2007 IN-TRAINING REVIEW CASES

SCOTT D WEINER
SUMMA ORTHOPAEDICS

JD

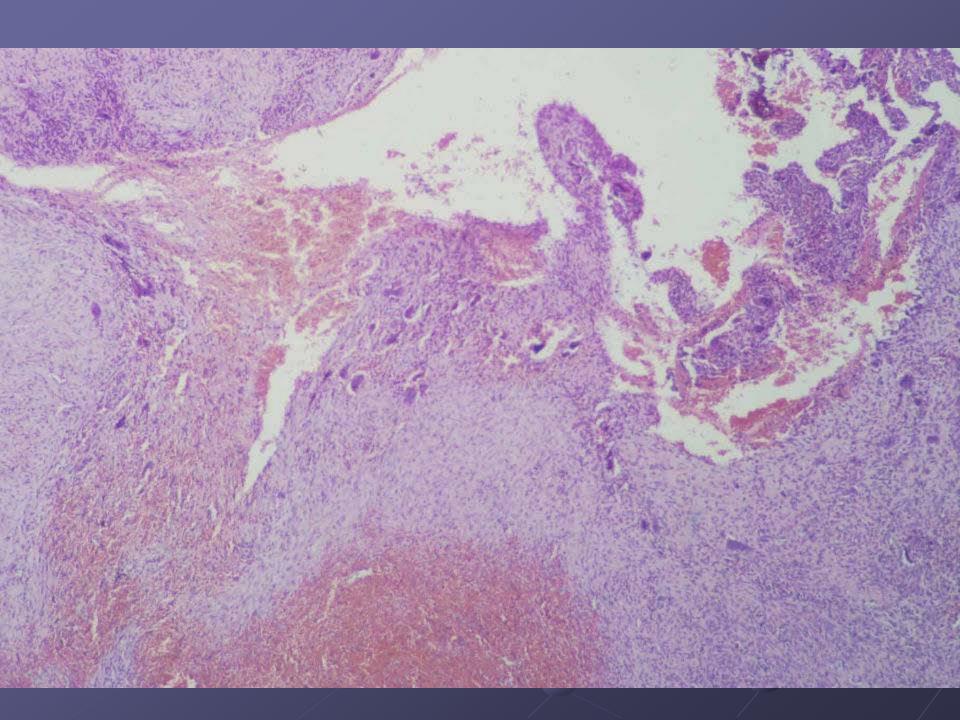
- 28 YO FEMALE
- ACTIVITY RELATED PAIN
- NO TRAUMA OR SYSTEMIC SYMPTOMS

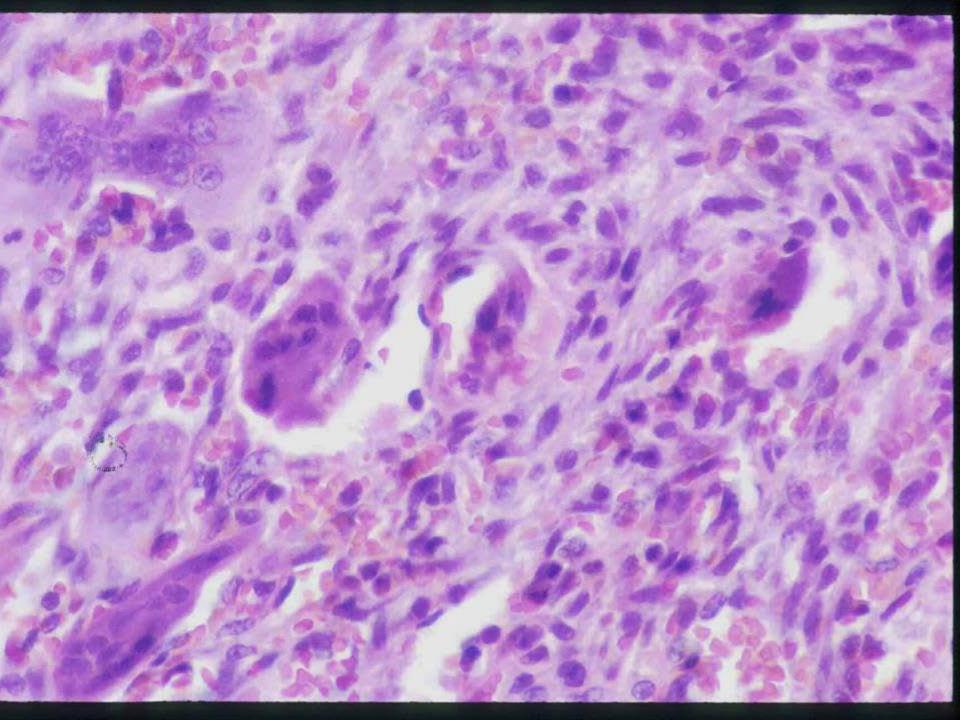








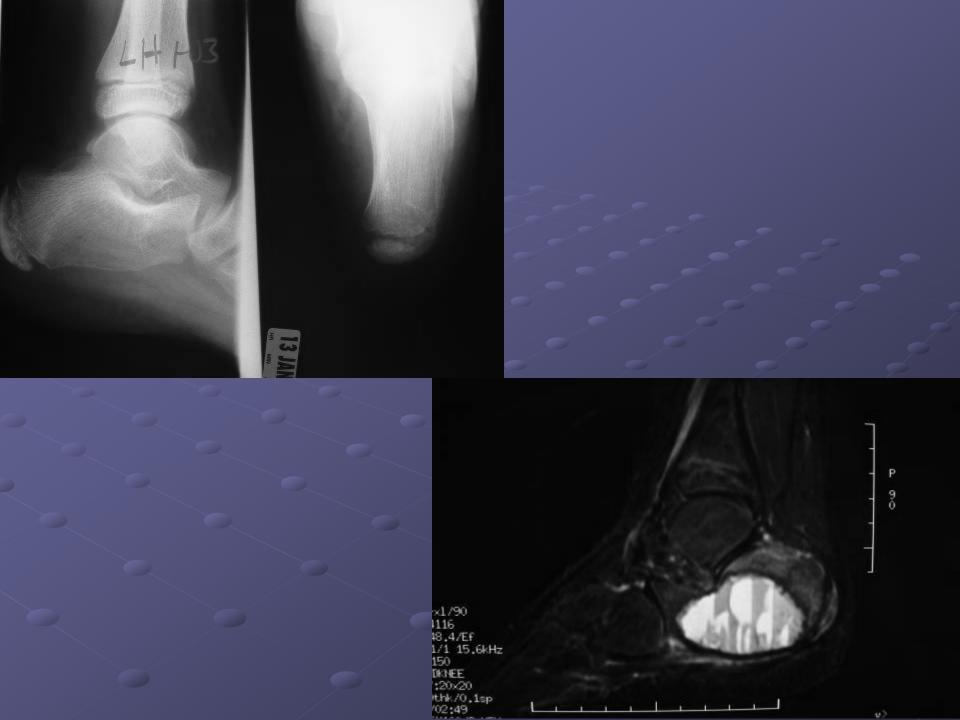




ANEURYSMAL BONE CYST

- Young, metaphyseal, eccentric, cortical
- 'expanded' cortex with rim of reactive bone
- Fluid-fluid levels, donut sign on bone scan
- Histo.. Blood filled lakes, lining of fibroblasts, giant cells and hemosiderin, rim of reactive bone
- Likely reactive process and seen secondary to other lesions
- Rx.. CBG





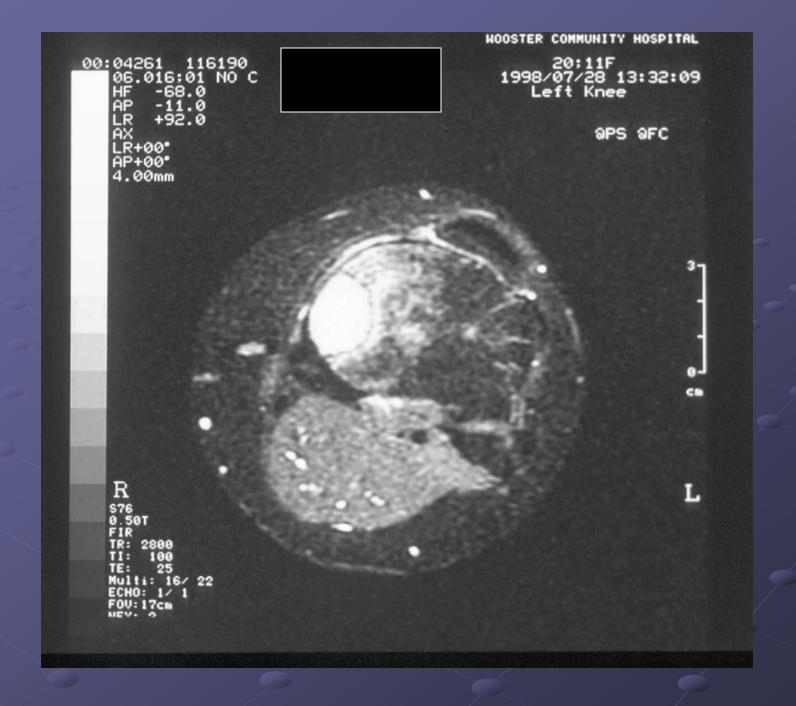
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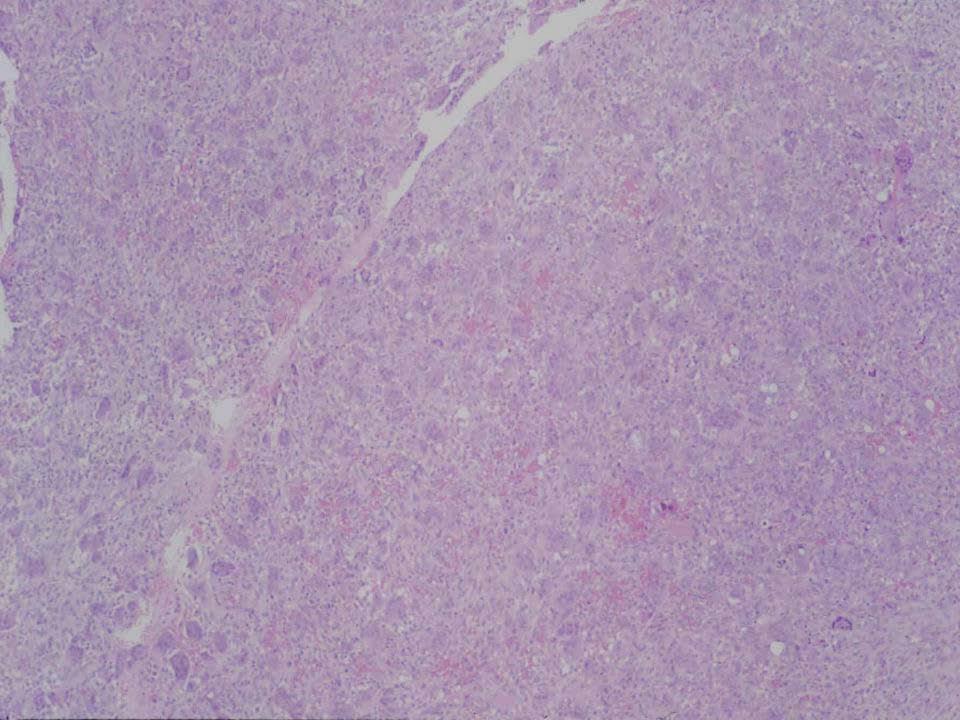
- 22 YO FEMALE
- PAINFUL LESION
- NIGHT PAIN

