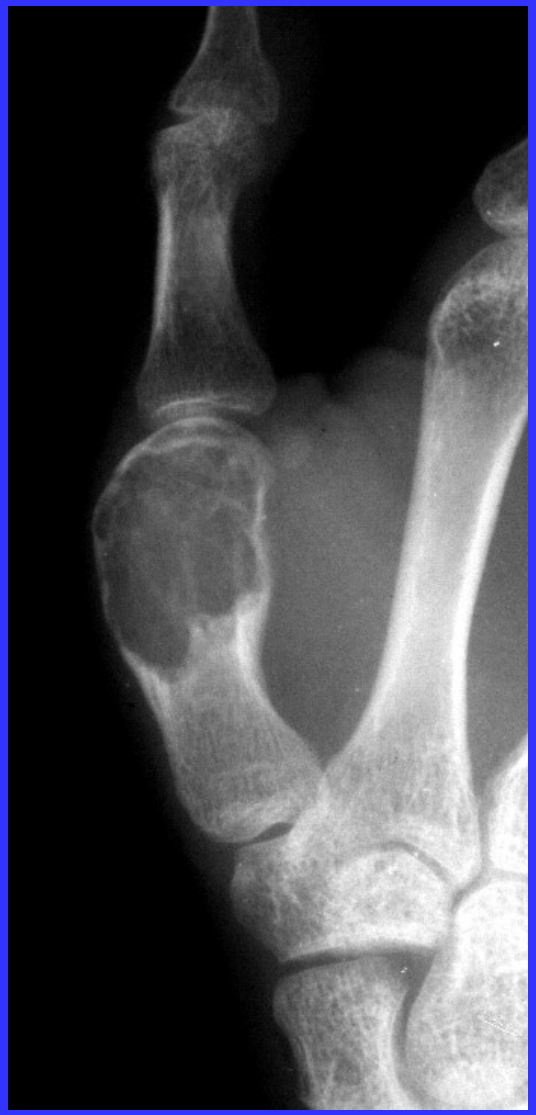
Chondroblastoma

- 5-25 years
- Epiphysis, metaphysis
- solitary
- Pain, synovitis
- diff.dg. Osteoclastoma,. chondrosarcoma
- Curretage + bone grafting



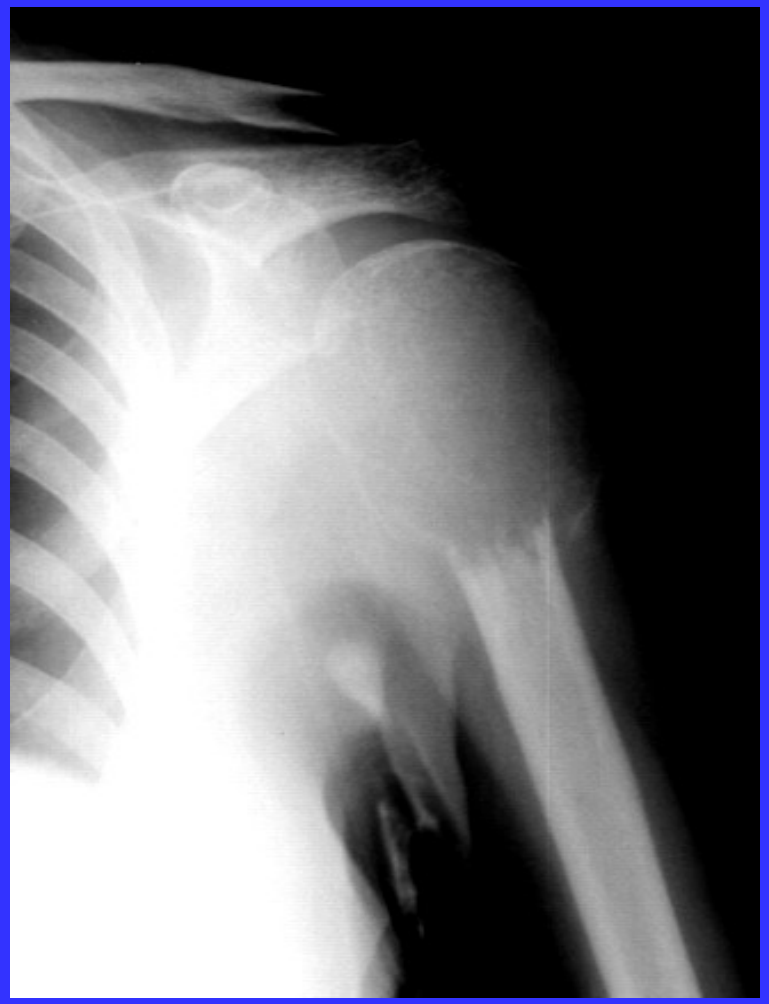
Chondromyxoid fibroma

- metadiaphysis
- young adults
- solitary
- pain
- diff.dg. chondroblastoma, osteoclastoma, chondrosarcoma
- resection, curretage



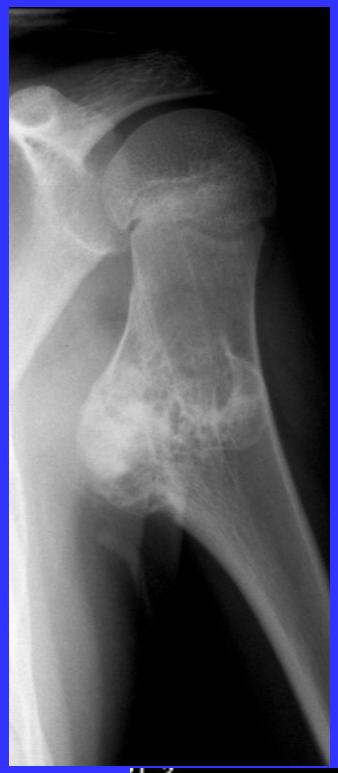
Giant cell tumor - osteoclastoma

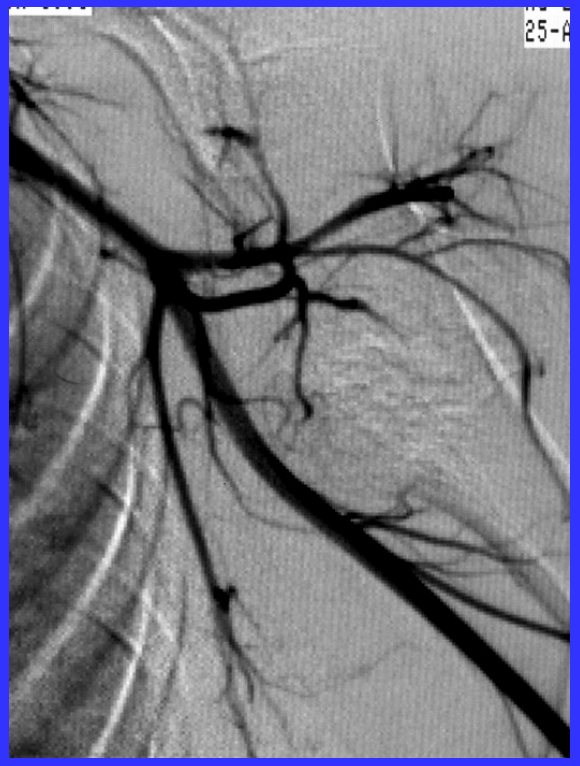
- 15-50 years
- Epimetaphysis, femur, tibia
- solitary
- Pain, swelling, fracture
- Benigne type
- Malignant type
- diff. dg.: aneurysmatical bone cyst, HPT
- Curretage, fenolisation, bone cement
- Resection + bone graft,
  +endoprosthesis

