Benign tumors

Classification

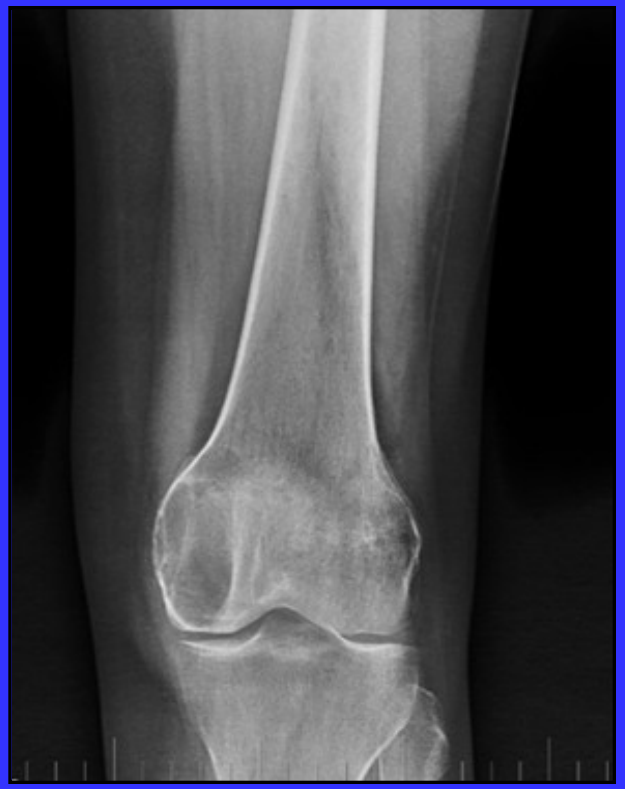
- **Bone tissue** (osteoma, osteoid osteoma, osteoblastoma)
- **Cartilage tissue** (chondroma, osteochondroma, chondroblastoma, chondromyxoid fibroma)
- **Fibrous tissue** (fibroma, fibrous histiocytoma)
- **Vascular tissue** (hemangioma, glomus tumor, hemangiopericytoma
- **Adipous tissue** (lipoma)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

Surgical staging system (Enneking)

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

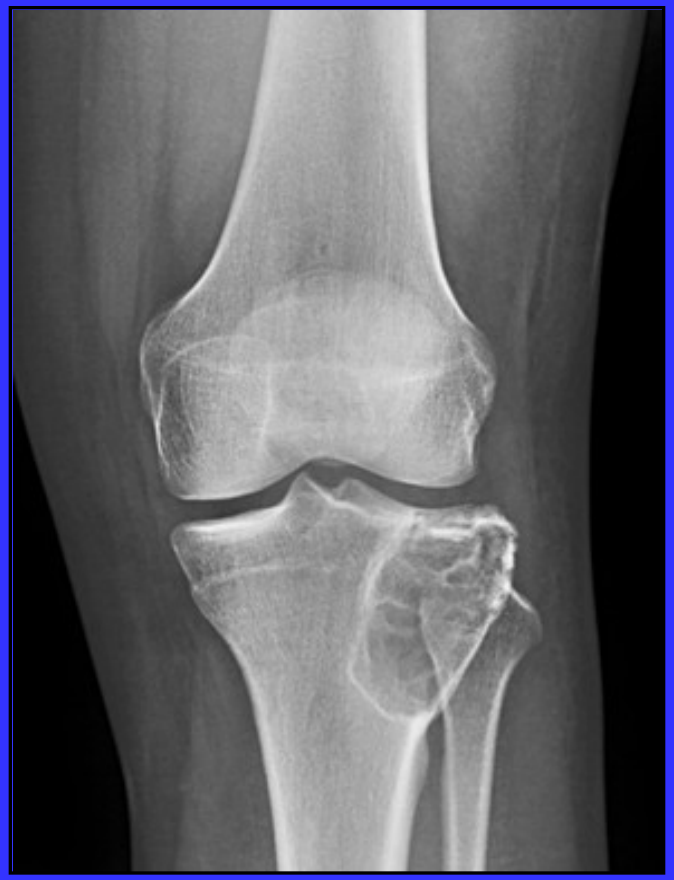
Grade 1 - latent

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



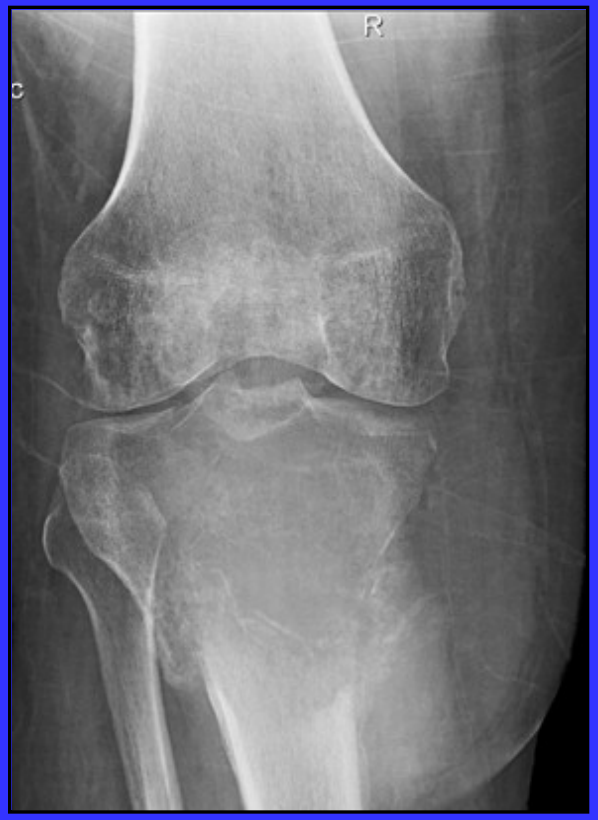
Grade 2 - active

- 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

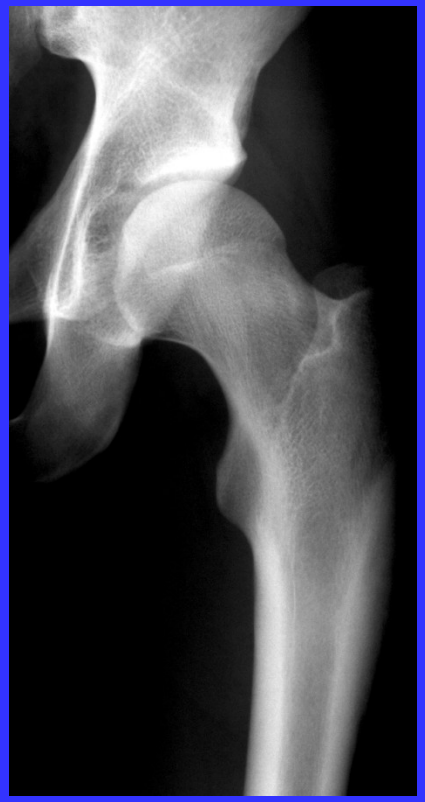


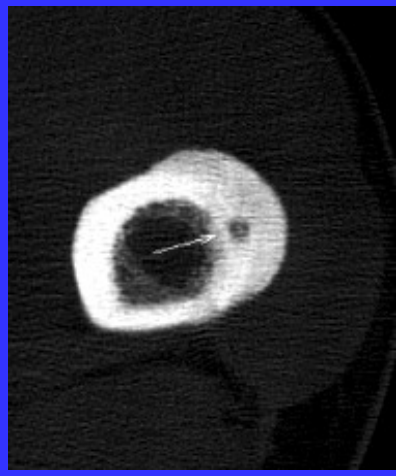
Benign bone tumors

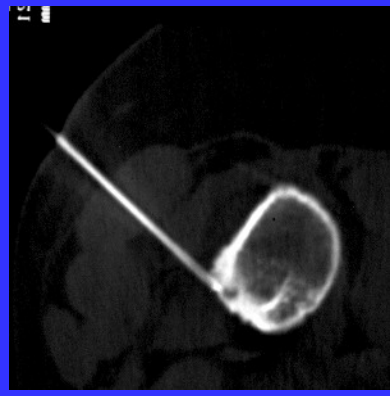
- osteoid osteoma
- osteoblastoma
- chondroblastoma
- chondromyxoid fibroma
- osteoclastoma
- fibroma
- osteochondroma
- chondroma