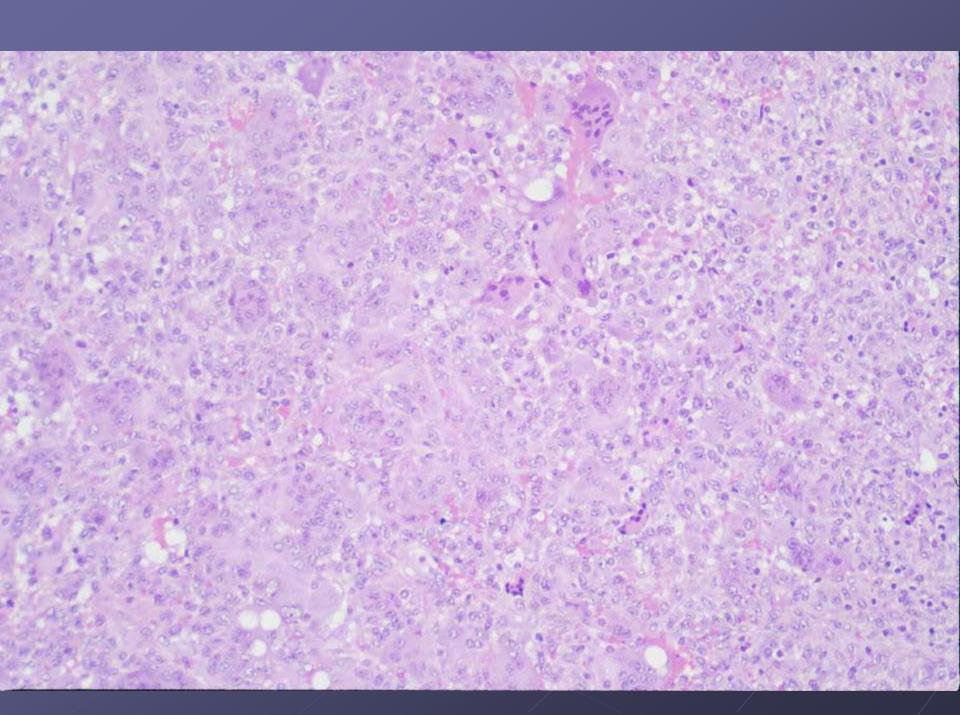


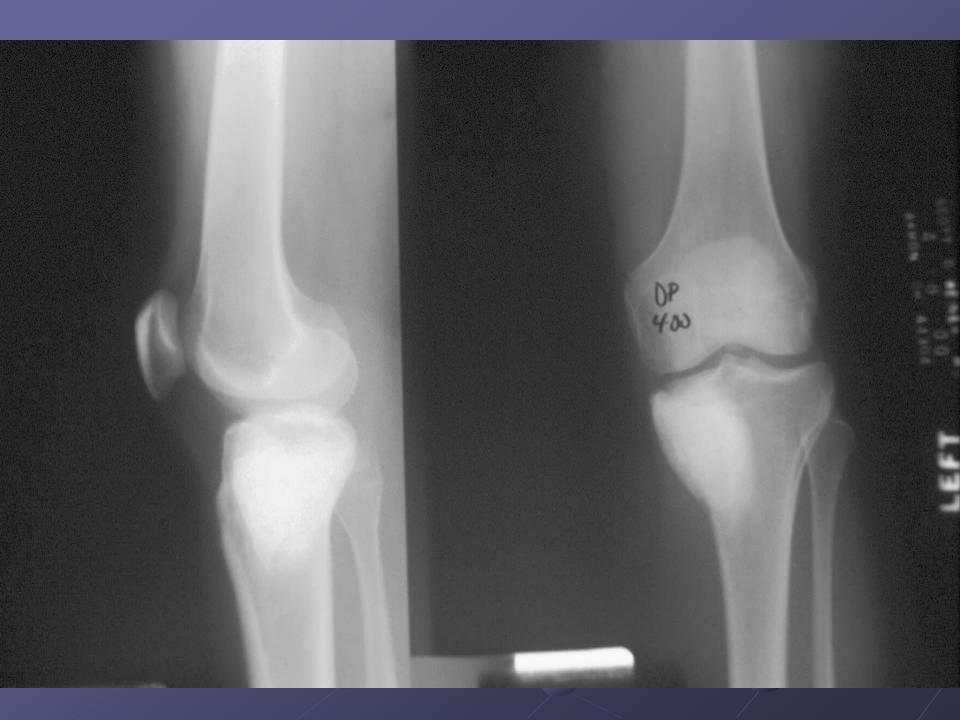










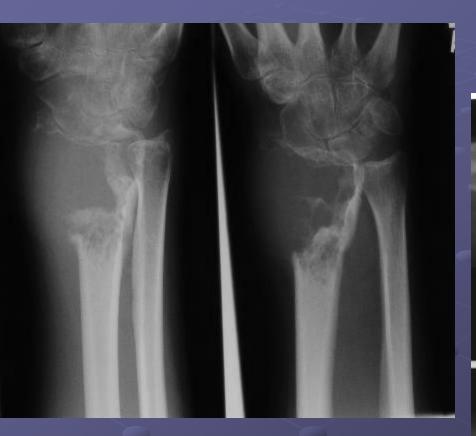


GIANT CELL TUMOR

- Stage 3, epiphyseal, skeletally mature, knee/wrist/spine
- Histo.. Giant cells diffuse, ghosts, nuclei of giants same as stromal
- May be multicentric (check PTH), 'mets'
- Rx.. 'extended' curettage with local adjuvant (phenol, N2, PMMA)
- High recurrence rates









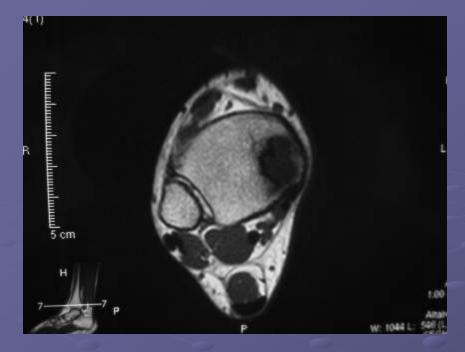


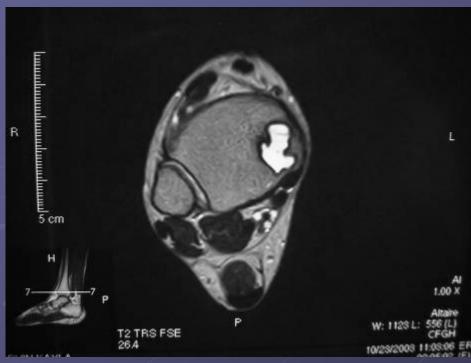
KE

- 30 YO FEMALE
- NO TRAUMA
- ANKLE PAIN WITHOUT EFFUSION

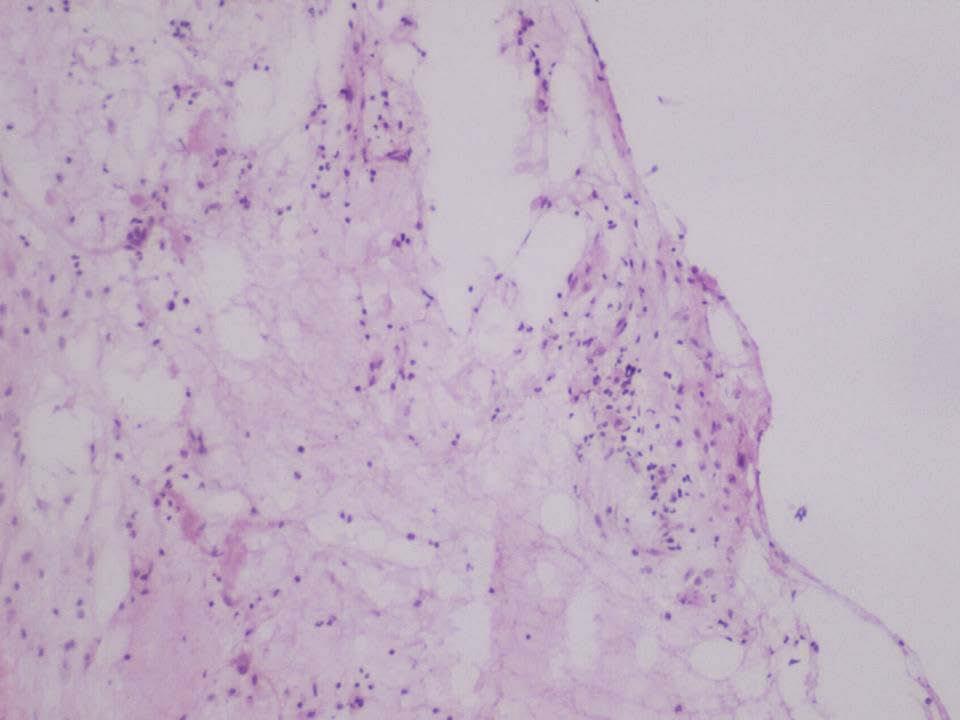












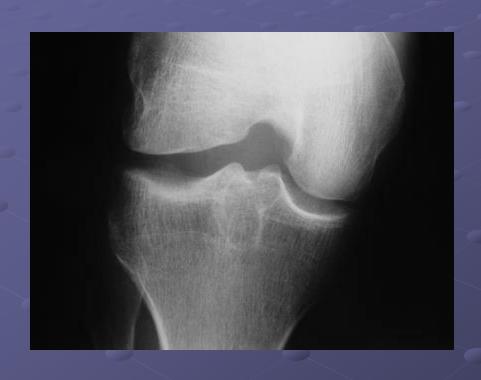
INTEROSSEOUS GANGLION

- Adult, medial malleolus/glenoid/patella
- Rarely find joint connection
- If associated with DJD, better to call a 'GEODE'
- Often painful (stage 2), ?why
- Rx.. CBG





Geode (degenerative cyst)