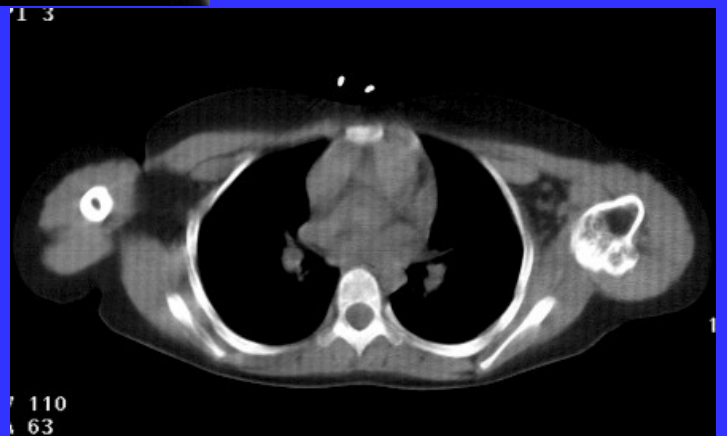


Osteochondroma

- Up to 20 years
- metaphysis
- swelling
- Exostosis disease – autosomal dominant
- USG- 10 mm chondral layer –
- Malignisation – chondral lesion over 20 mm, or progression
- diff.dg.: parostal OSA, Chondrosa
- Th- following
- Th- ablation



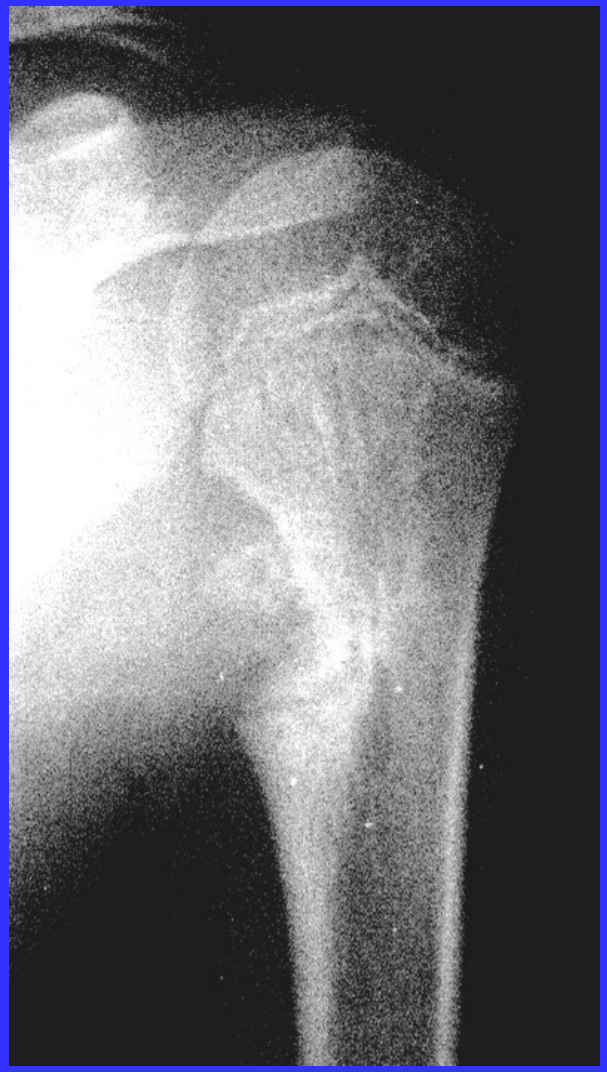




Chondroma

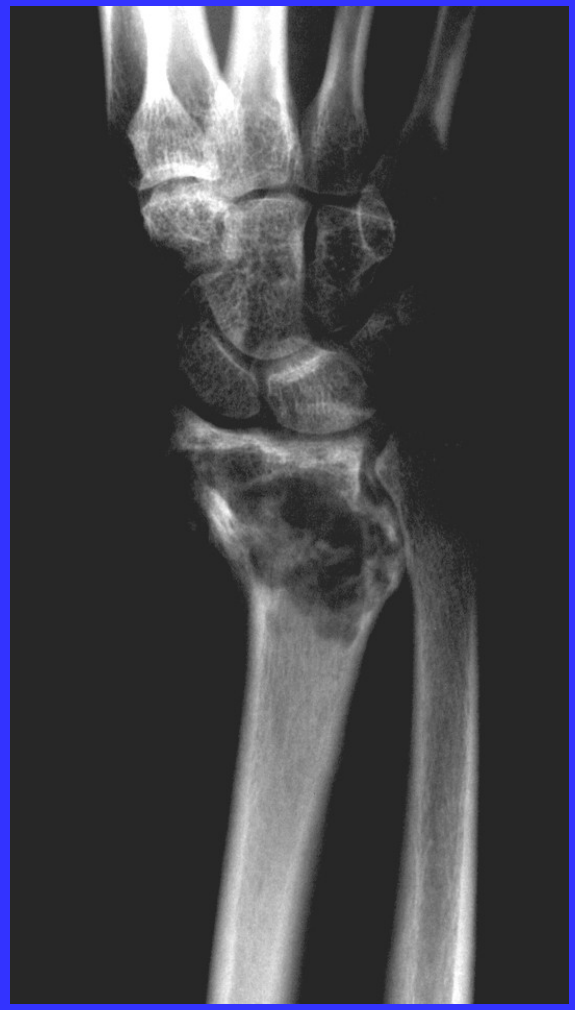
- 10-50 years
- Short bones
- central, periostal, juxtacortical
- swelling
- Enchondromatosis (Ollier), + hemangioma (Mafucci)
- Malignisation
- diff.dg.: Chondrosarcoma
- Th.- following

  curretage, resection



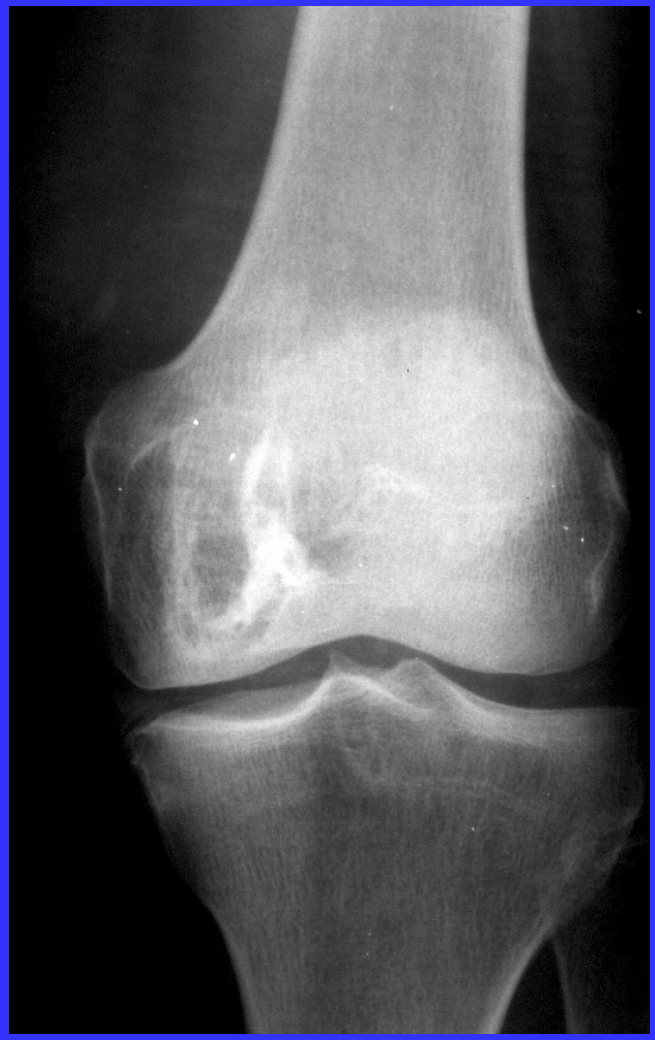
Nonossifiying fibroma

- In young adults
- Metaphysis of long bones
- solitary
- asymptomatic or aggressive expandig
- diff.dg. : eosinofilic granuloma, giant cell tumor
- Following, curretage + grafting