Osteoid osteoma

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

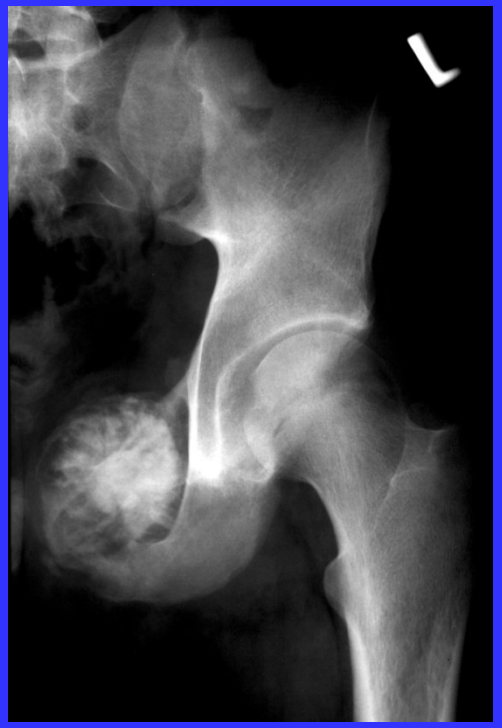


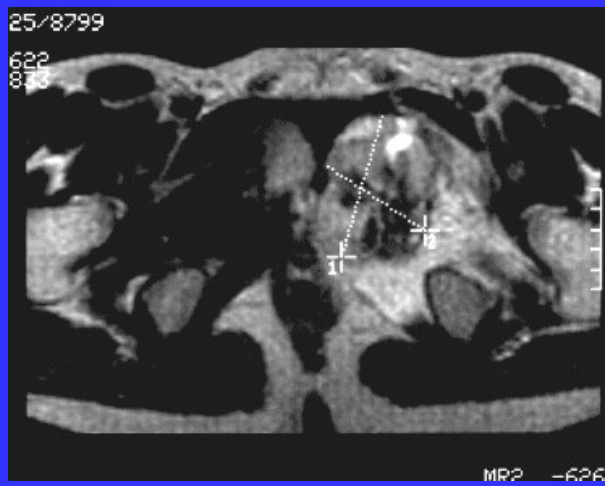


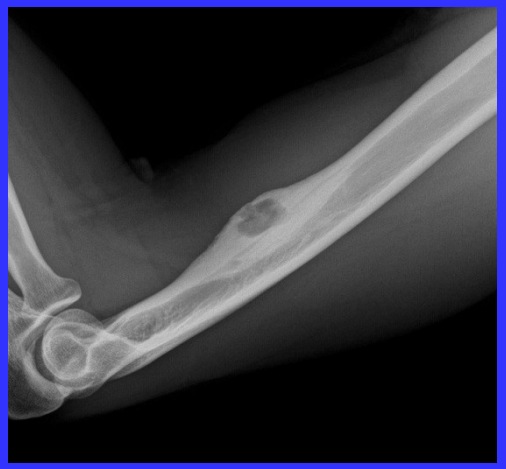


Osteoblastoma

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

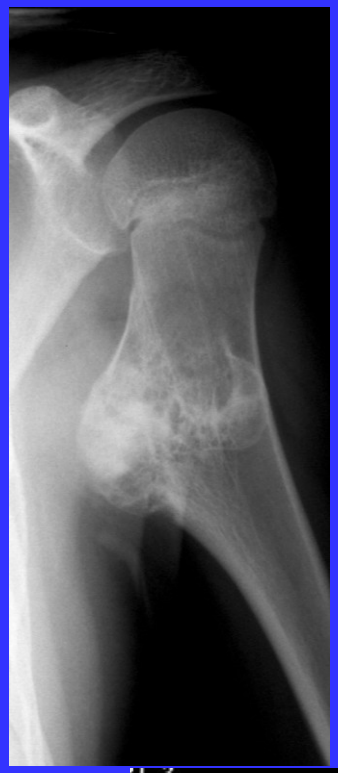


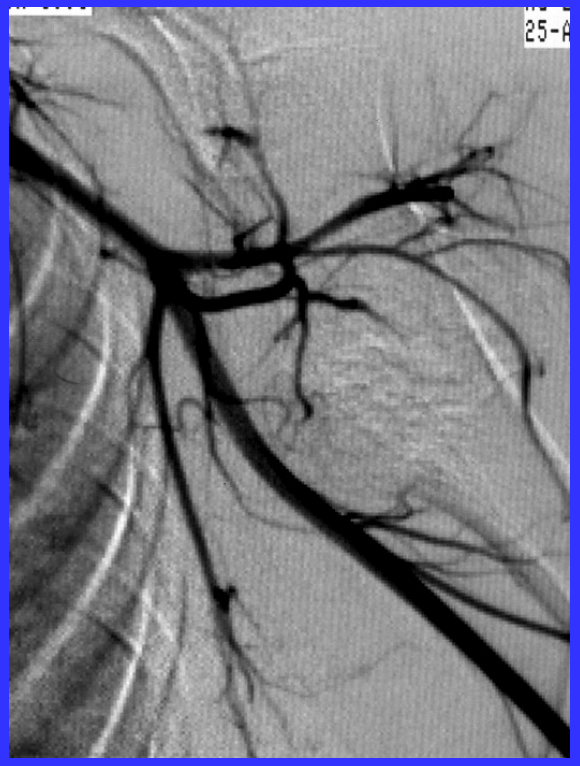


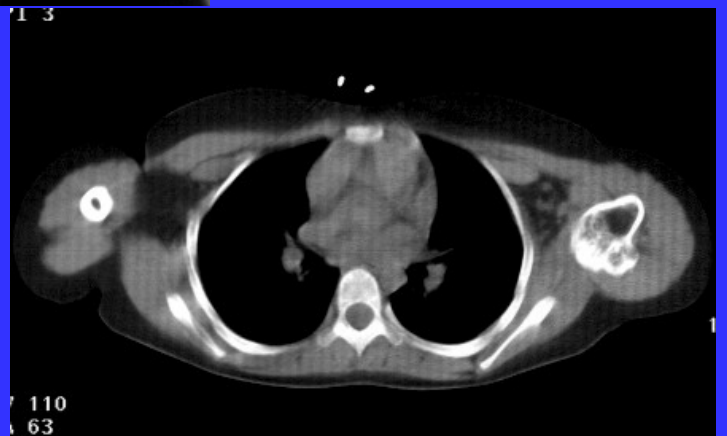


Osteochondroma

- 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



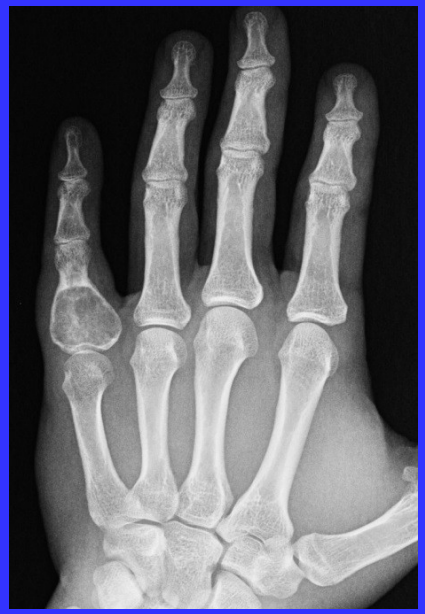


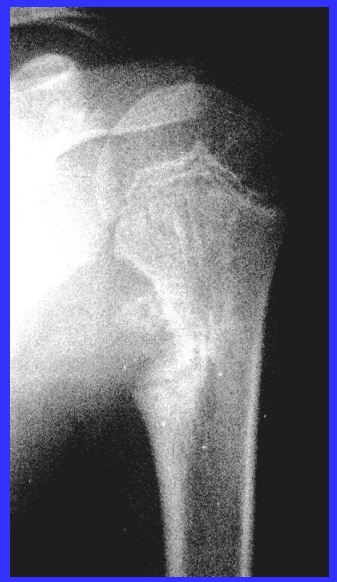


Chondroma

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

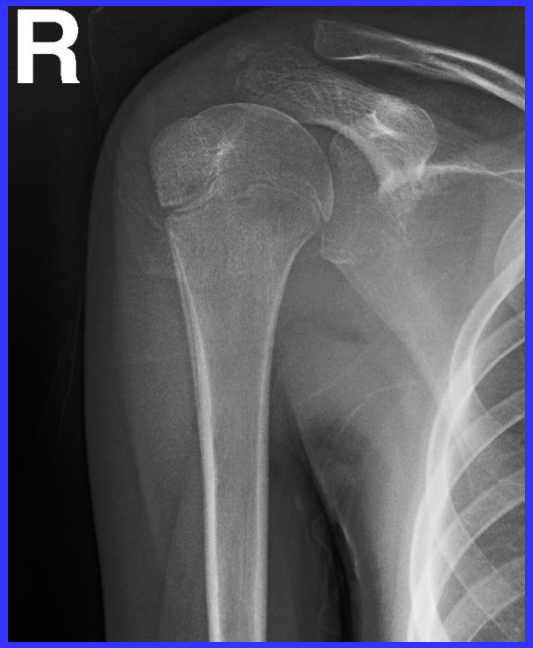
  curretage, resection

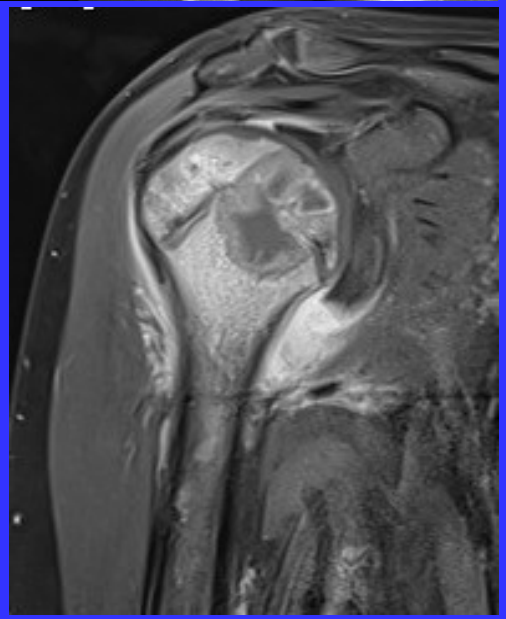




Chondroblastoma

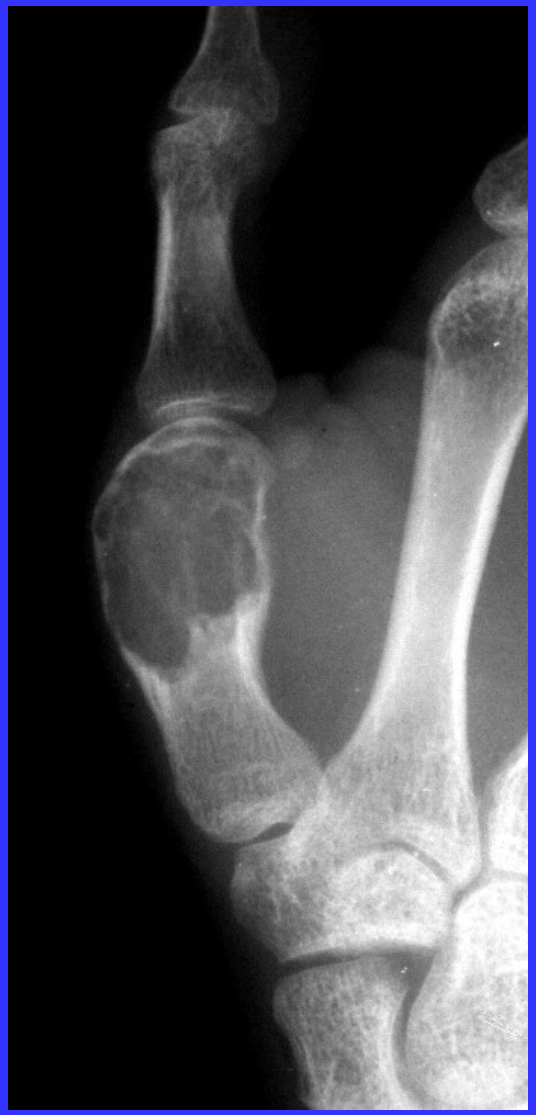
- 5-25 years
- Epiphysis, metaphysis
- solitary
- Pain, synovitis
- recurrence
- diff.dg. Osteoclastoma,. chondrosarcoma