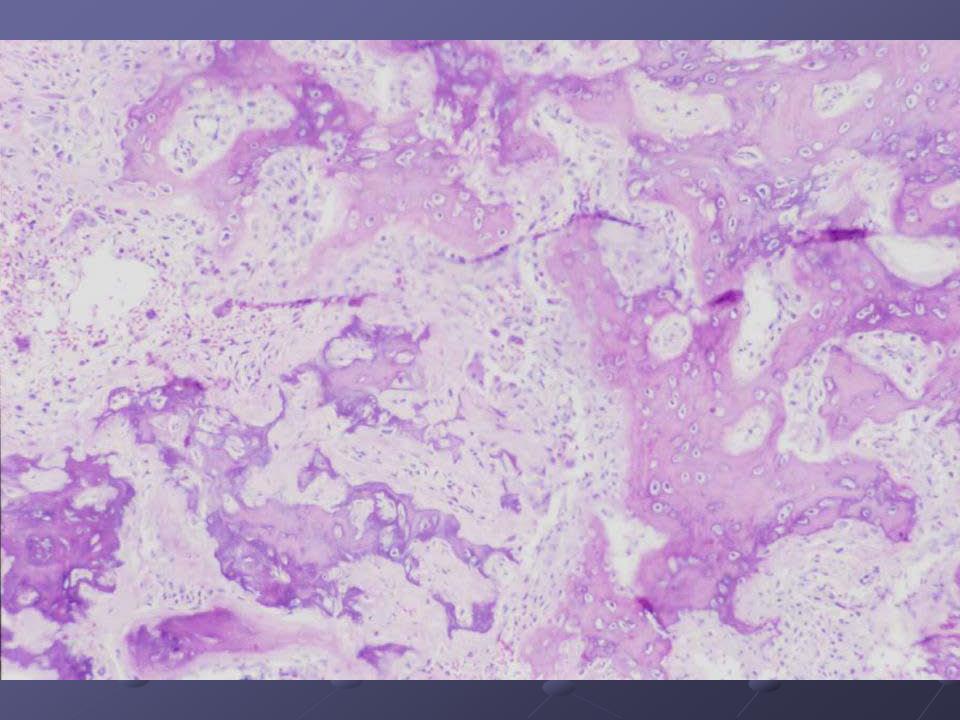
JR

- 12 YO WITH NIGHT PAIN
- NO SYSTEMIC SIGNS









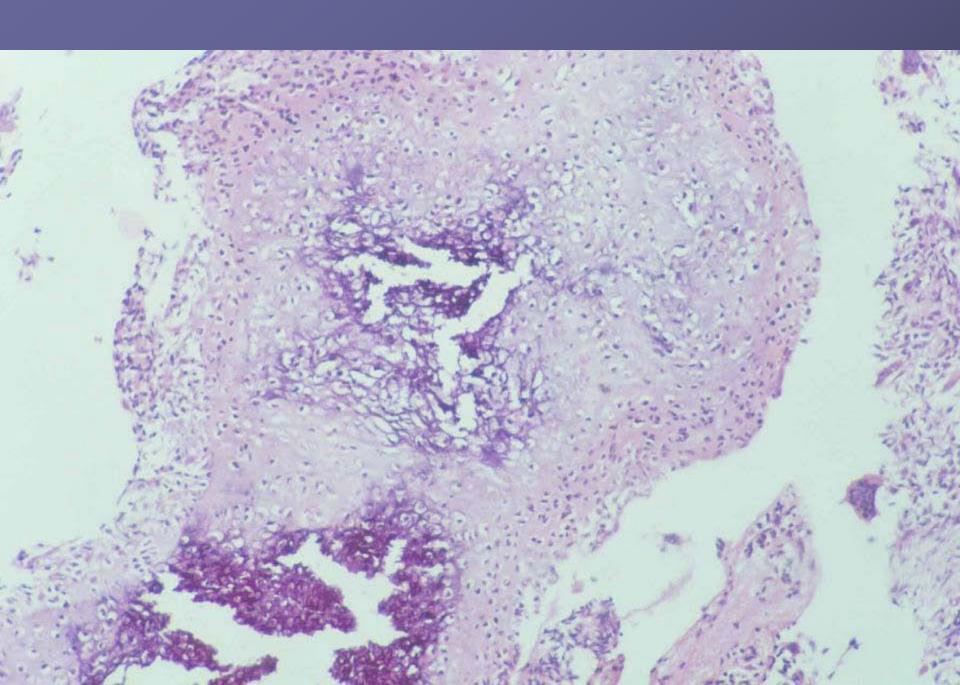
OSTEOBLASTOMA

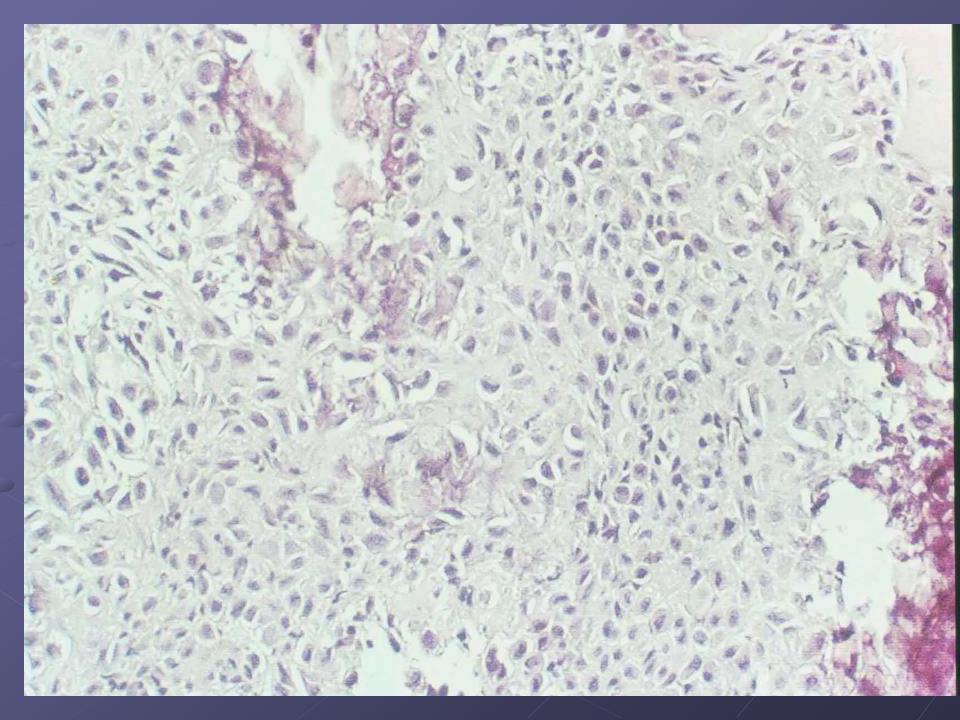
- Like osteoid osteoma but larger
- Spine
- Histo same as osteoid osteoma
- Will not spontaneously resolve
- Stage 2 or 3, may 'metastasize'
- Treat with aggressive curettage

- 6YO WITH HIP PAIN AND EFFUSION
- LIMITED RANGE OF MOTION
- NO SYSTEMIC SIGNS





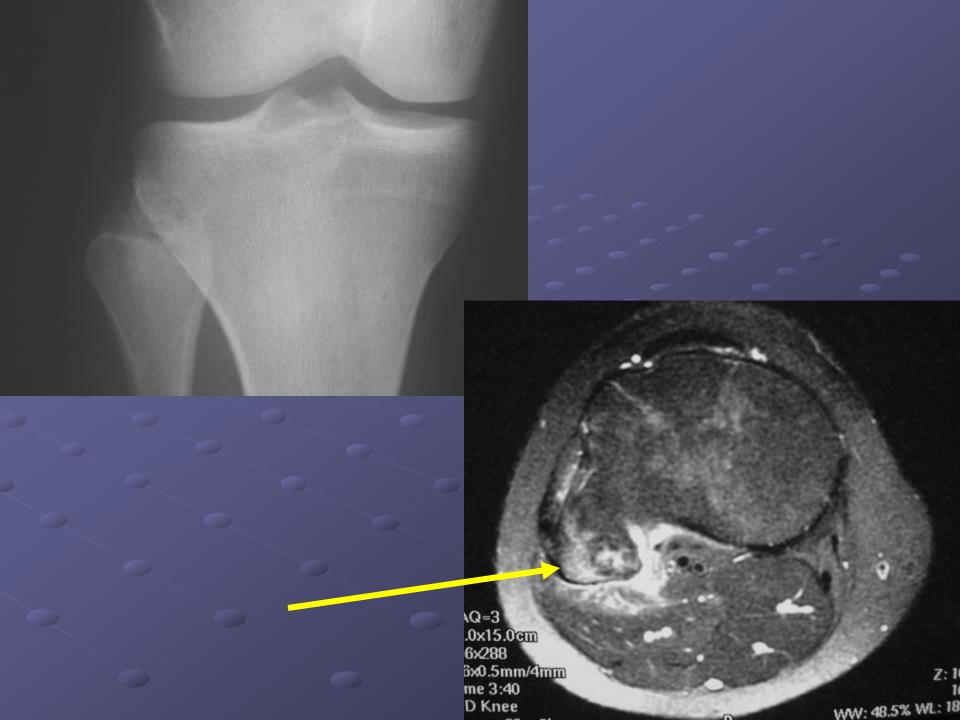






CHONDROBLASTOMA

- Skeletally immature
- Epiphyseal, sympathetic effusion, knee and shoulder, little calcification on x-ray
- Stage 2 or 3, 'benign mets'
- Histo.. plump cobblestone cells, chicken wire calcification, bizarre giant cells
- Rx... CBG through center of physis



CF

- 9 YO WITH NO TRAUMA
- ACTIVITY RELATED PAIN
- NO SYSTEMIC SIGNS



SIMPLE BONE CYST

- Metaphyseal, central, prox humerus/femur
- Expanded cortex, fallen leaf
- Active vs. latent
- Spontaneous resolution
- Rx.. Aspirate and inject (esp.. femurs)
 - CBG only in latent proximal femurs
 - Be as conservative as possible as it will resolve



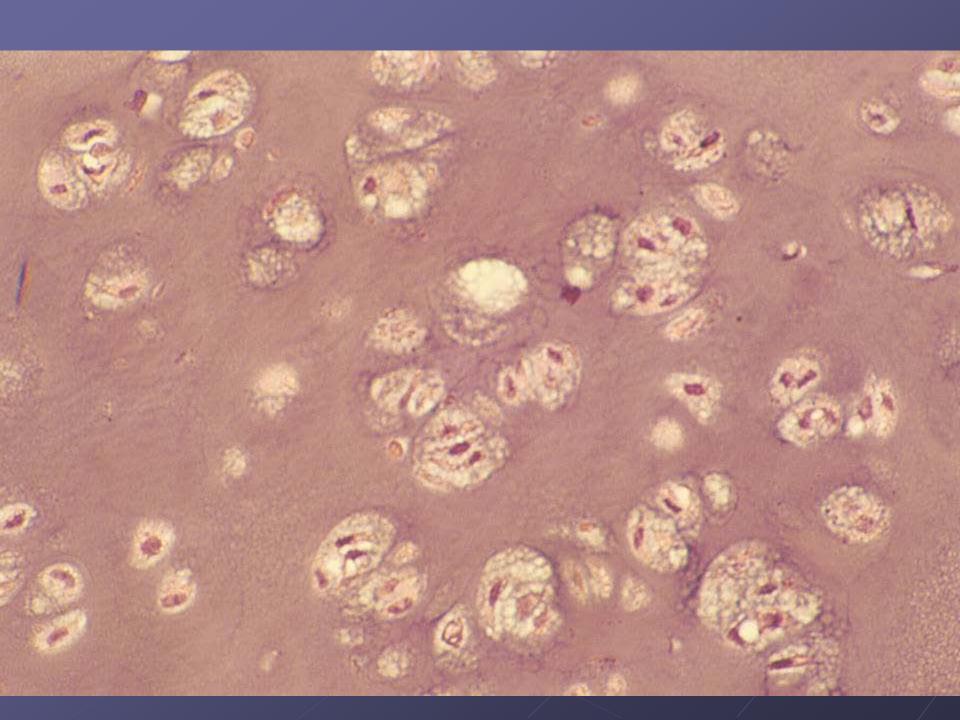
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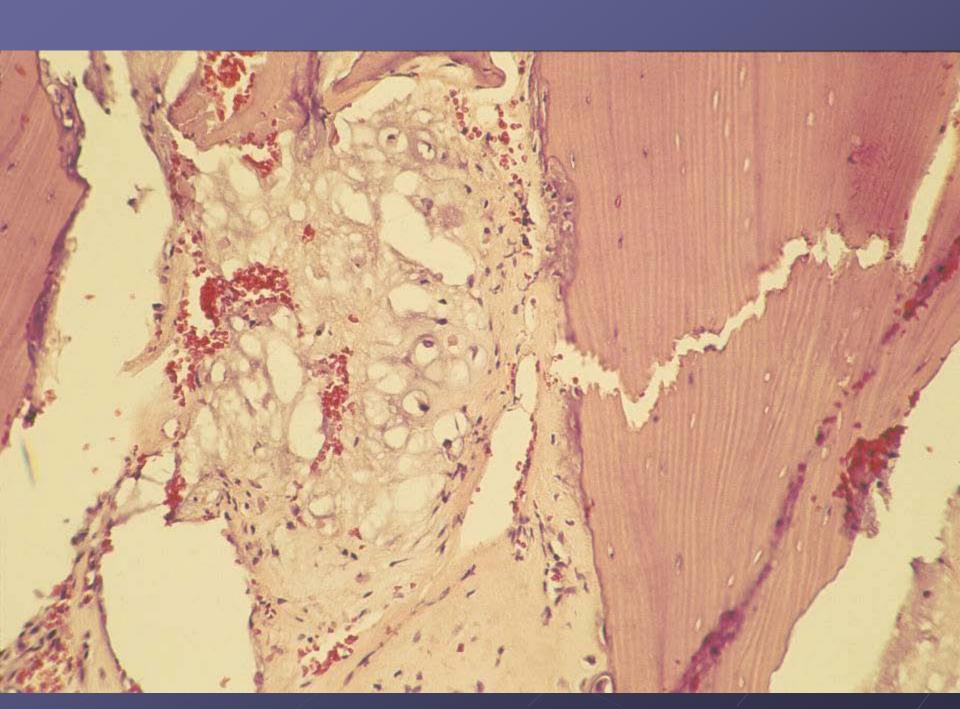
- 60 YO FEMALE WITH A FEW MONTH HISTORY OF ACHING PAIN IN THE HIP
- NO HISTORY OF CANCER