Lipoma

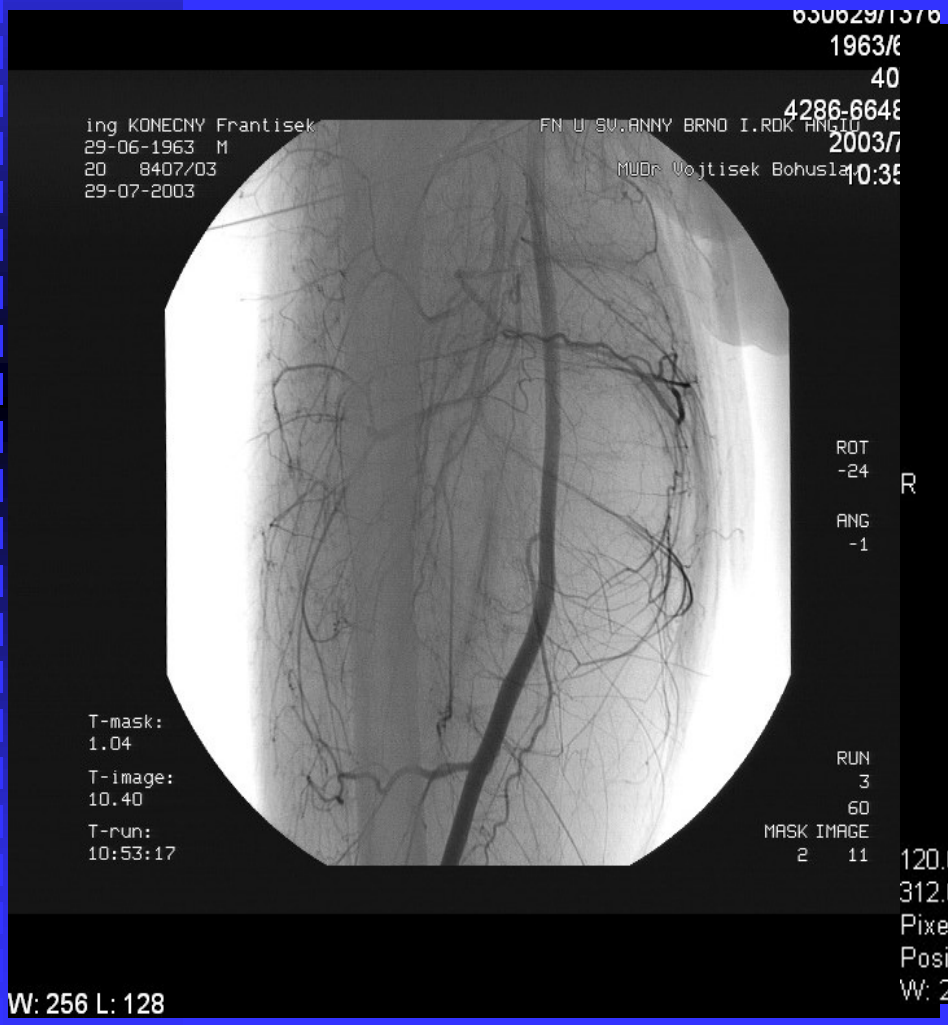
- Rarely in bone
- Extraskeletal localisation
- Asymptomatic
- Central or periostal
- Following, curretage



Benign soft tissue tumors

- Lipoma
- Fibrolipoma
- Desmoid
- Synovial chondromatosis
- Haemangioma
- Others