- Curretage + bone grafting, resection





Chondromyxoid fibroma

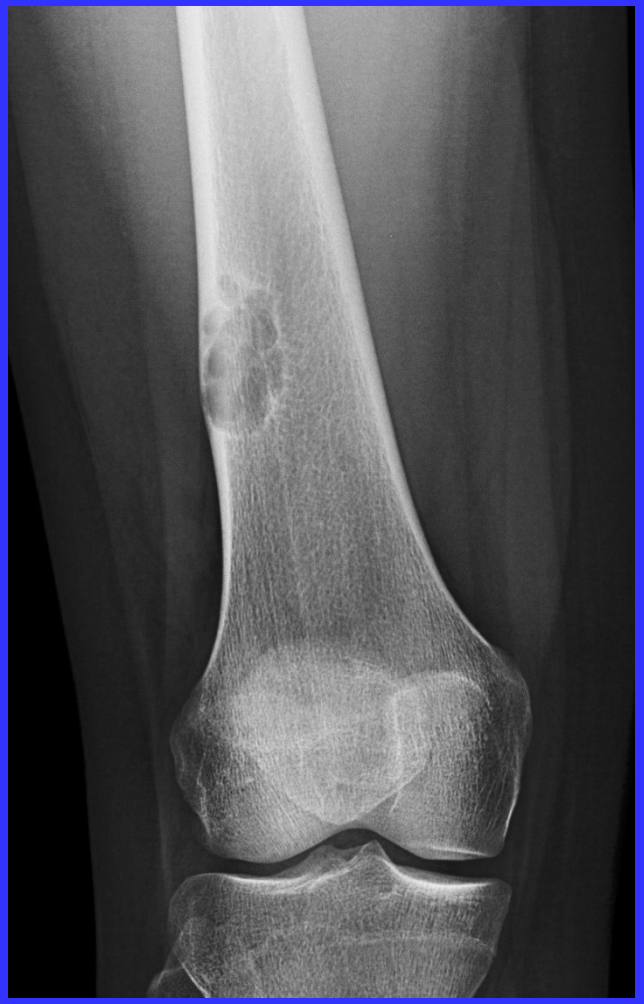
- metadiaphysis
- young adults
- solitary
- pain
- diff.dg. chondroblastoma, osteoclastoma, chondrosarcoma
- resection, curretage



Nonosifying fibroma

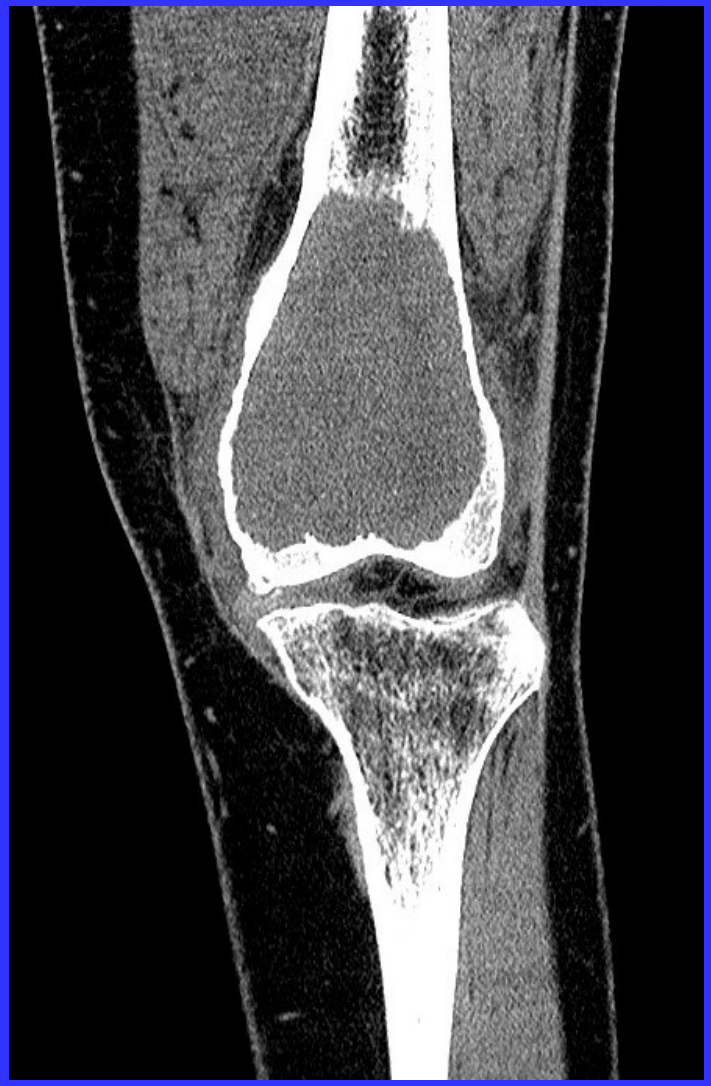
- In young adults
- Metaphysis of long bones
- solitary
- asymptomatic or aggressive expandig
- diff.dg. : eosinofilic granuloma, giant cell tumor
- Following

  curretage + grafting



Giant cell tumor - osteoclastoma

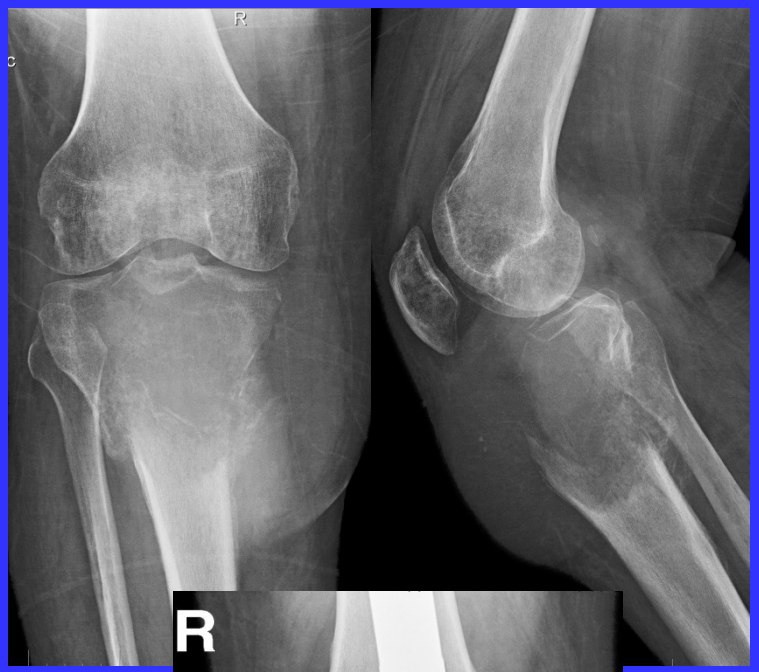
- 15-50 years
- Epimetaphysis, femur, tibia
- solitary
- Pain, swelling, fracture
- Benigne type
- Malignant type
- diff. dg.: aneurysmatical bone cyst, HPT

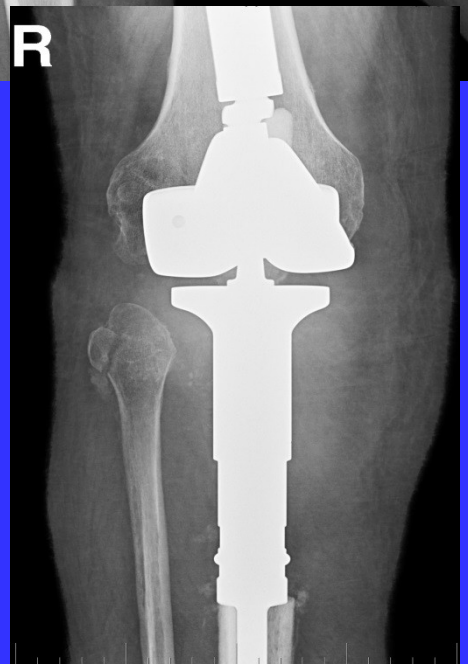


Giant cell tumor

- X ray, CT, MR, scintigrafy
- CT of the lungs
- Curretage + (fenolum, ethanolum, argon)
  + grafting + bone cement