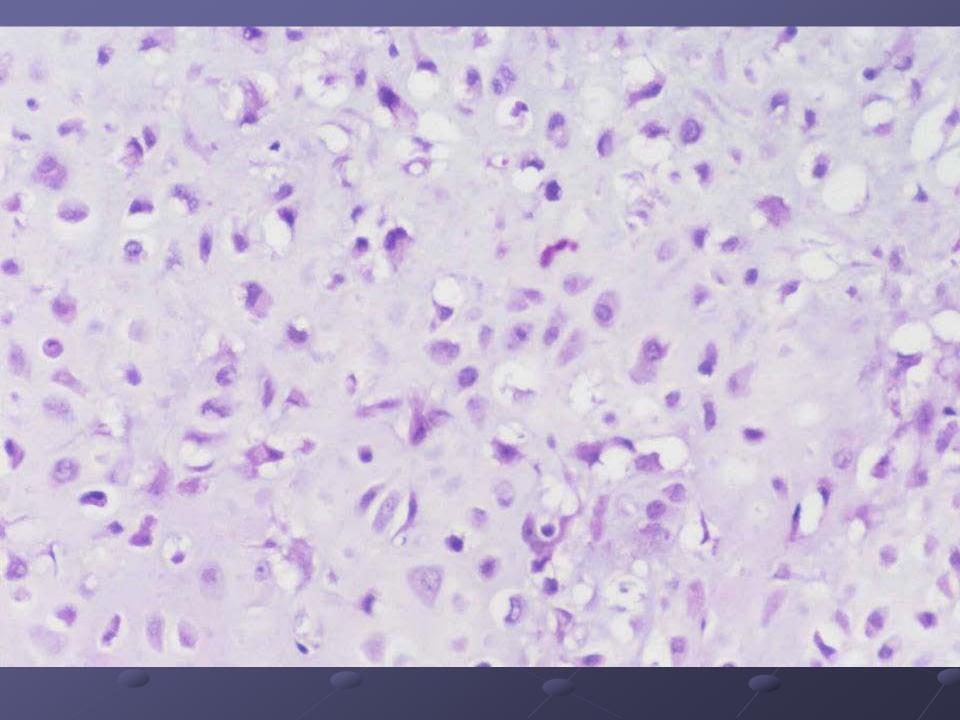






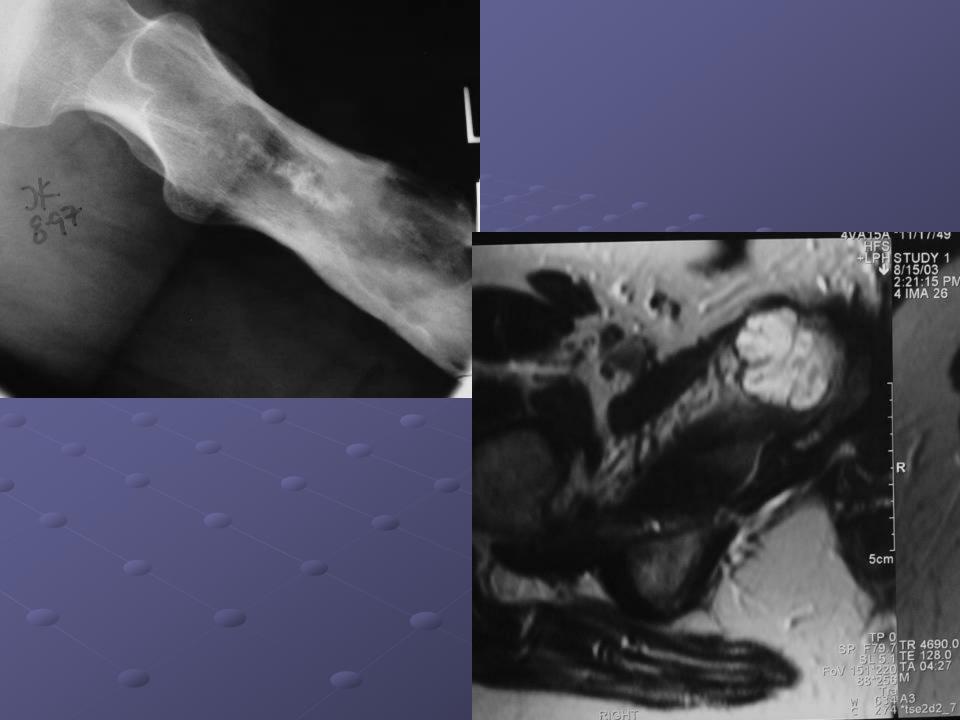




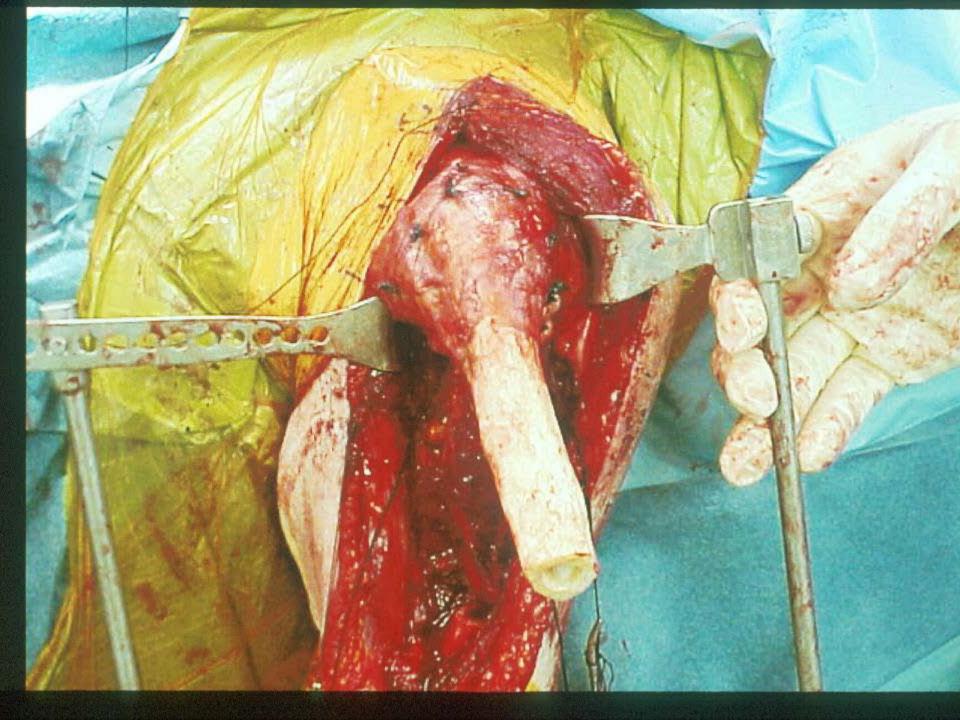


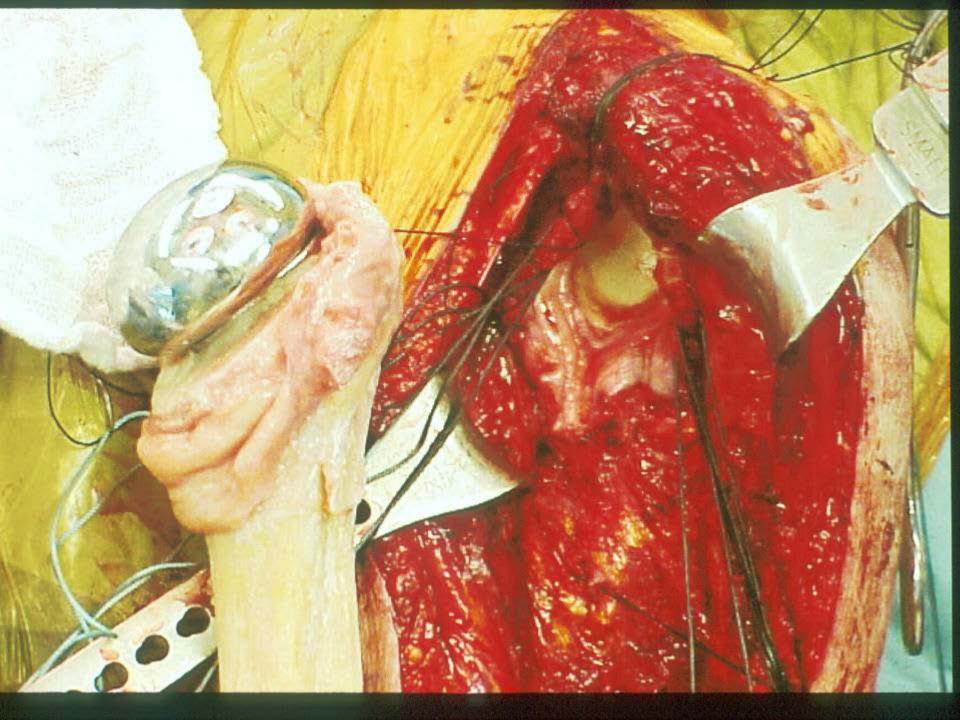
CHONDROSARCOMA

- Low grade tumor
- X-ray...
 - radiolucencies in calcification
 - Change in x-ray over time
 - Soft tissue mass or periosteal reaction
 - Pain (night, worsening, unexplained)
- Histo difficult (permeation, cellularity)
- Rx... wide resection, no adjuvant











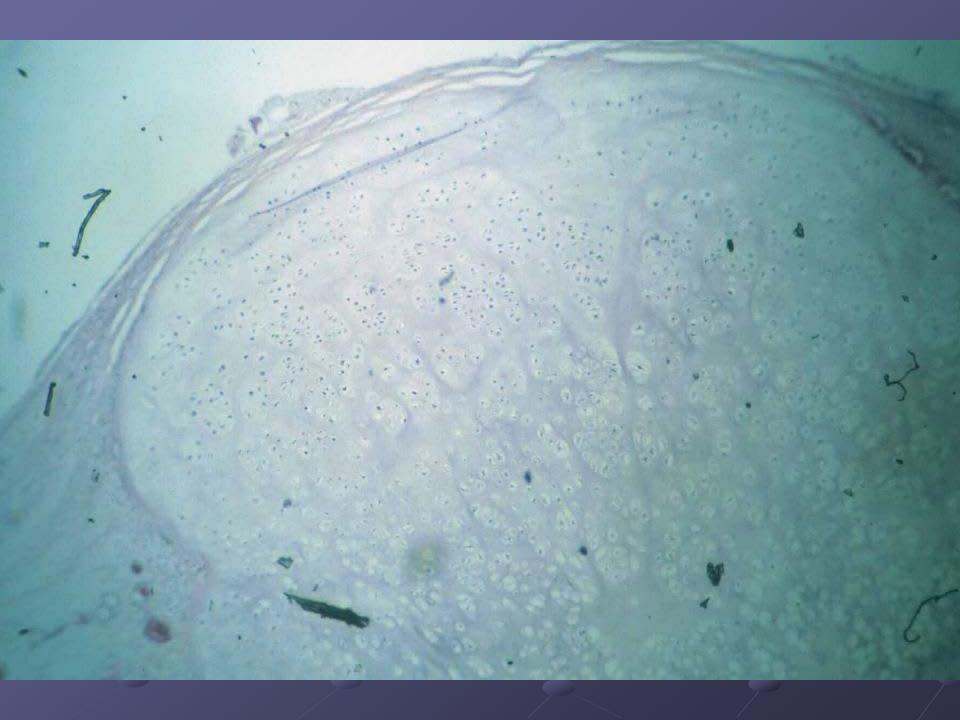
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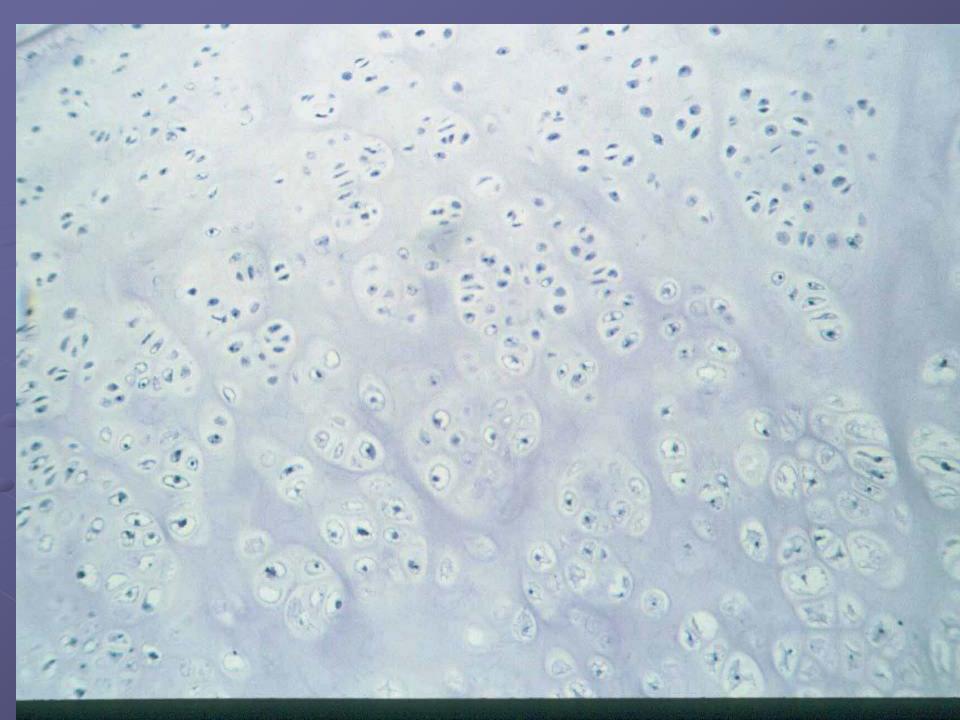
- 8 YO WITH PAINLESS MASS
- ISOLATED DEFORMITY
- NO TRAUMA