Lipoma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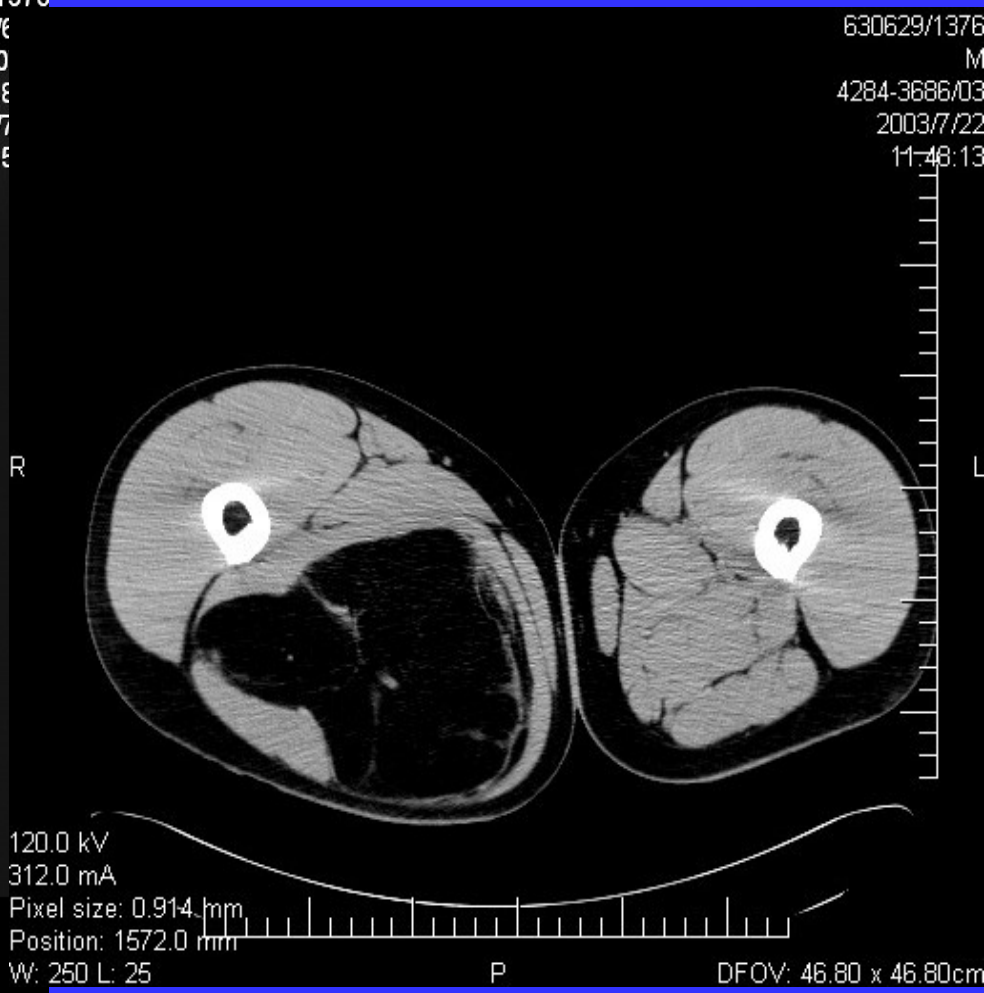
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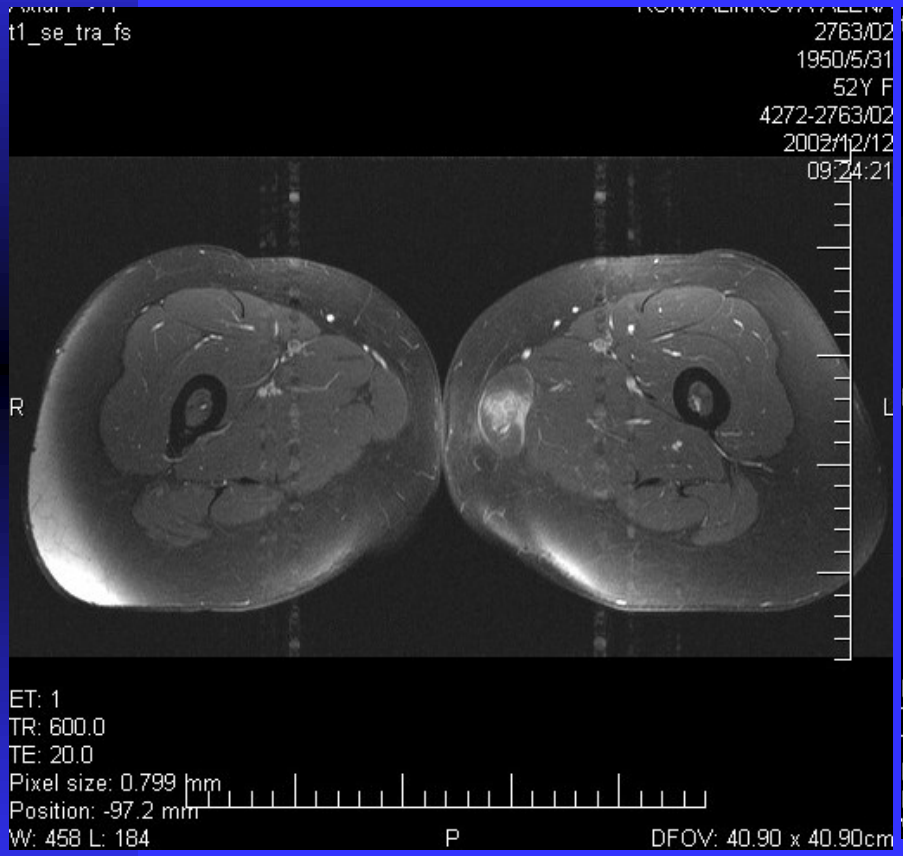
Desmoid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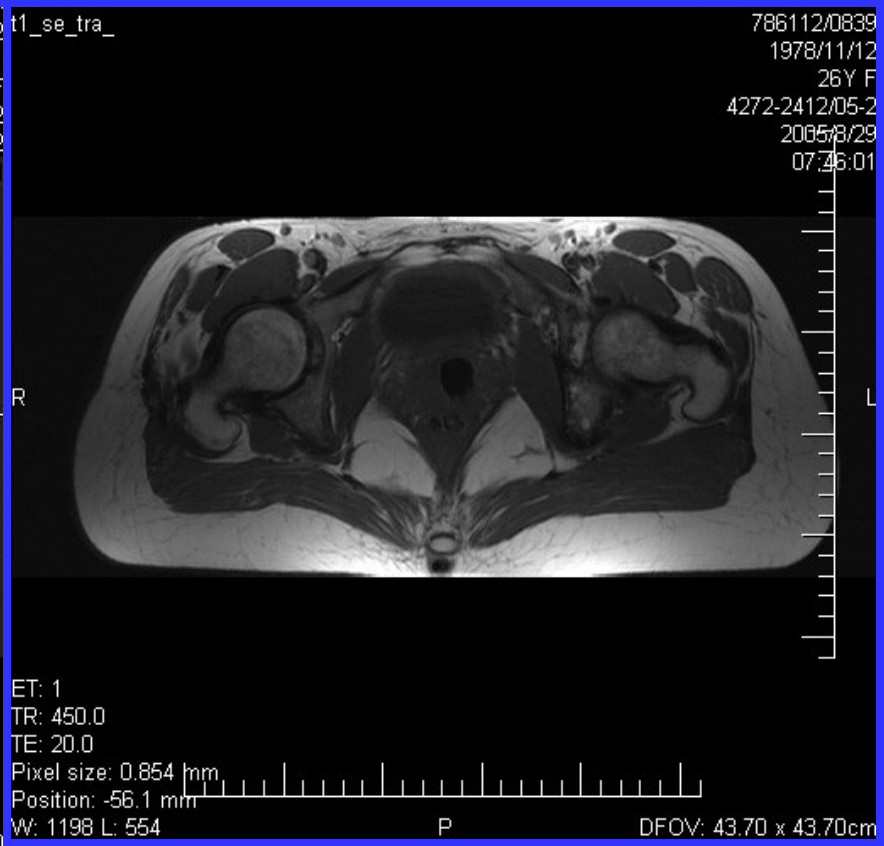