III. grade: denosumab +
resection + endoprosthesis



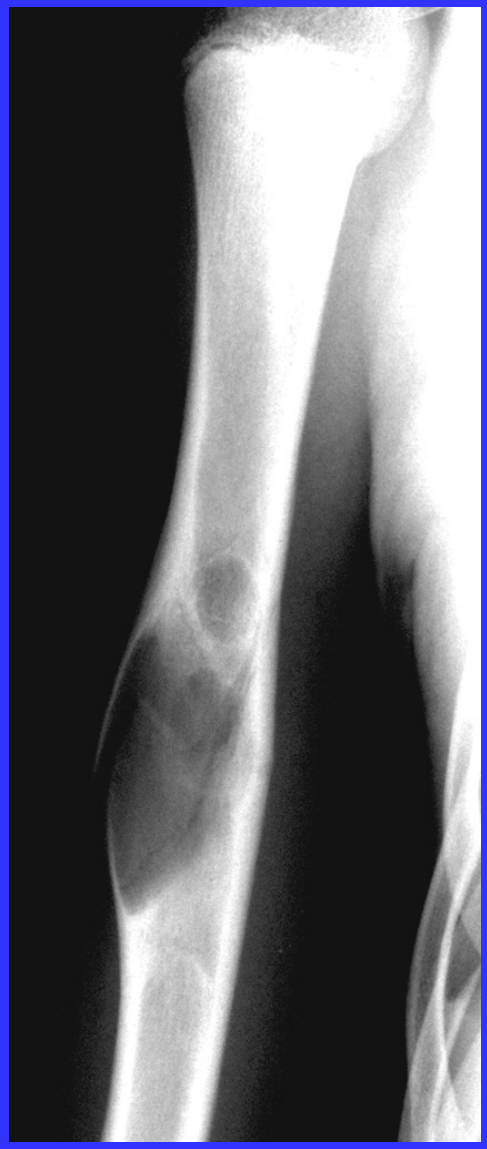


Tumor like lesions

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

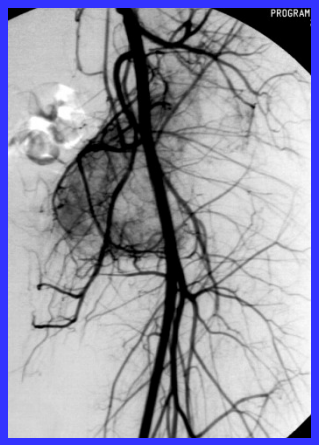
Juvenile bone cyst

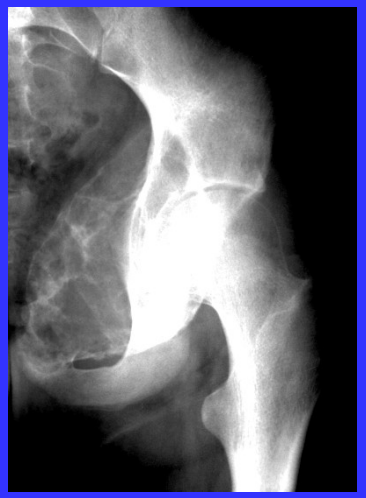
- In children
- humerus, femur
- No symptoms, pathological fracture
- X-ray- cystis lesion
- diff. dg: aneurysmatical bone cysts, eosinofilic granuloma
- Spontaneous healing
- Curretage + bone grafts
- Local coticoids
- Autologous bone marrow
- Healing after a fracture

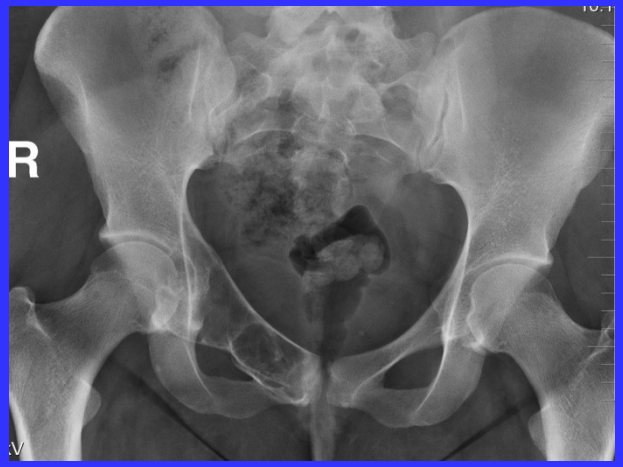


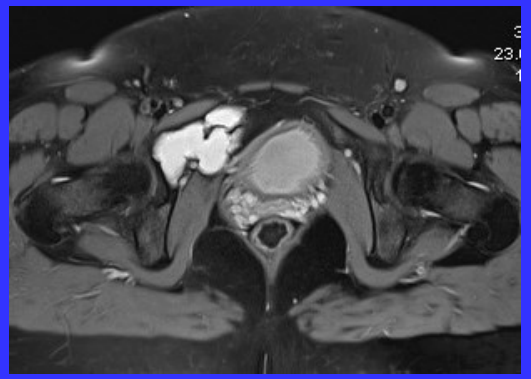
Aneurysmatical bone cyst

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



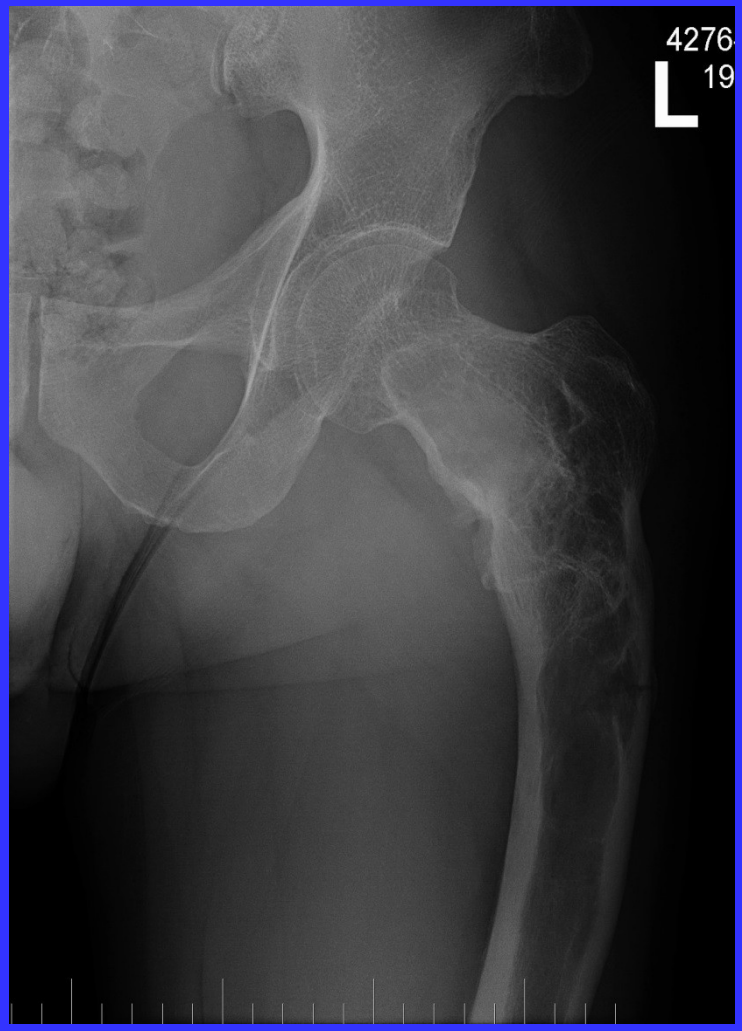






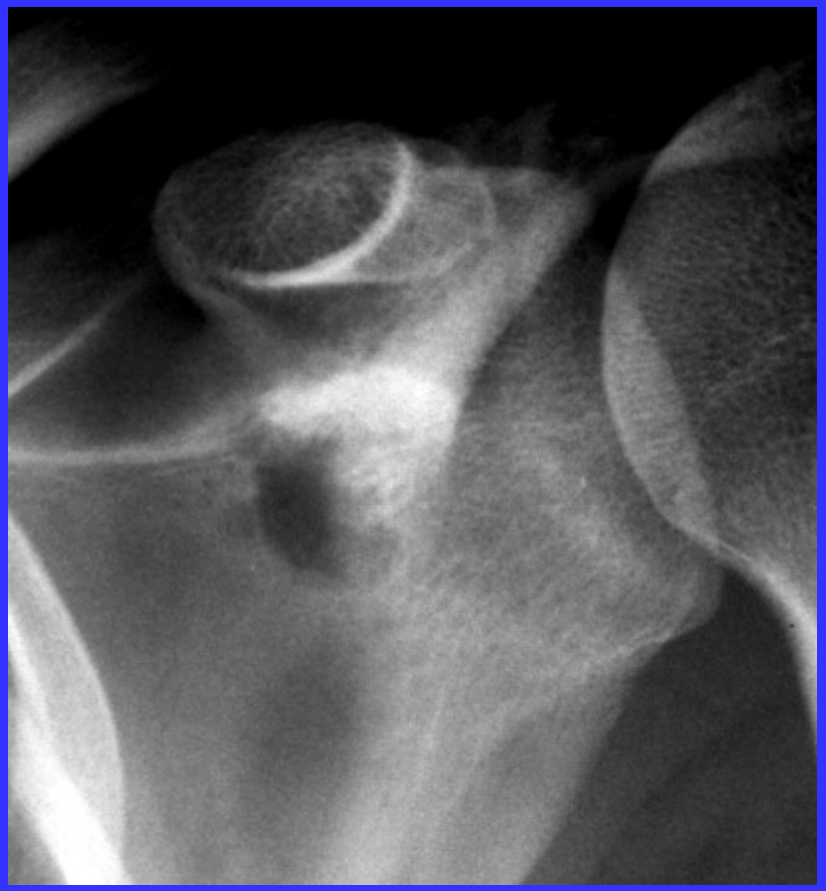
Fibrous dysplasia

- Young adults
- Mono and polyostotic
- Deformity of the bone
- X ray, CT scann
- diff. dg.: bone cyst, osteosarcoma
- malignisation (1%)
- Follow up, curretage, bone grafting