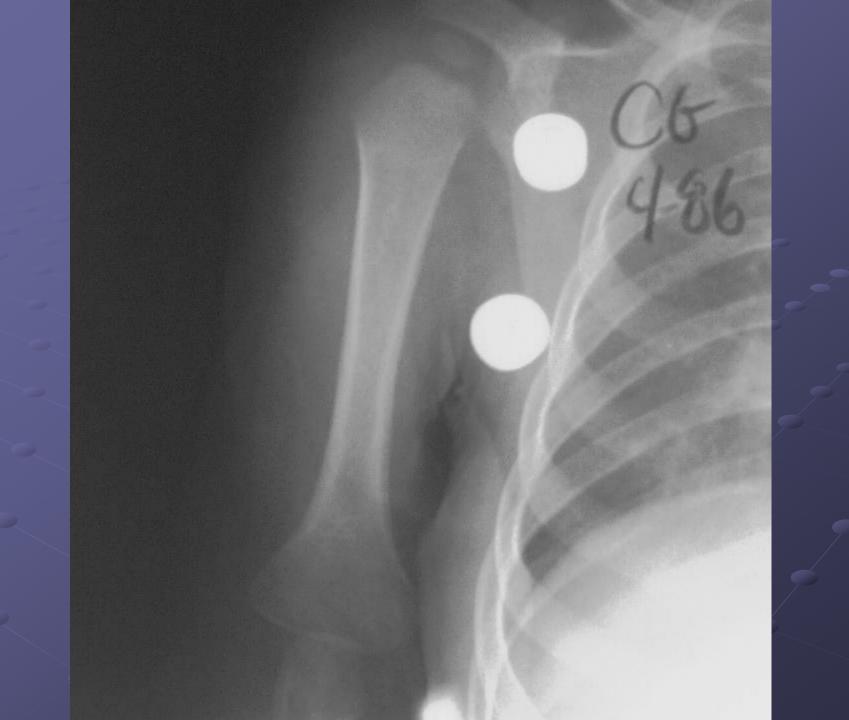






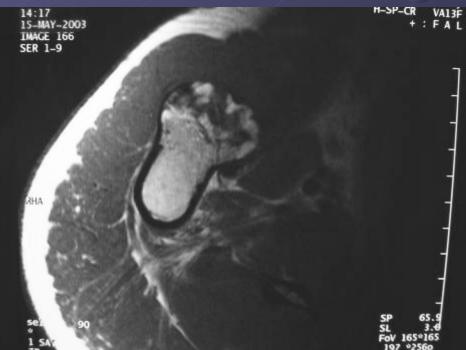
OSTEOCHONDROMA

- Metaphyseal, 'exostosis', very common
- Painless unless compression
- Persistent, rare malignant degeneration (never in child)...pain is hallmark
- Sessile vs. pedunculated, medullary canal extends into base, cortex continuous
- Rx... observe, operate on symptoms or increasing cap after maturity (~2cm)













MULTIPLE HEREDITARY OSTEOCHONDROMAS

- Short stature
- Wide metaphyses, pseudo-madelungs, ankle deformity
- Increased malignancy (scapula, hips, pelvis)
- Same treatment as solitary but higher suspicion





TREVOR'S DISEASE





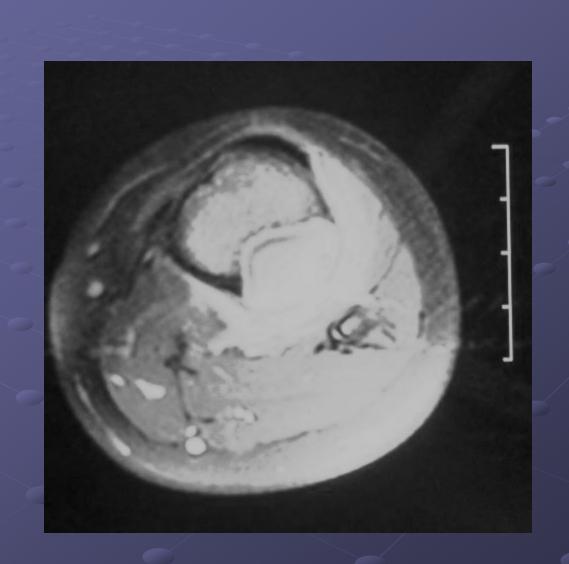
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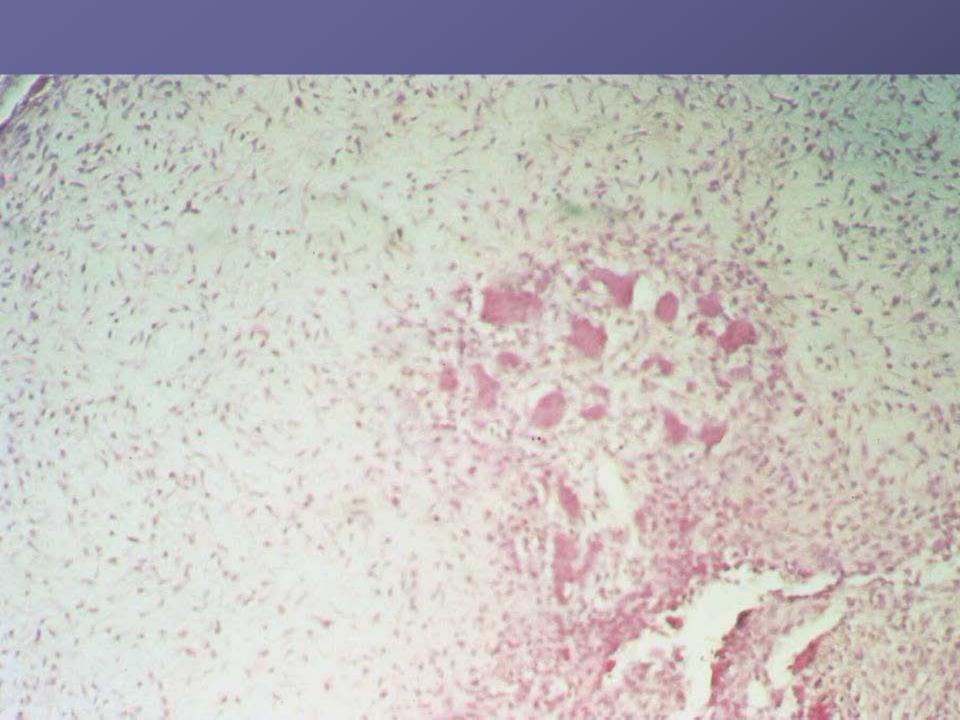
- 10 YO WITH PAINFUL LEG
- 2 MONTH HISTORY OF PAIN
- NO SYSTEMIC SIGNS

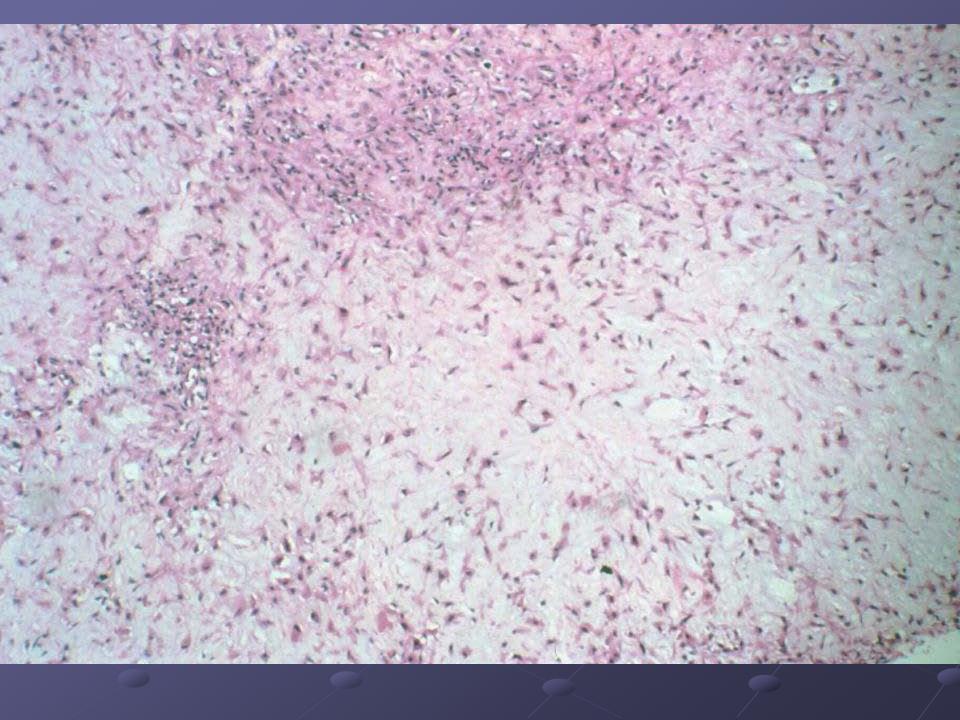


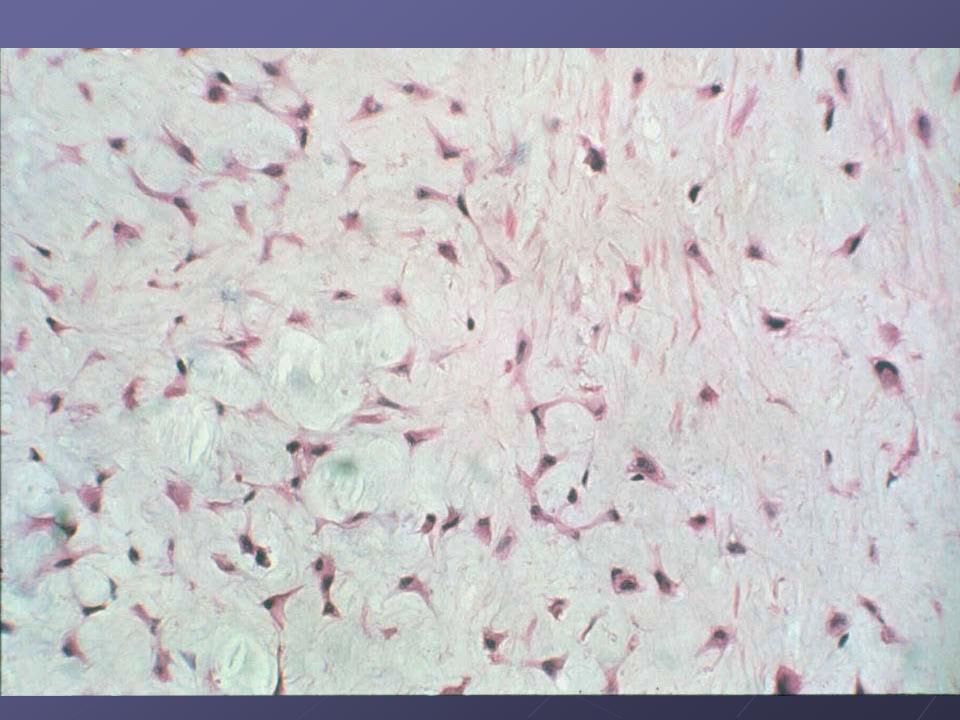












CHONDROMYXOID FIBROMA

- Tibia in young and young adults
- Painful, stage 2, eccentric metaphyseal
- Histo.. Chondroid, myxoid and fibrous, some giant cells
- Rx.. Aggressive curettage, high recurrence no observation