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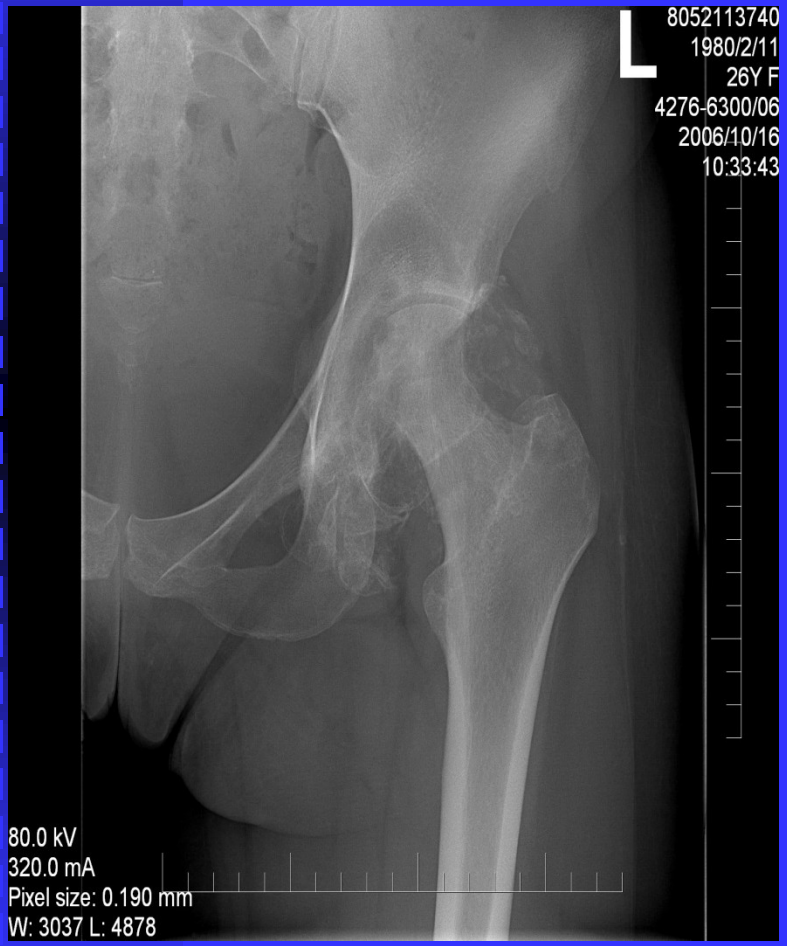
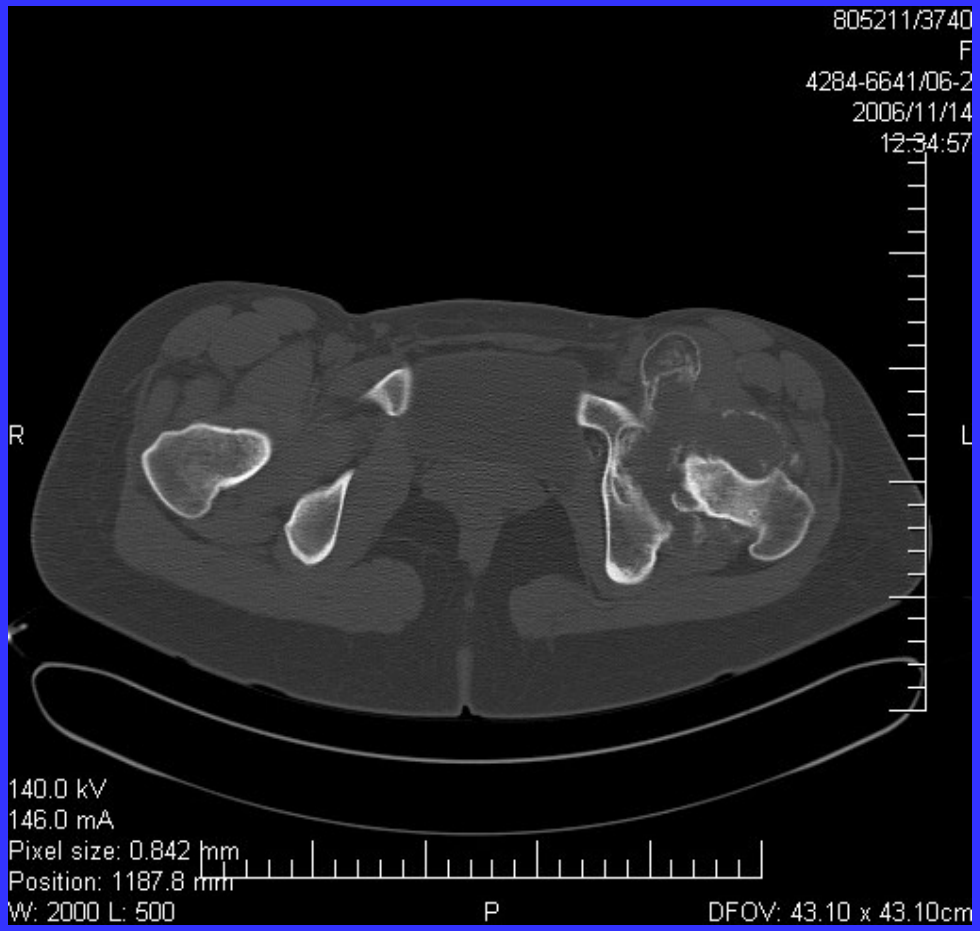
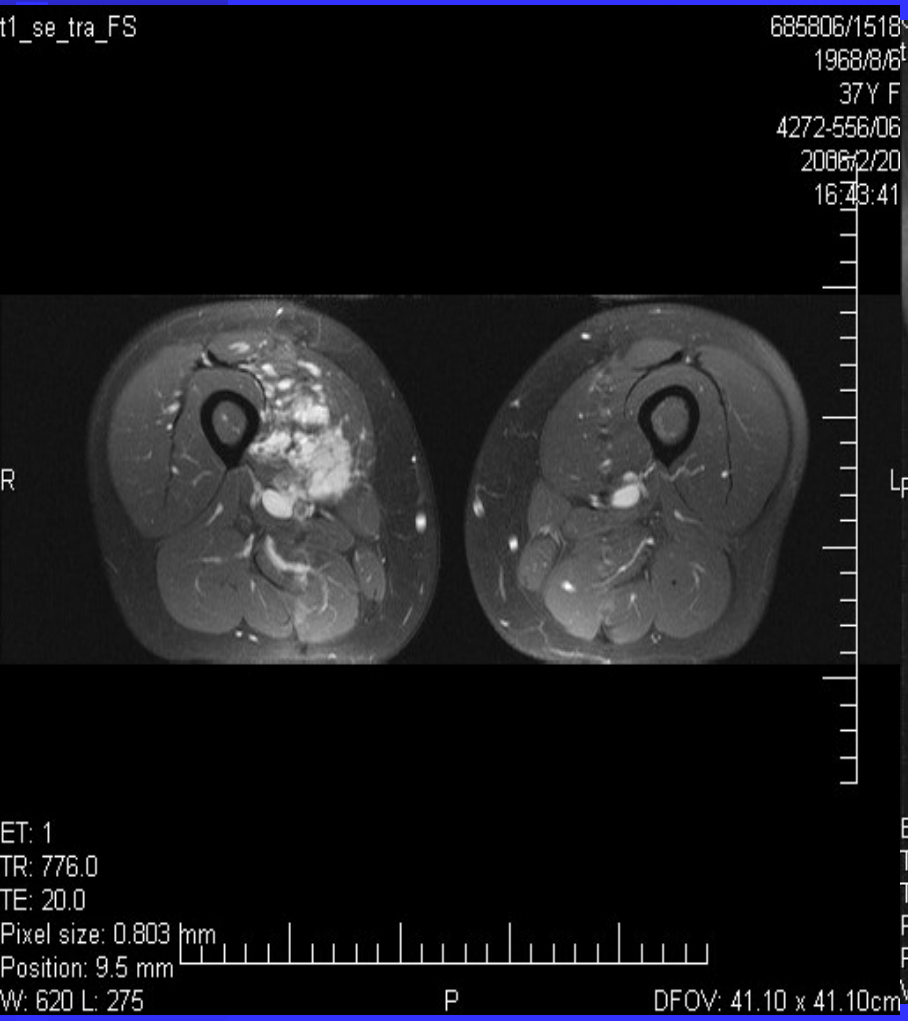
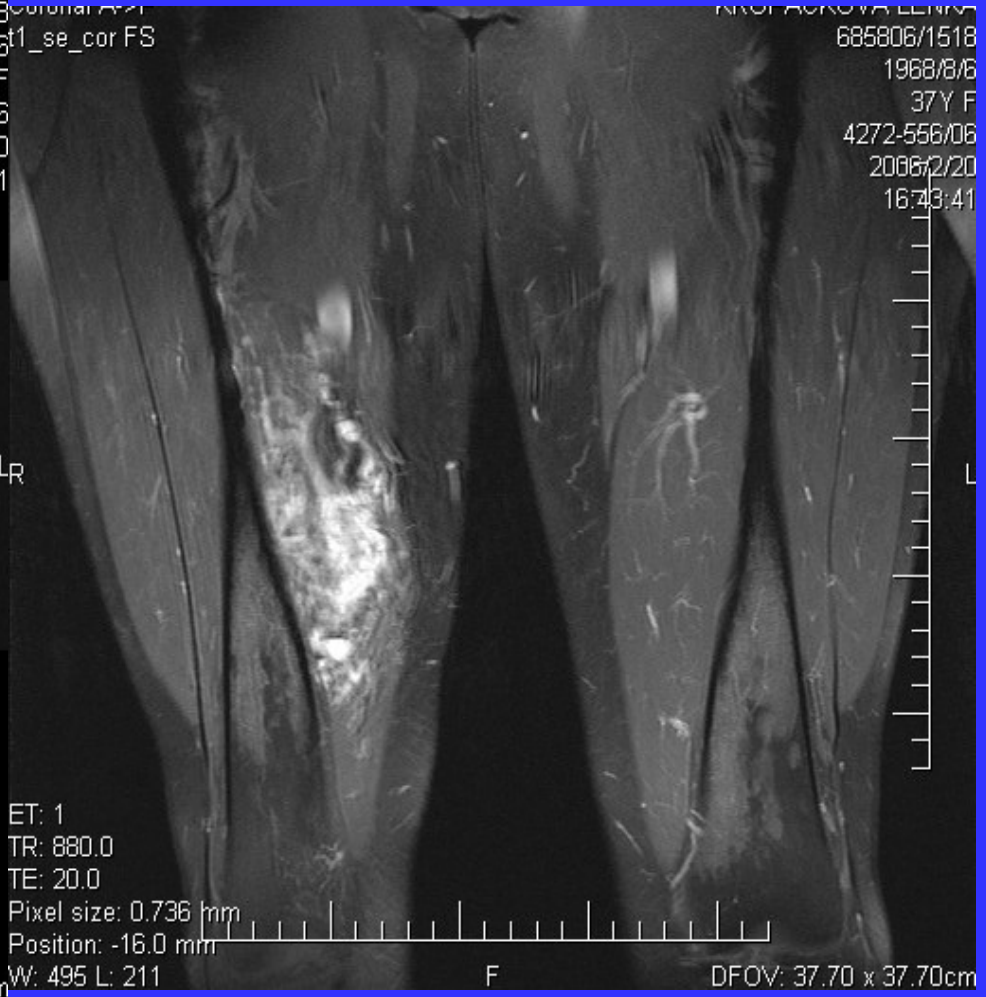
Synovial chondromatosis