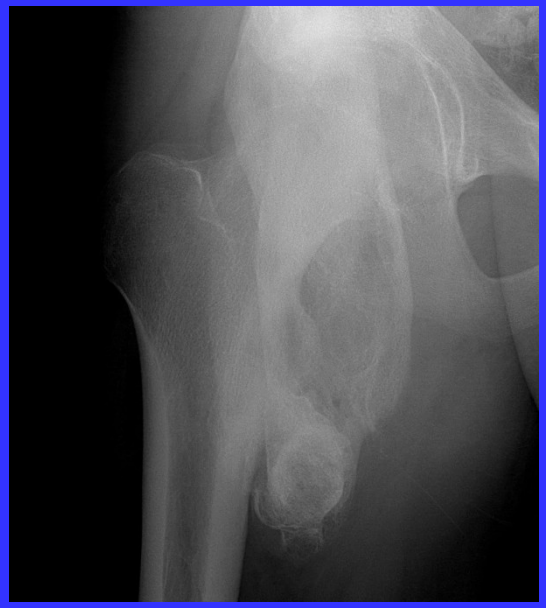
Eosinofilic granuloma

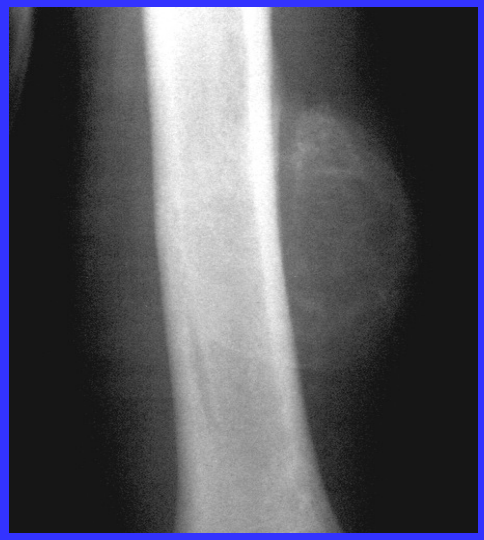
- Up to do 20 years
- Skull, ribs, femur
- Solitary or polyostotic
- histiocytosis X (Letterer-Siwe, Hand-Schűller-Christian)
- Mild pain, swelling
- Diff. Dg. : Ewing sarcoma, osteomyelitis
- Self limiting process
- Following, curretage

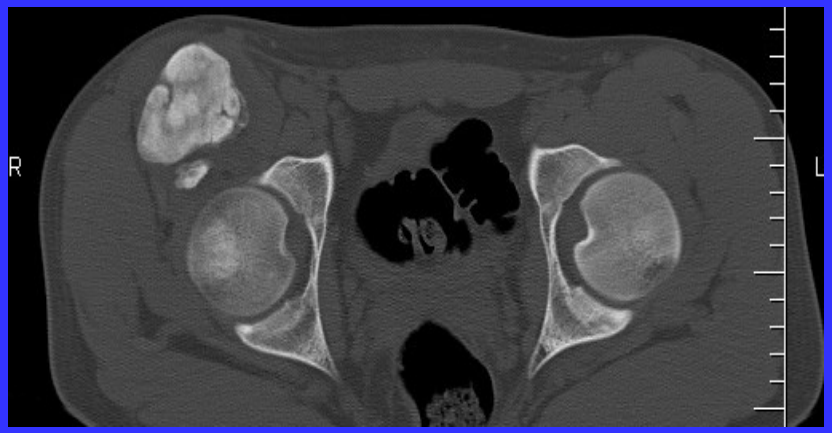


Myositis ossificans

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

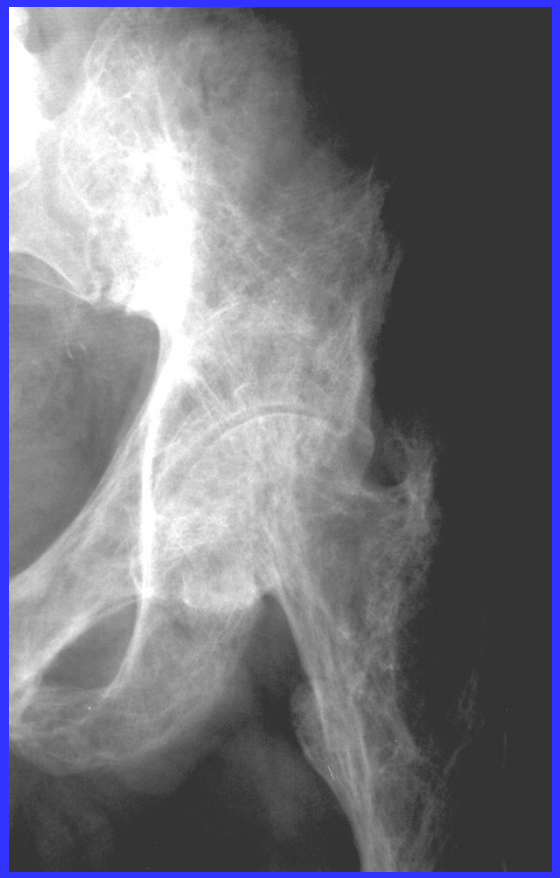






Paget´s disease of bone

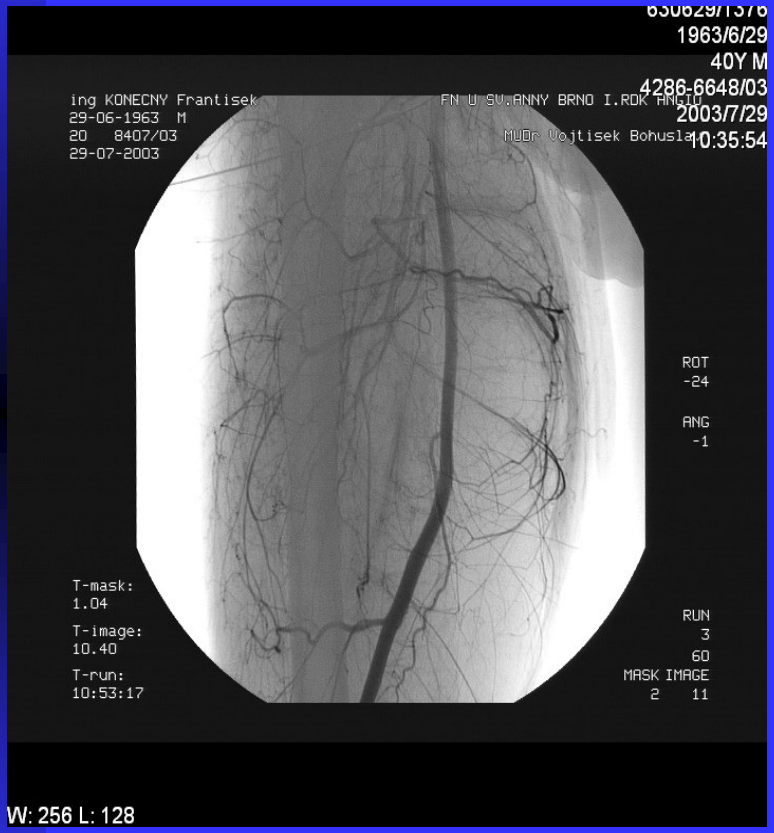
- Higher age
- Coarse trabeculae
- Osteolytic, mixed , osteoblastic phase
- Monoostotic, polyostotic form
- Pain, deformity, fracture, O.A.
- Malignisation (OSA, chondrosarcoma …)
- Following, bisphosphonates, calcitonin, surgery