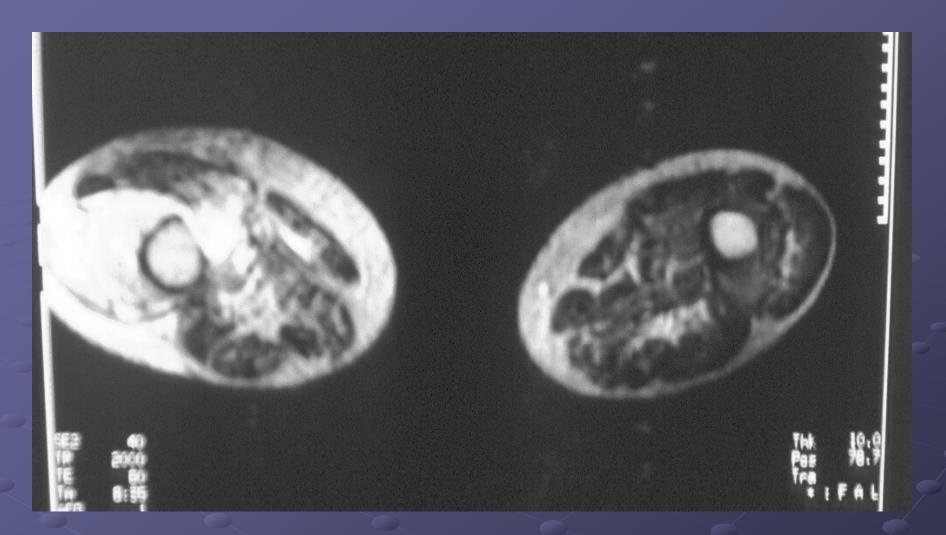




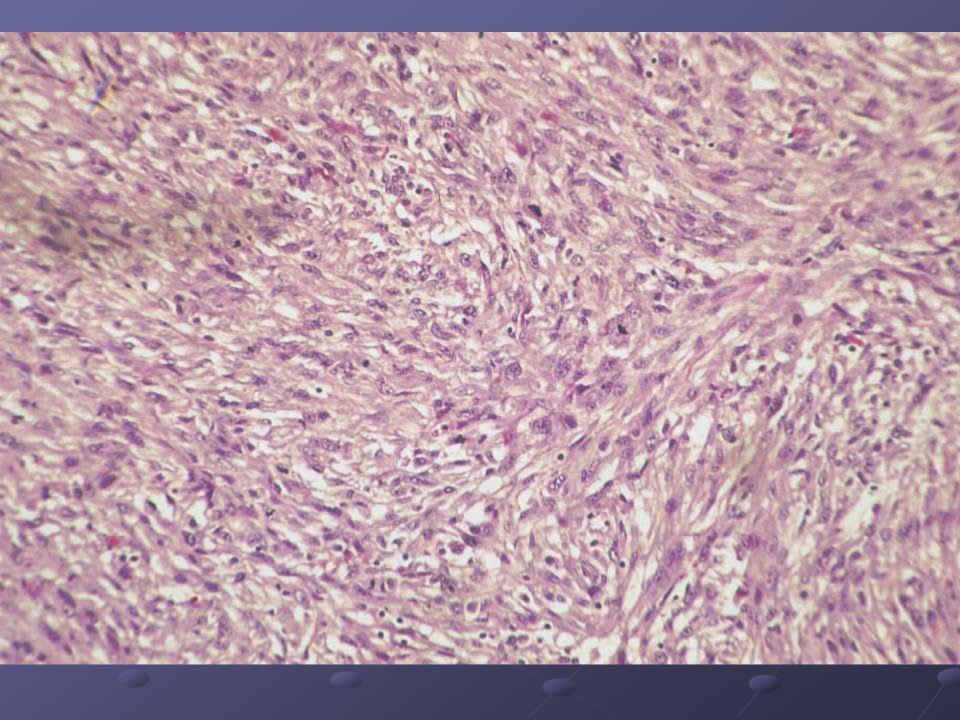
DD

- 70 YO MALE
- MONTHS OF ACHING PAIN
- LEG 'GAVE OUT' IN PARKING LOT OF ORTHOPAEDIC SURGEONS OFFICE
- NO HISTORY OF CANCER







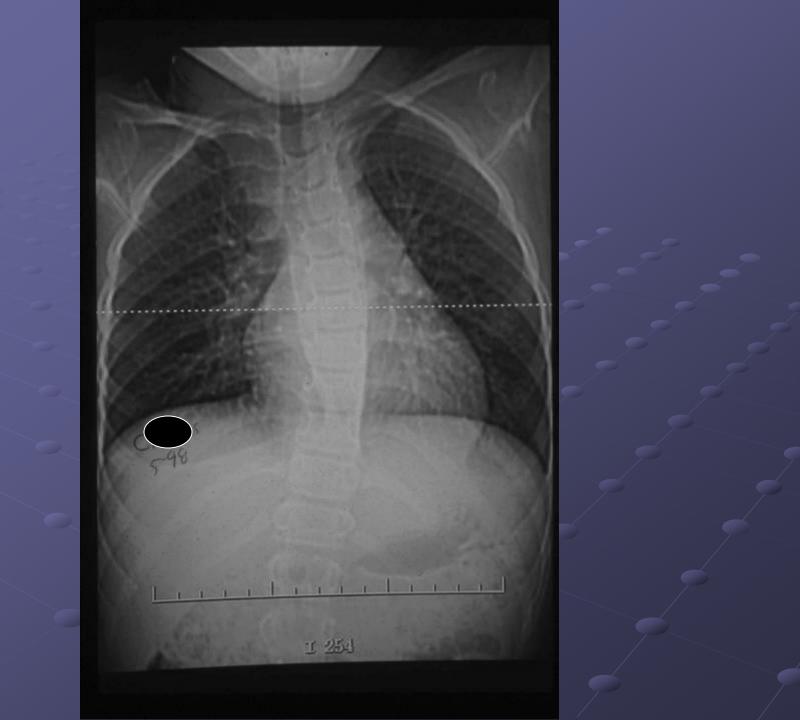


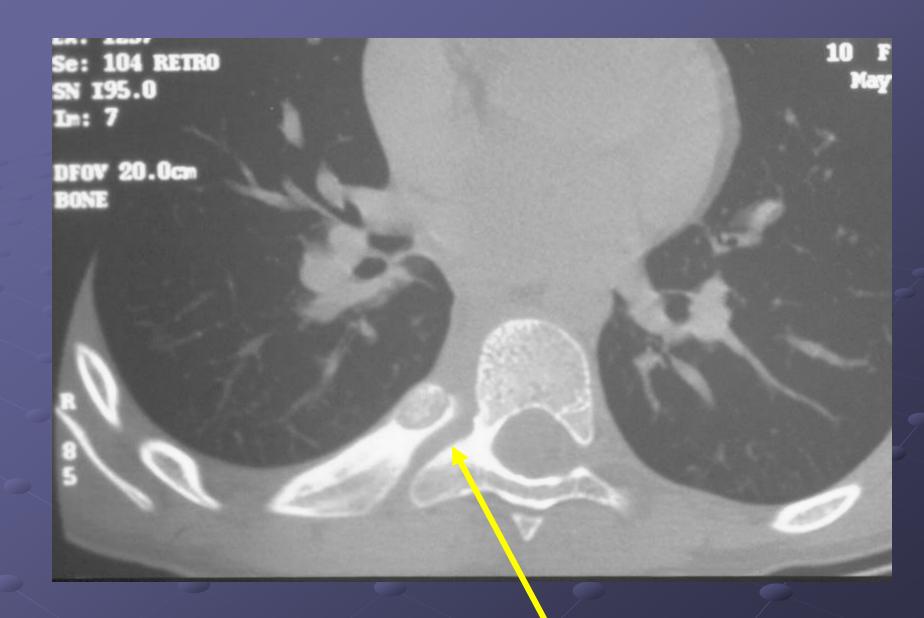
DEDIFFERENTIATED CHONDROSARCOMA

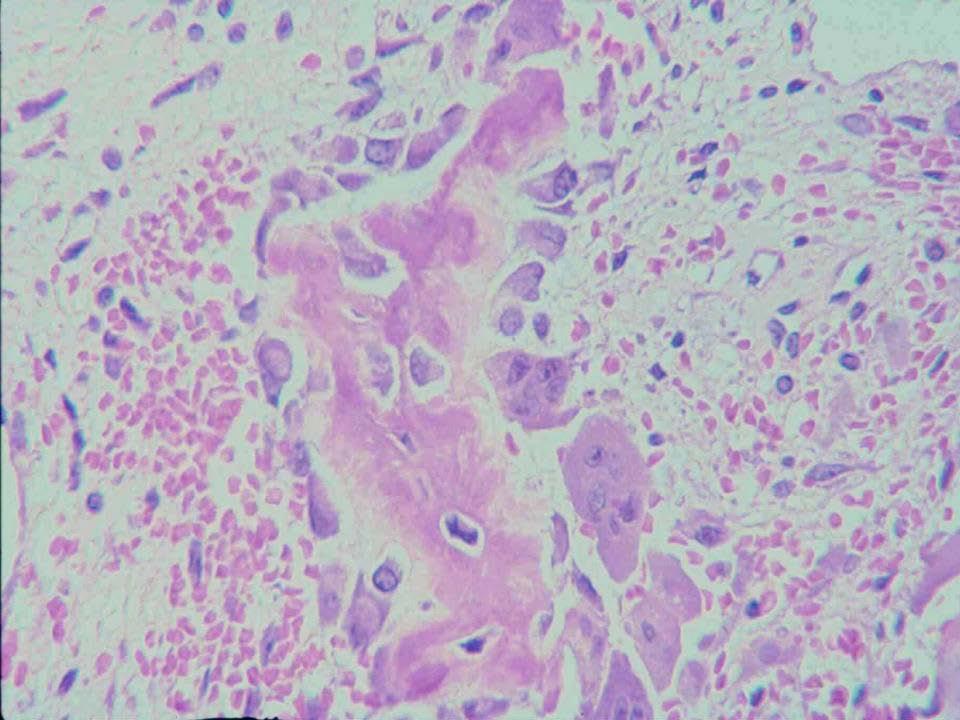
- Probably a low grade cartilage tumor changing to a high grade sarcoma (OGS or MFH)
- X-ray... cartilage lesion with aggressive change, often soft tissue mass
- Older age, poor prognosis
- Treat like other component... wide resection with chemo, consider radical if can't tolerate chemo