Haemangioma



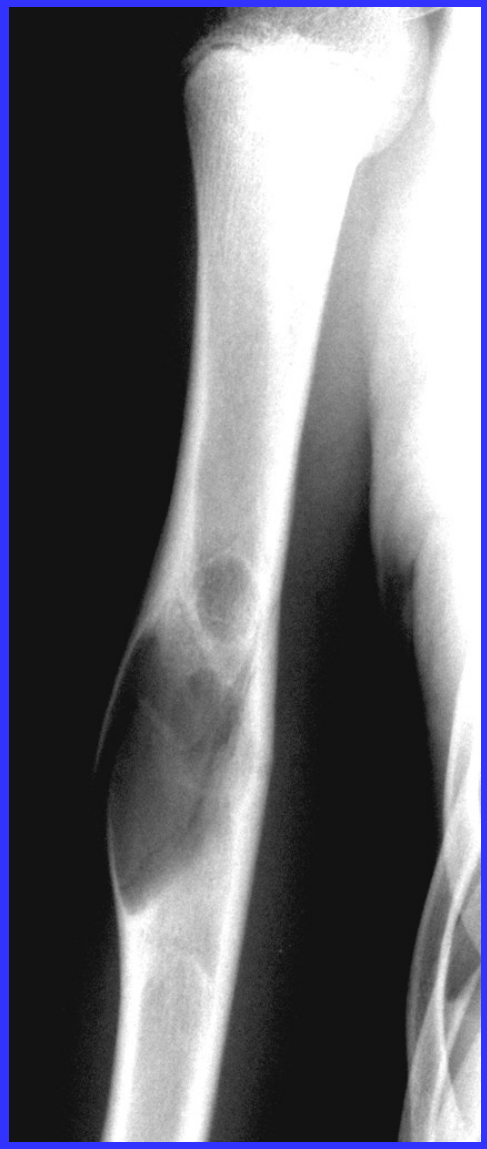


Tumor like lesions

- Juvenile bone cyst
- Aneurysmatical bone cyst
- Fibrous bone dysplasia
- Eosinofilic granuloma
- myositis ossificans
- Intraoseous gangliona
- hyperparathyroidism
- desmoid
- others

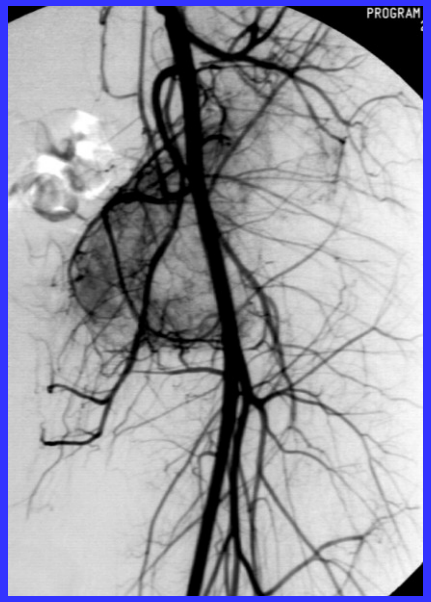
Juvenile bone cyst

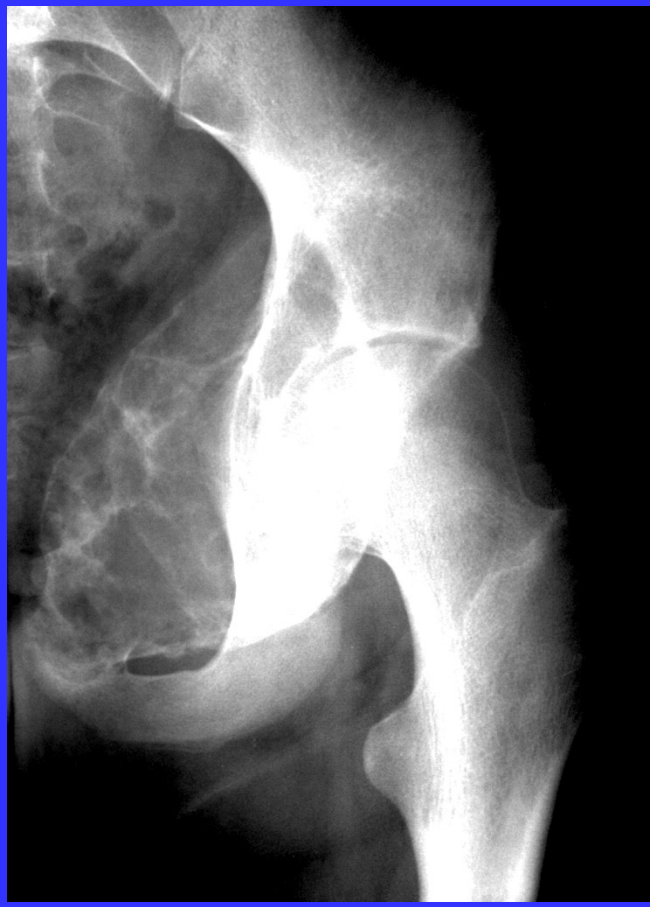
- In children
- humerus, femur
- No symptoms, pathological fracture
- X-ray- cystis lesion
- diff. dg: aneurysmatical bone cysts, eosinofilic granuloma
- Spontaneous healing
- Curretage + bone grafts
- Local coticoids
- Autologous bone marrow
- Healing after a fracture