Benign soft tissue tumors

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

Lipoma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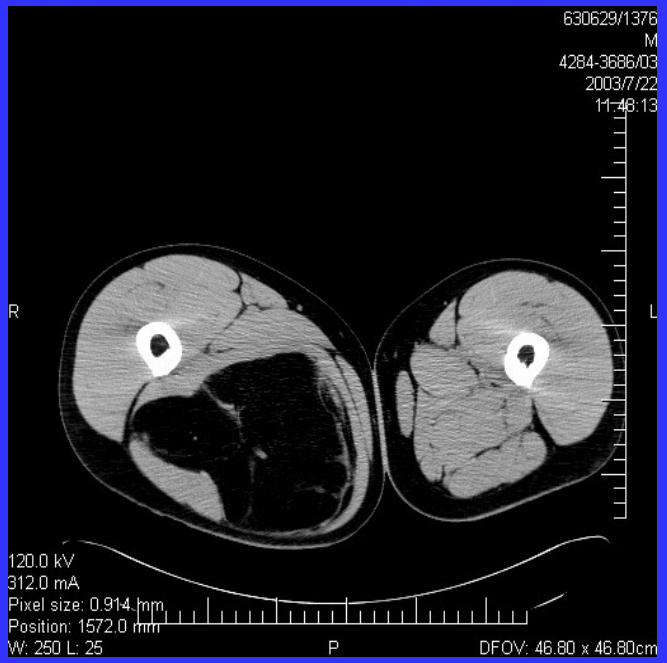
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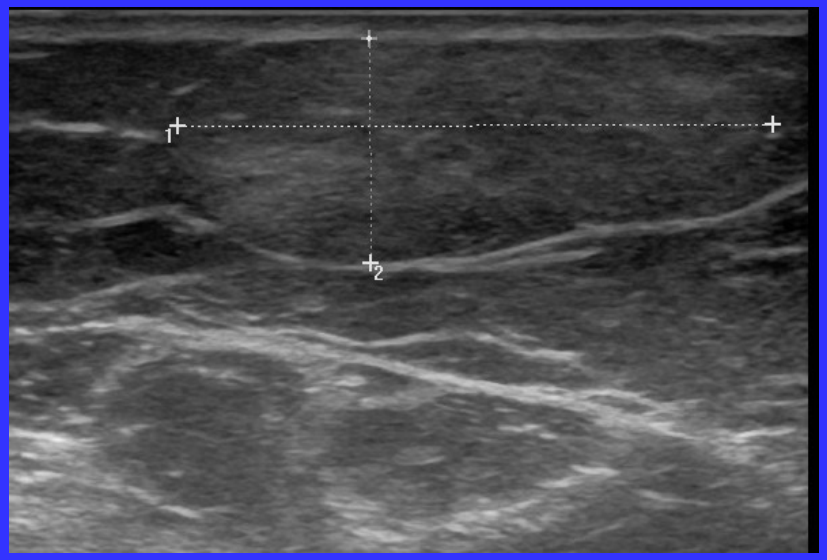
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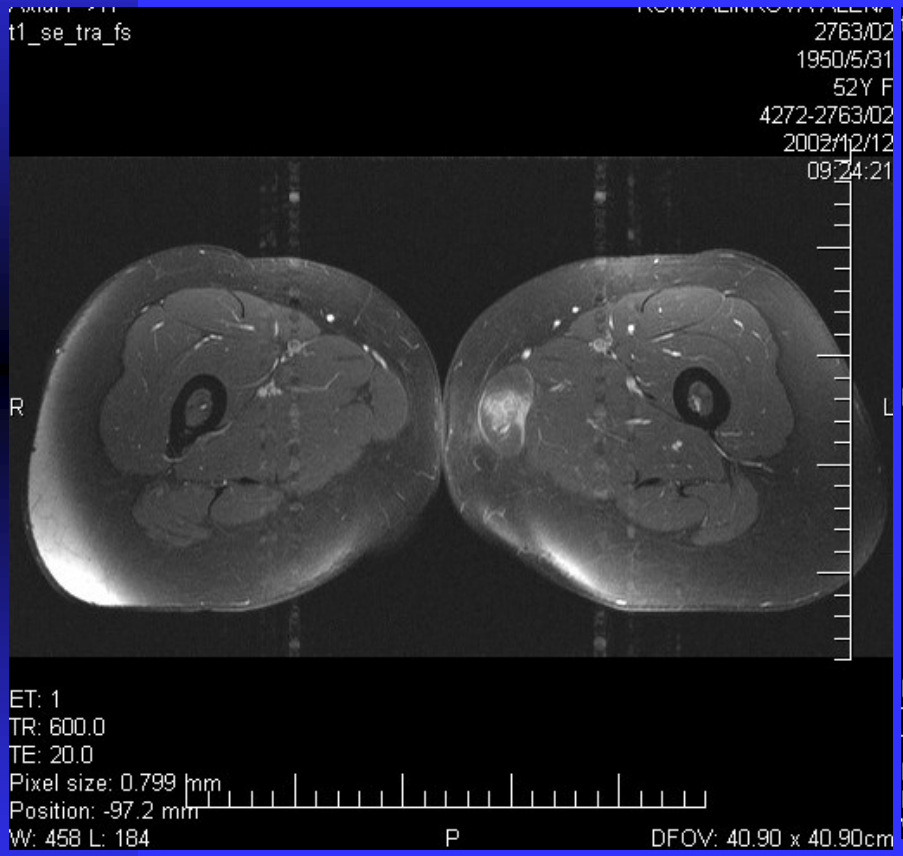
Desmoid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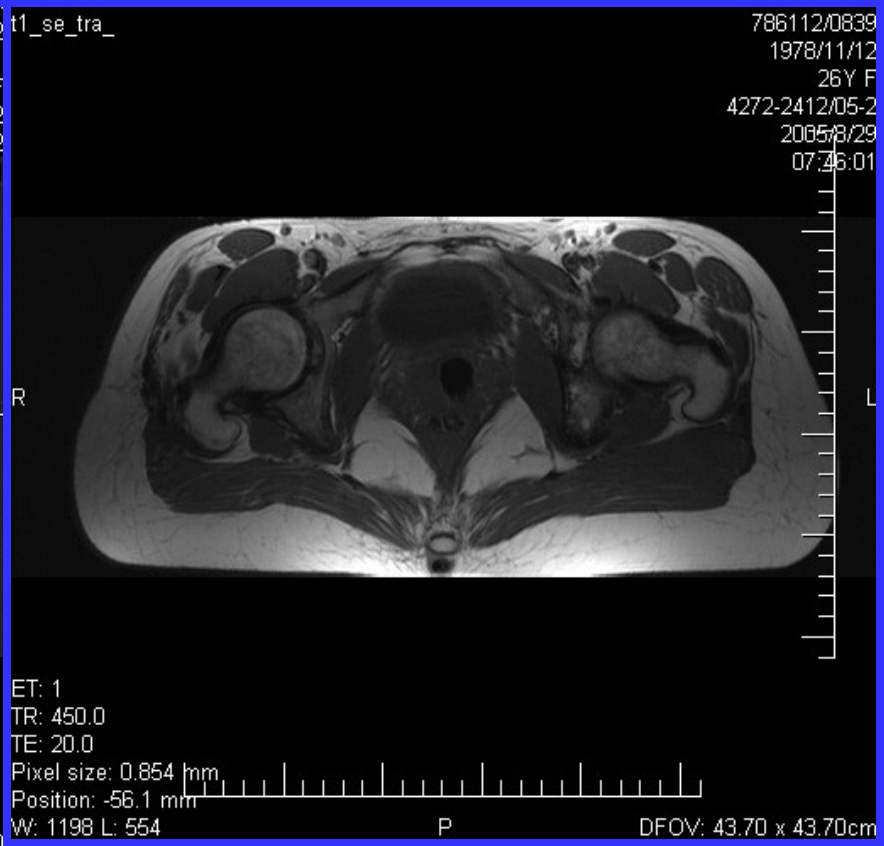
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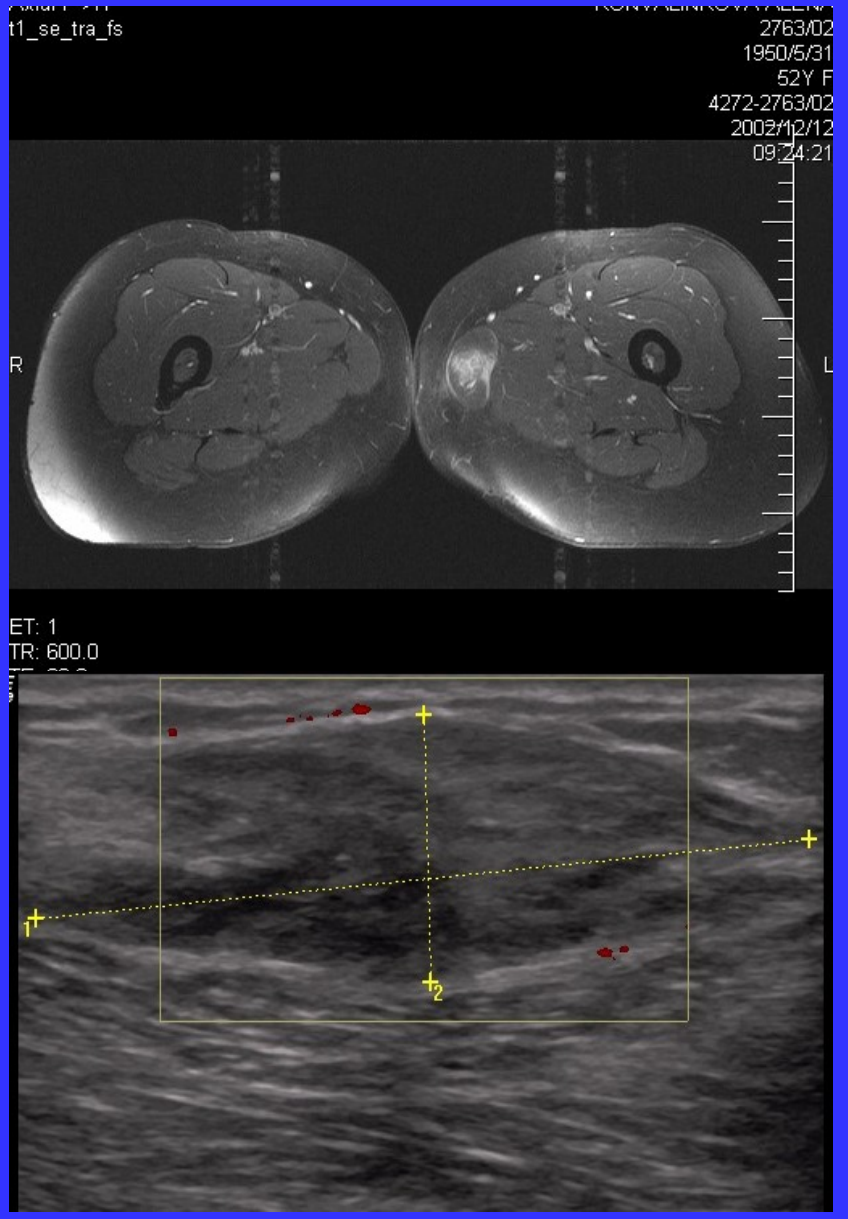
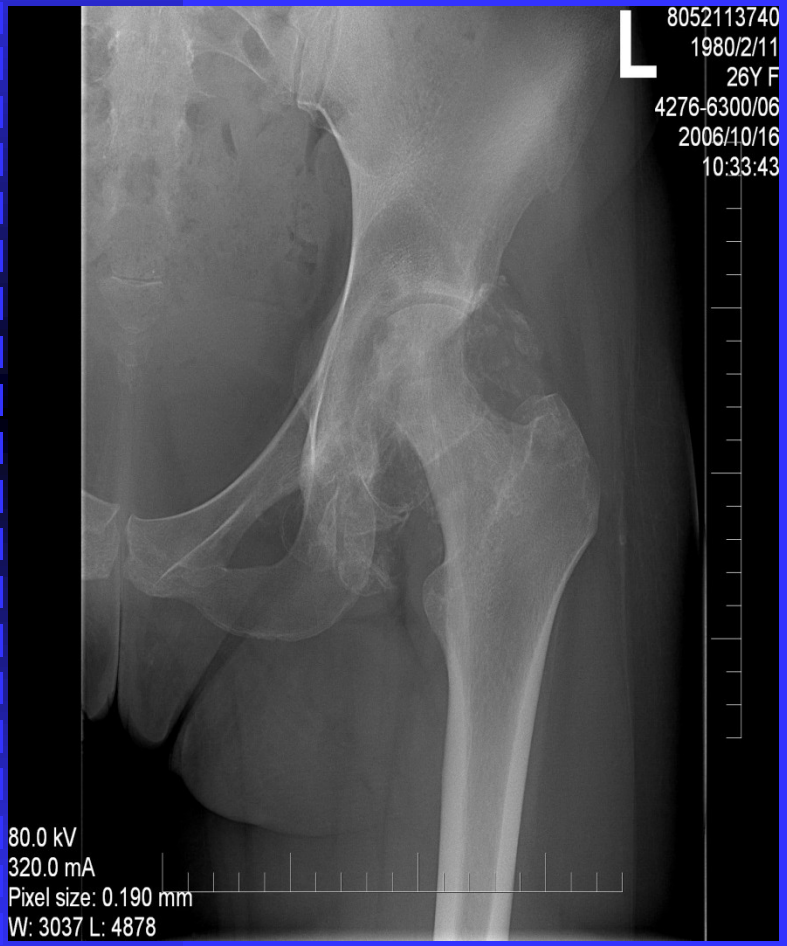
TR: 450.0
TE: 20.0
Pixel size: 0.854 mm
Position: -56.1 mm
W: 1198 L: 554
P
DFOV: 43.70 x 43.70cm