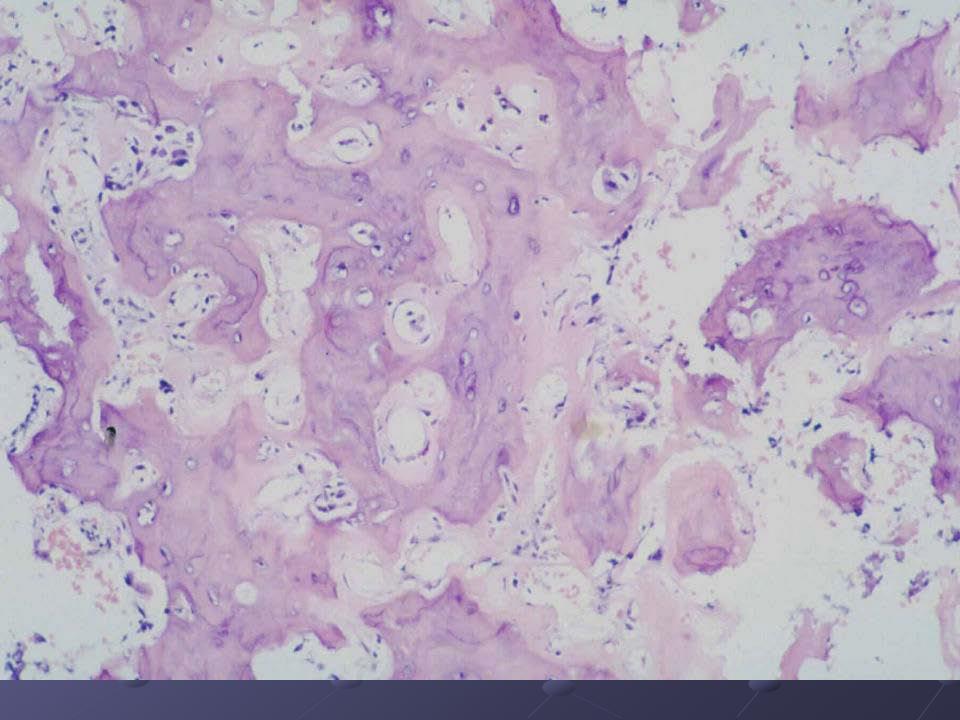
CM

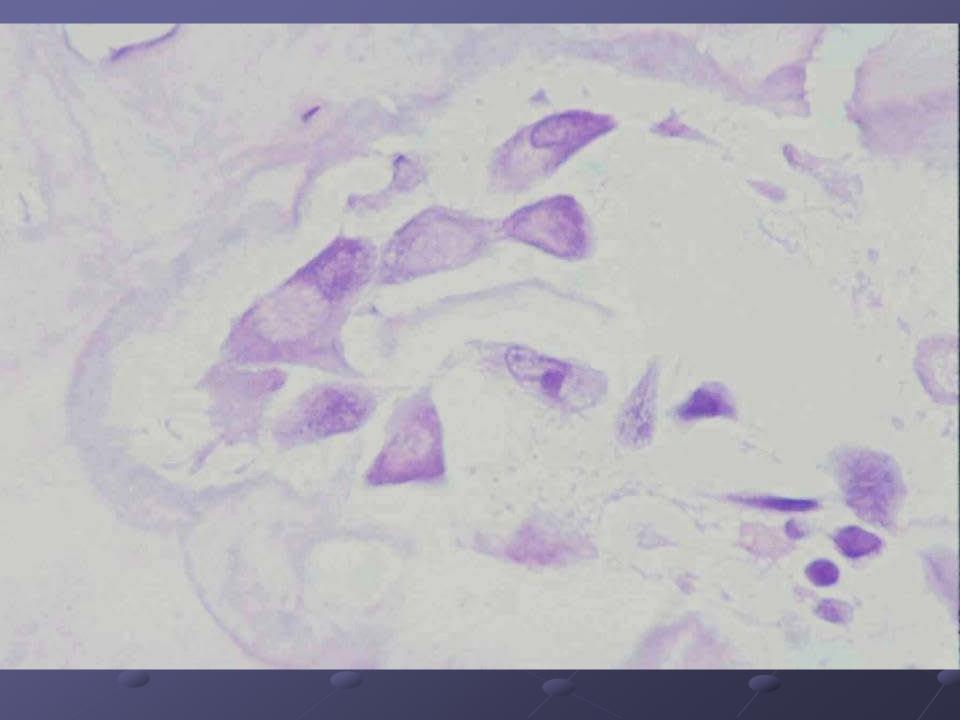
- 8 YO WITH PAINFUL SCOLIOSIS
- NO TRAUMA
- NIGHT PAIN
- NO FEVERS











JM

- 18 YO MALE WITH KNEE PAIN
- HAD NEGATIVE SCOPE, PERSISTENT PAIN
- PRE-OP X-RAYS SHOWN

JM 1298

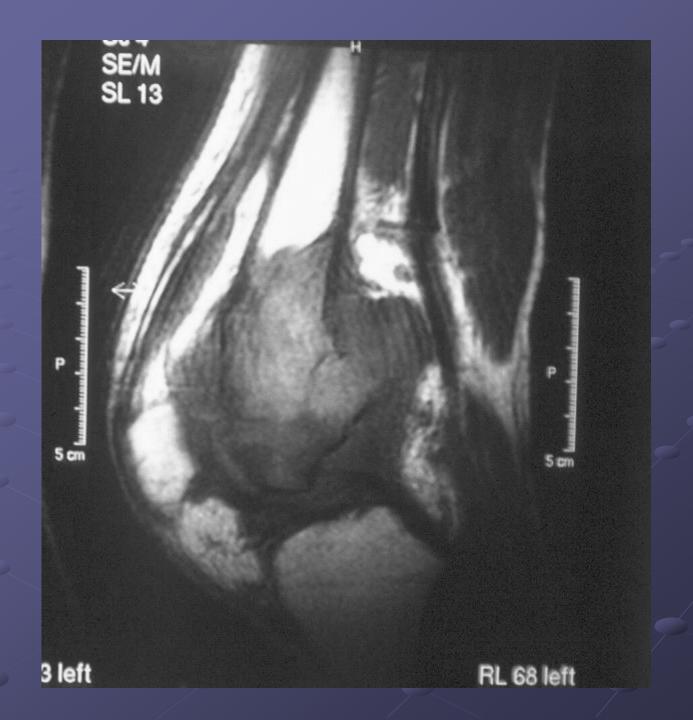


Three months post scope, severe pain persists

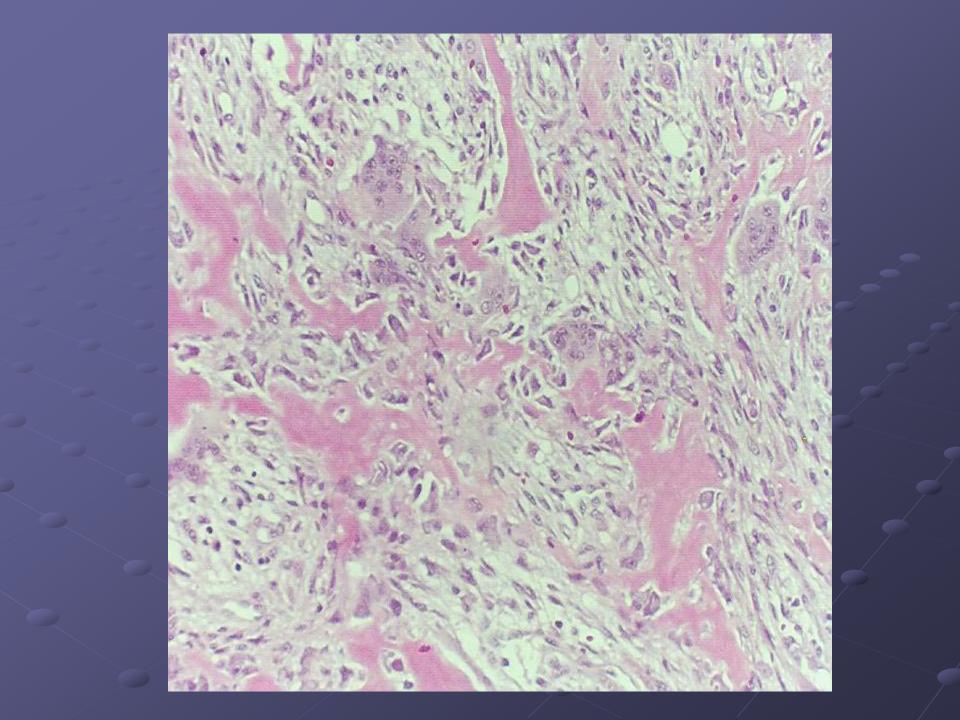




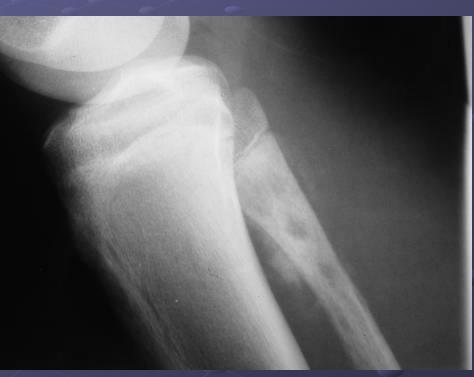


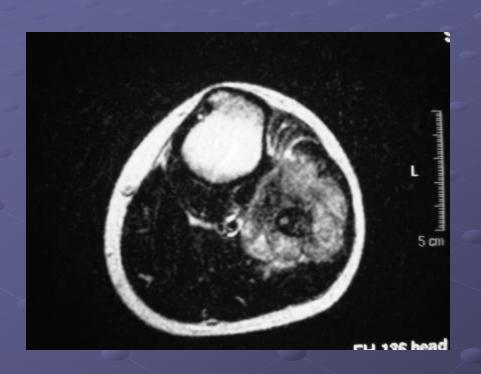


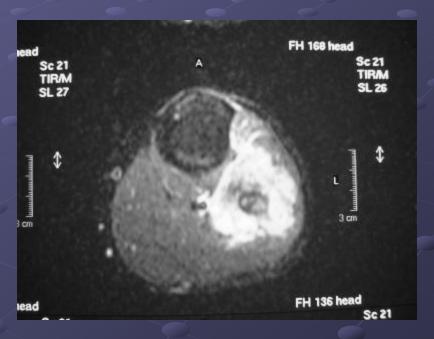












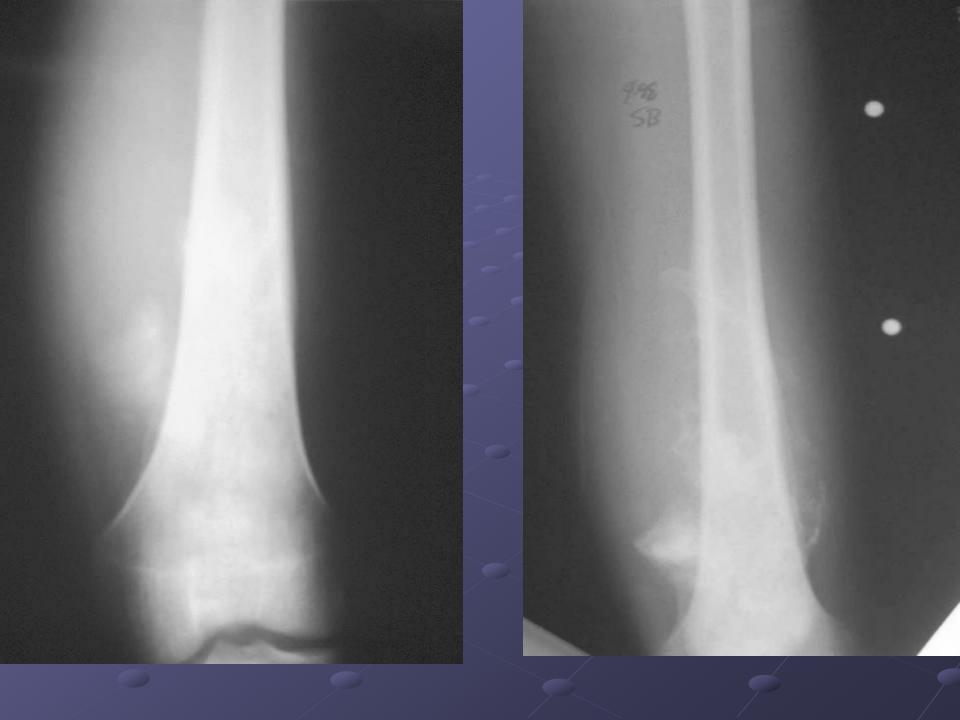




CLASSIC OSTEOSARCOMA

- High grade (II)
- Adjuvant chemotherapy (adriamycin combination x 9 months
- wide resection
- 80-85% 5 year survival