Aneurysmatical bone cyst

- 5-30 years
- Every bone
- Pain, swelling
- Content – haemoragic fluid
- Diff. dg. osteosarcoma
- Resection, curretage + fenolisation + bone cement
- Embolisation, radiotherapy

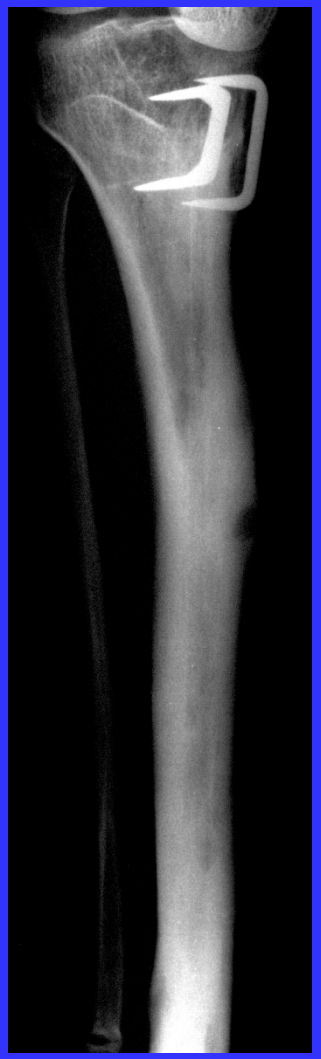




Fibrous dysplasia

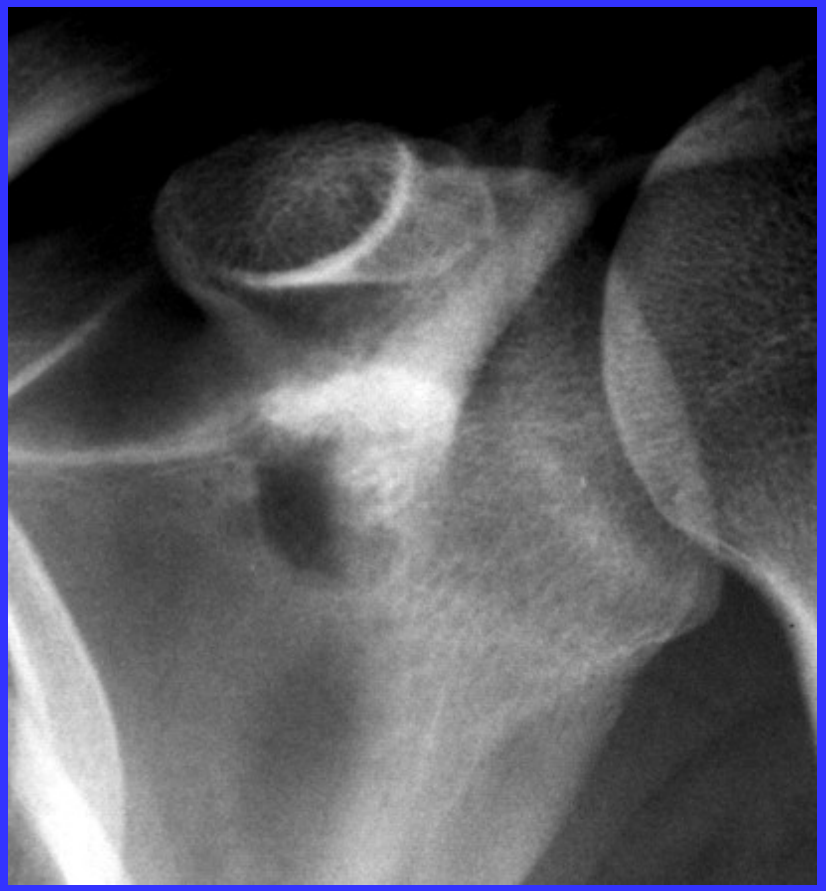
Jaffe-Lichtenstein disease

- Young adults
- Skull, femur, tibia, pelvis
- Monoostotic, polyostotic type (Albright syndrom)
- Mild pain, deformity
- X-ray shepherd´s stock, scintigraphy positive
- Diff. dg.: bone cyst, nonossifying fibroma, OSA
- malignisation (1%)
- Following, curretage



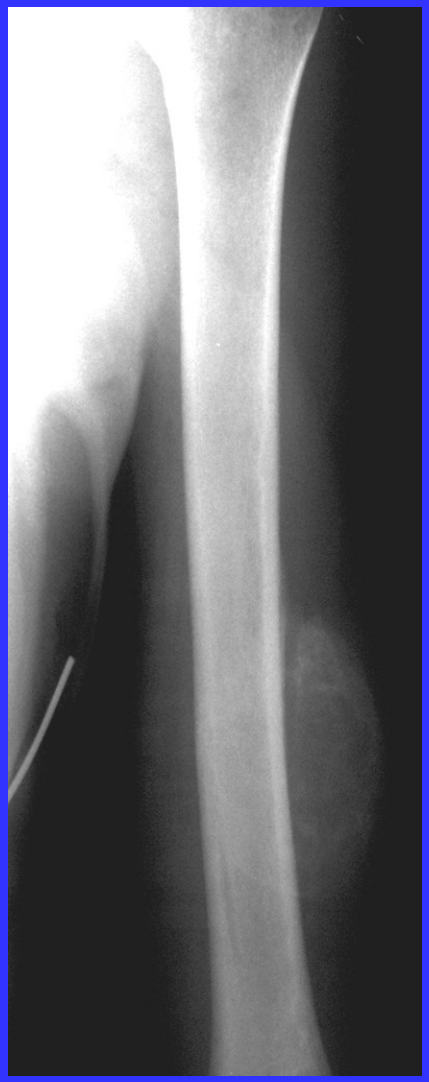
Eosinofilic granuloma

- Up to do 20 years
- Skull, ribs, femur
- Solitary or polyostotic
- histiocytosis X (Letterer-Siwe, Hand-Schűller-Christian)
- Mild pain, swelling
- Diff. Dg. : Ewing sarcoma, osteomyelitis
- Self limiting process
- Following, curretage