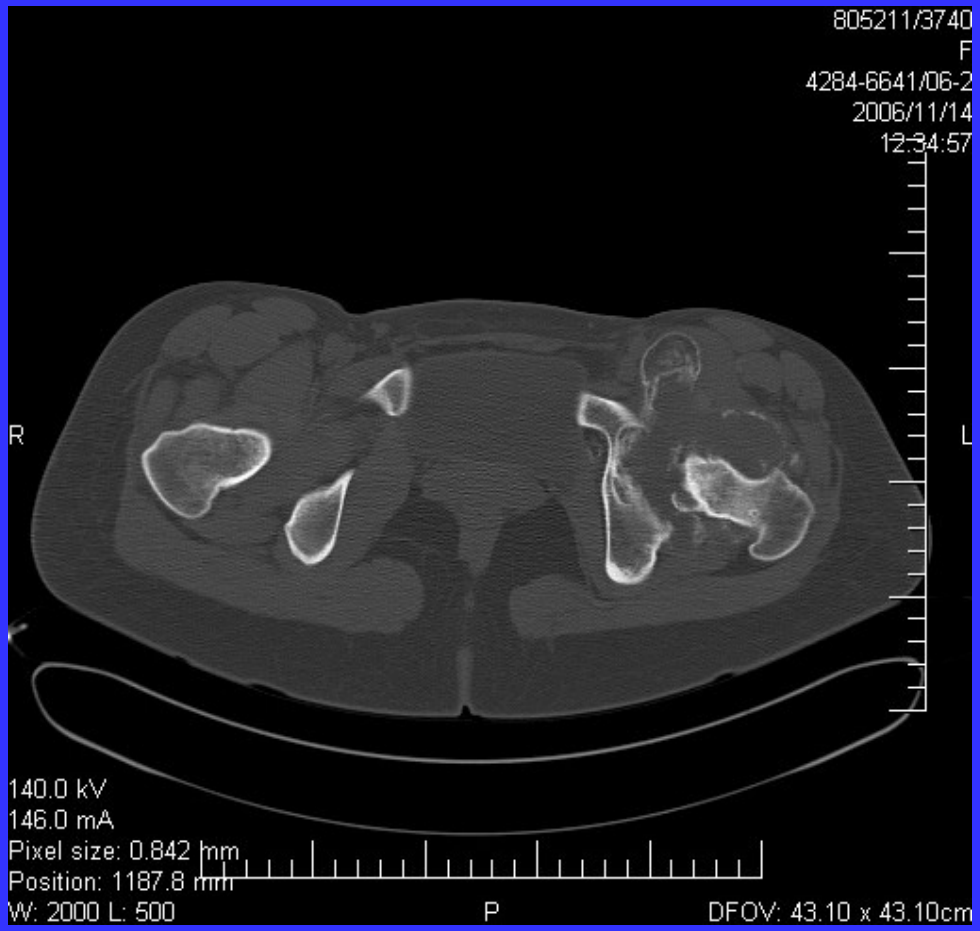
Desmoid

- 15 – 40 let
- hluboko uložený
- infiltrativní růst
- častý výskyt lokálních recidiv
- Sono, MR
- diff. dg. Fibrosarkom
- Th.: sledování, biologická léčba, nízkodávkovaná chemoterapie, široká resekce pokud je možná

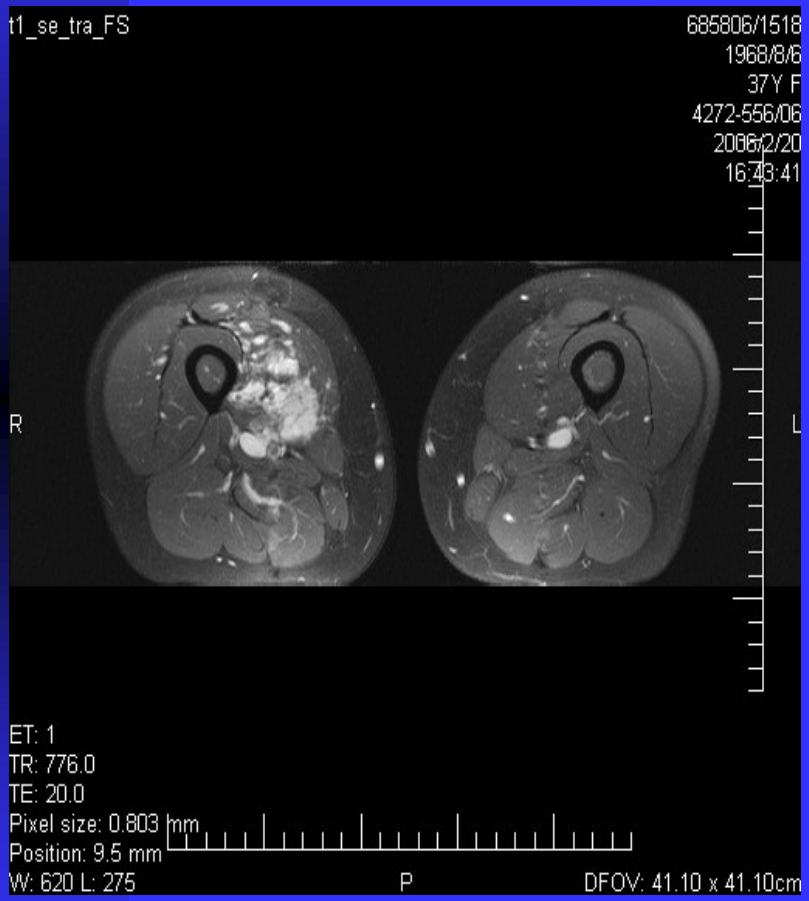


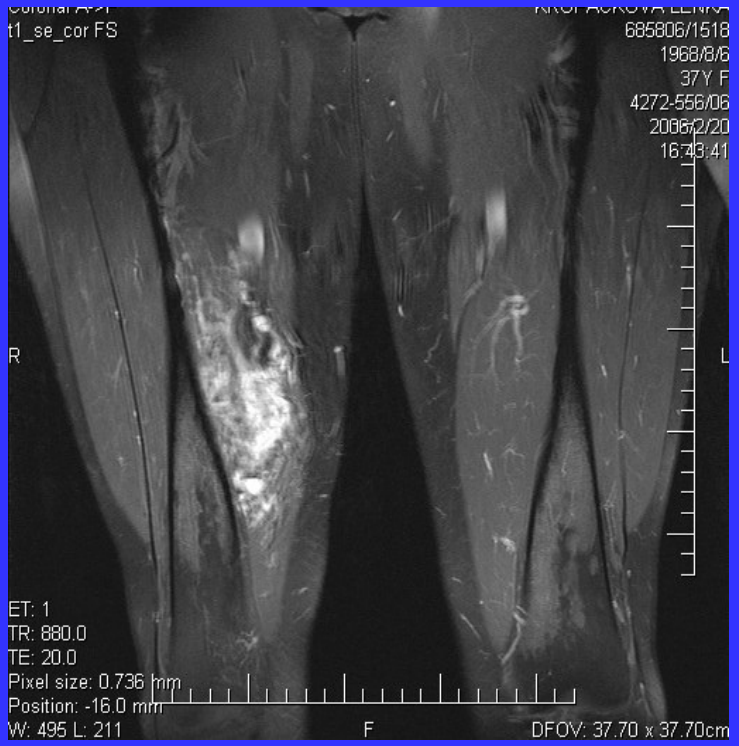
Synovial chondromatosis

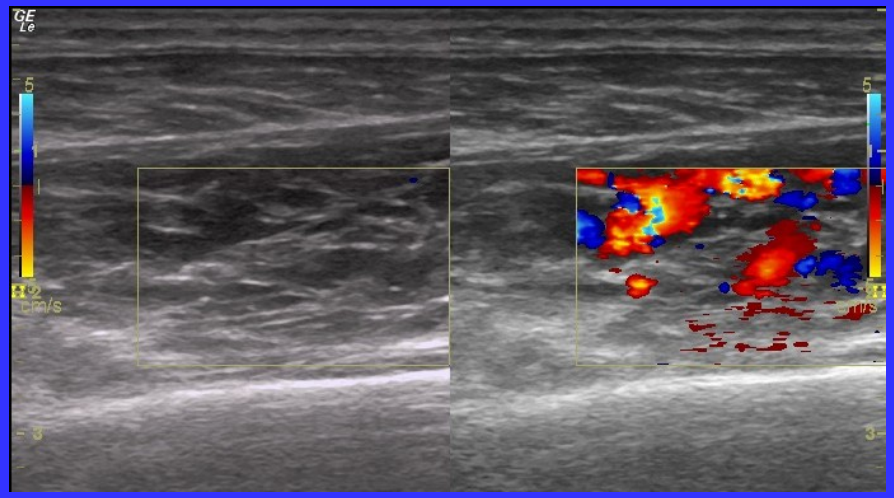




Haemangioma

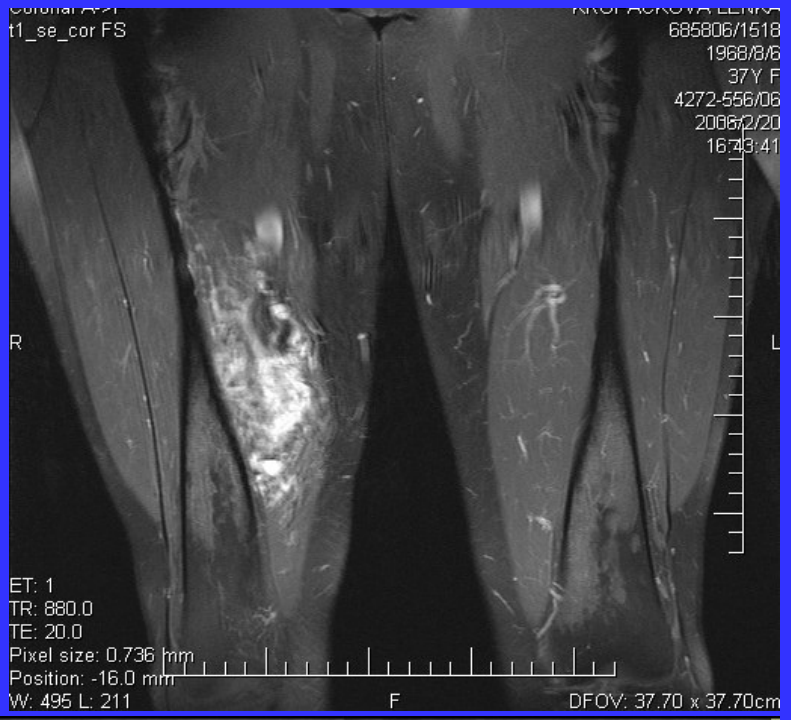


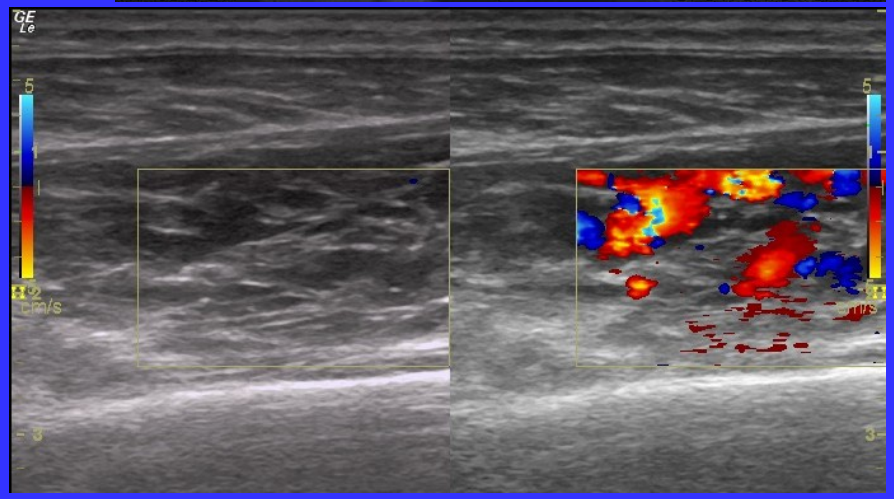




Hemangiom

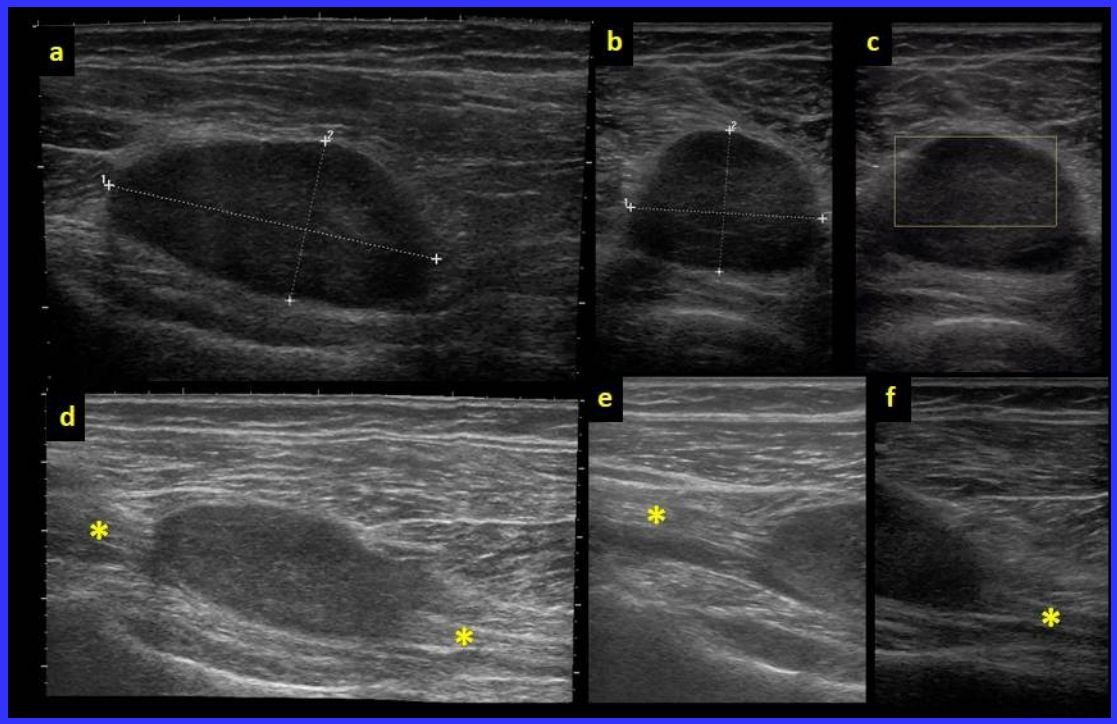
- do 30 let
- intramuskulární
- oblast stehna
- bolestivá rezistence
- Sono, MR, angiografie
- sledování, embolizace, extirpace





Schwannoma

- tuhý, dobře ohraničený
- pomalu rostoucí, palpačně bolestivá rezistence
- lok. útlak, iritace nervu
- Sono, MR
- Th.: extirpace



Intraoseous ganglion

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