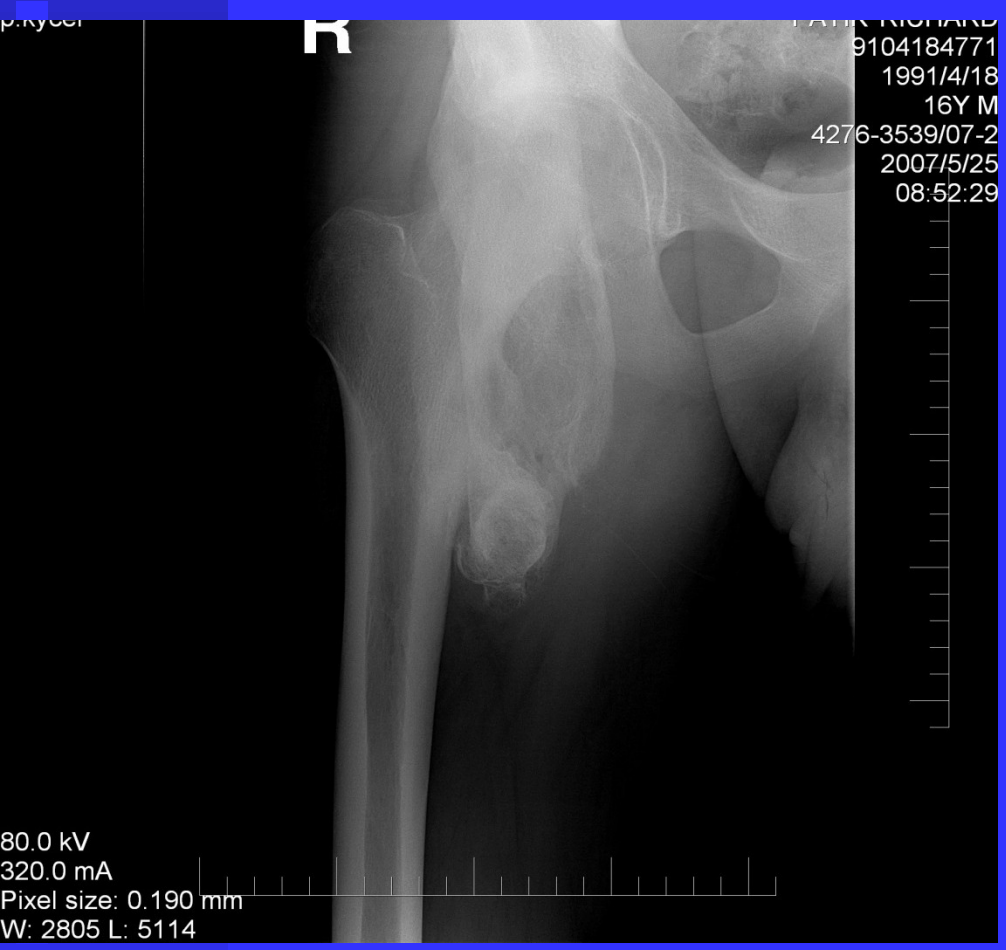


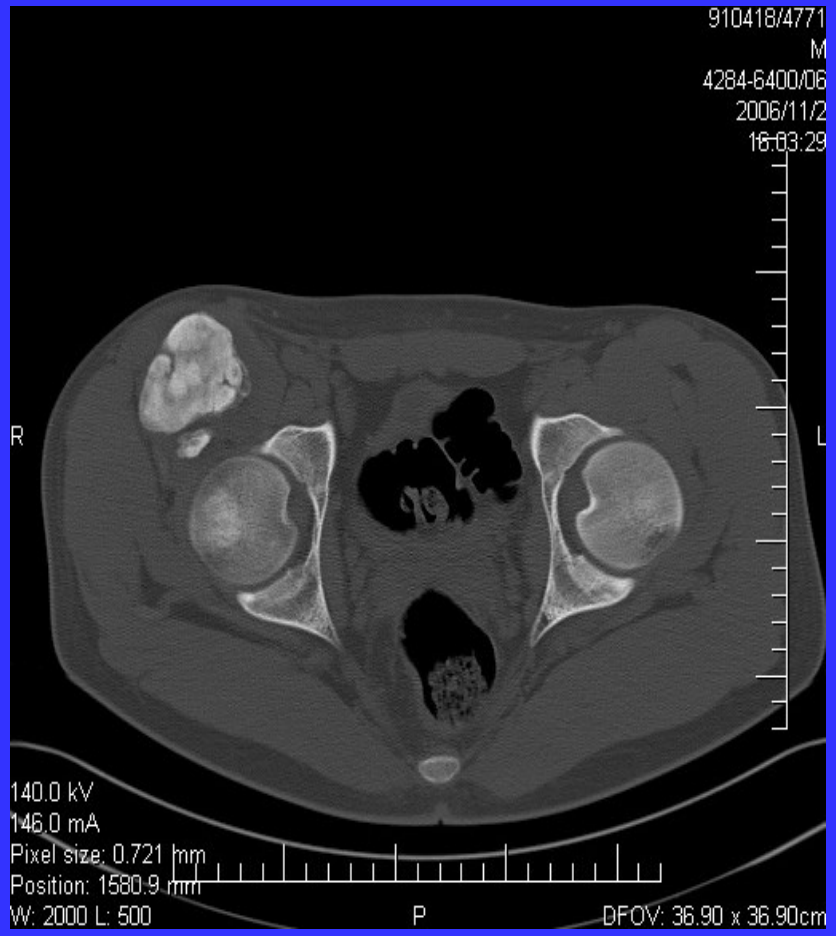
Myositis ossificans

- Any age
- trauma, idiopathic, head injury
- Soft tissue along bones
- Swelling, limited movement
- X- ray finding, zonal features
- diff. dg.: OSA
- Following, resection



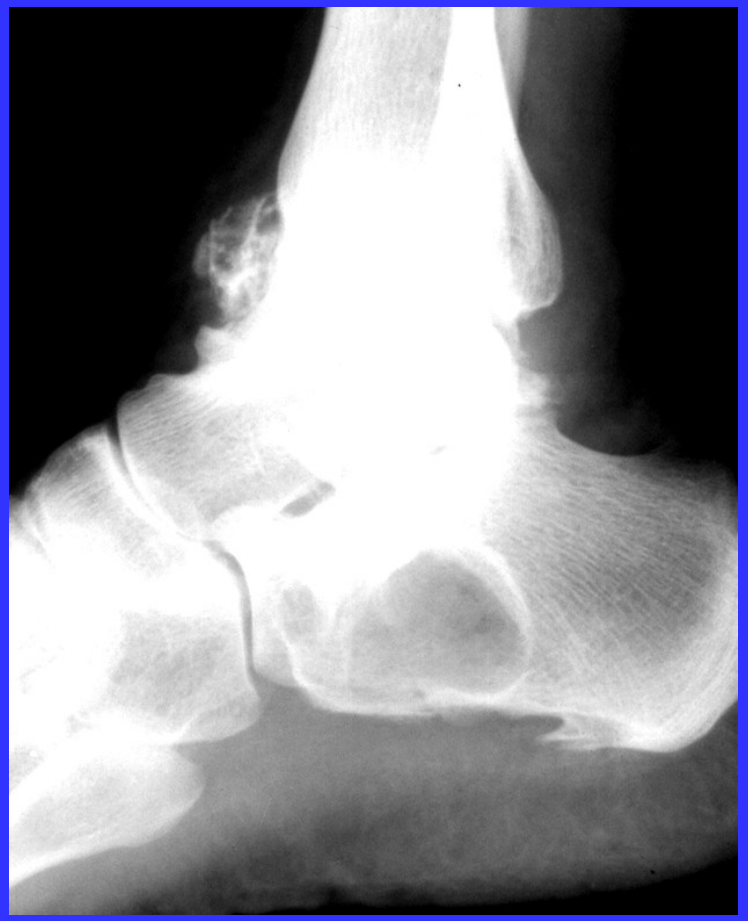
Myositis ossificans pseudomaligna





Intraoseous ganglion

- 20-60 years
- No symptoms, mild pain
- Diff. dg: chondroblastoma, enchondroma
- Following, curretage



Paget´s disease of bone

- Higher age
- Coarse trabeculae
- Osteolytic, mixed , osteoblastic phase
- Monoostotic, polyostotic form
- Pain, deformity, fracture, O.A.
- Malignisation (OSA, chondrosarcoma …)
- Following, bisphosphonates, calcitonin, surgery