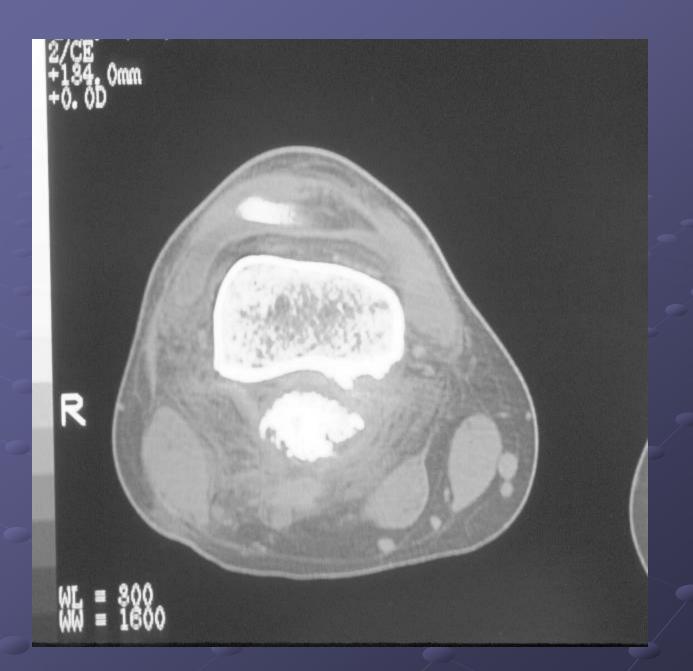


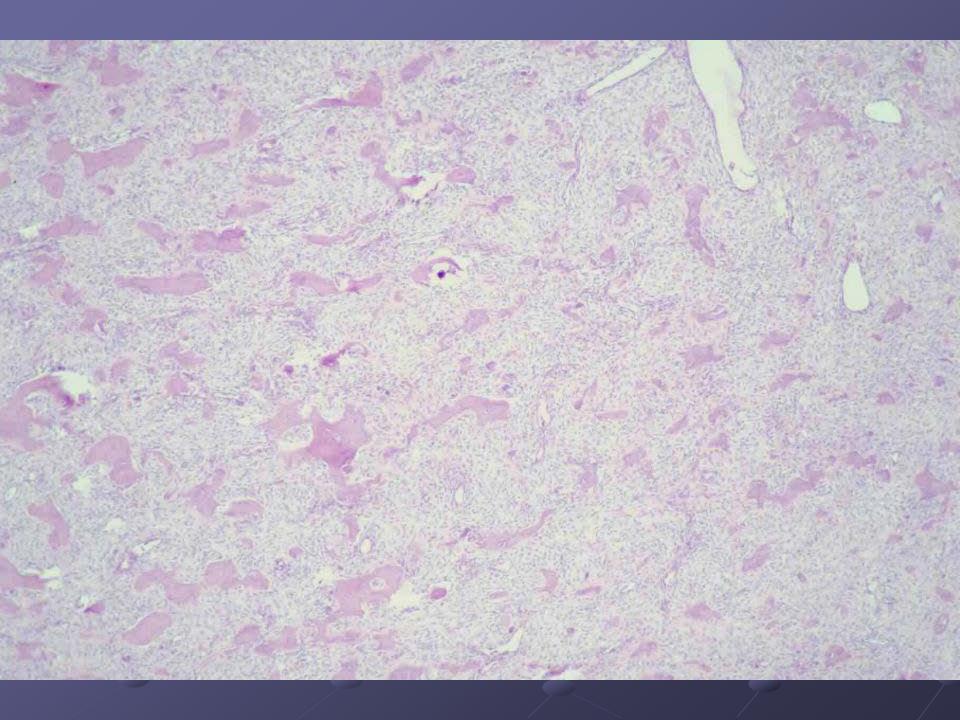


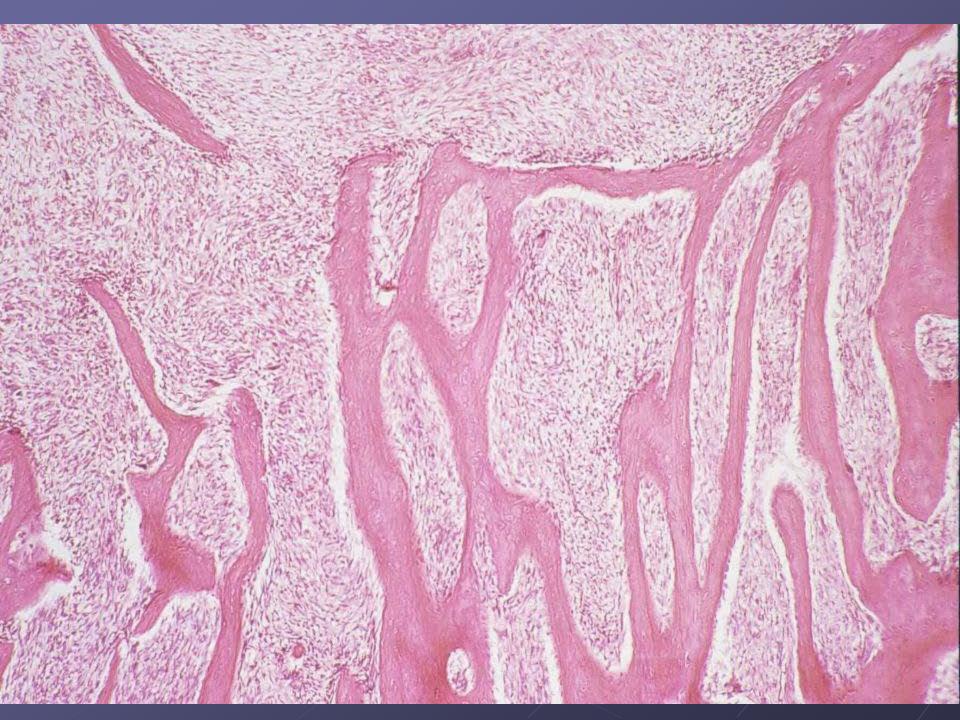
TW

- 33 YO MALE WITH POSTERIOR THIGH PAIN
- NO TRAUMA



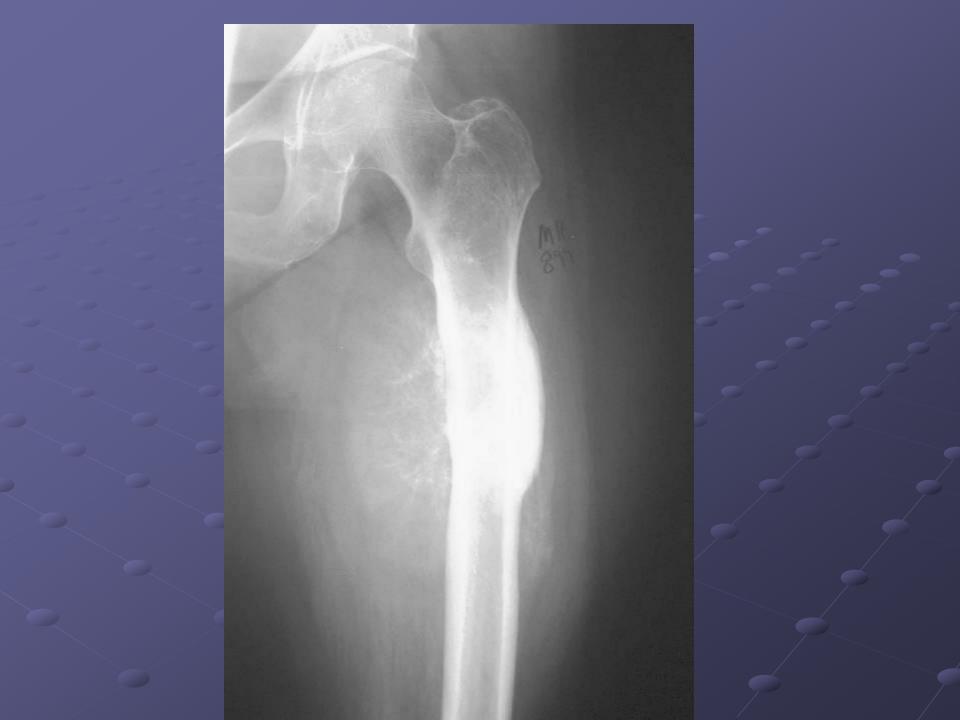






PAROSTEAL OSTEOSARCOMA

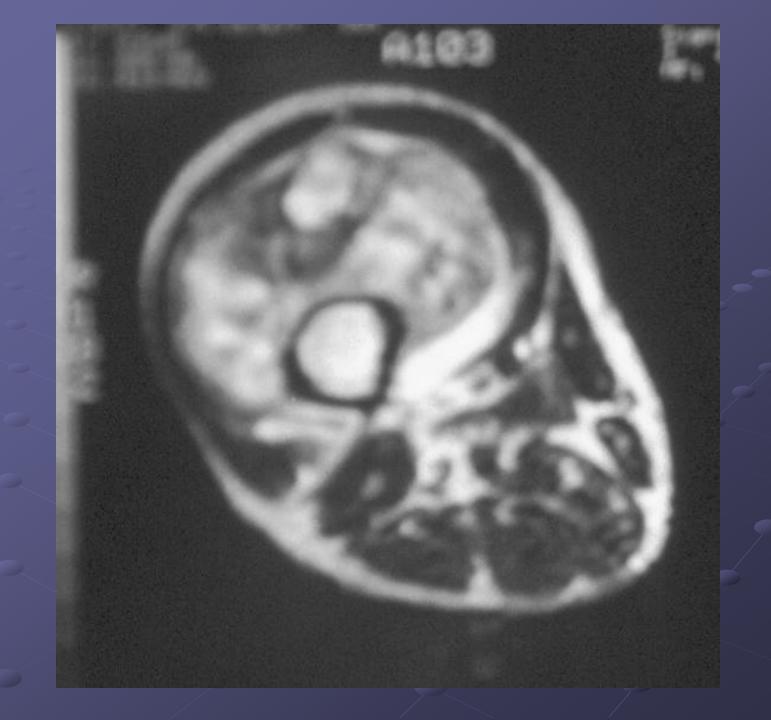
- Young adults, posterior distal femur
- Ossified mass against cortex with a radiolucent 'string sign'
- Histo... interconnected spicules of bone with low grade spindle cells (FD-like)
- Low-grade sarcoma
- Wide resection, need to take some femur
- NO CHEMO

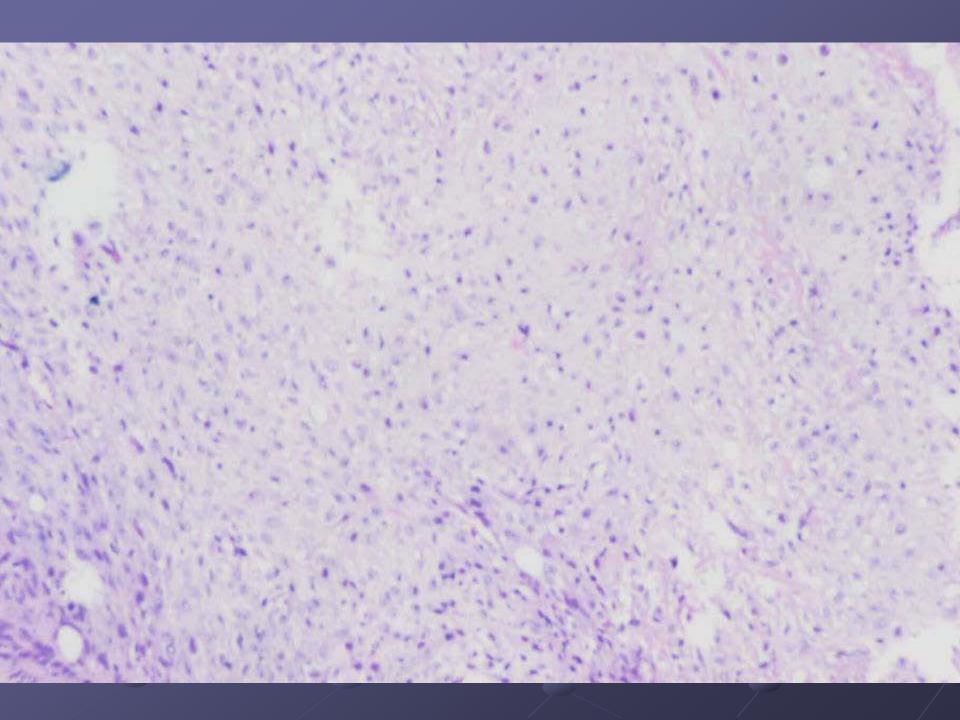


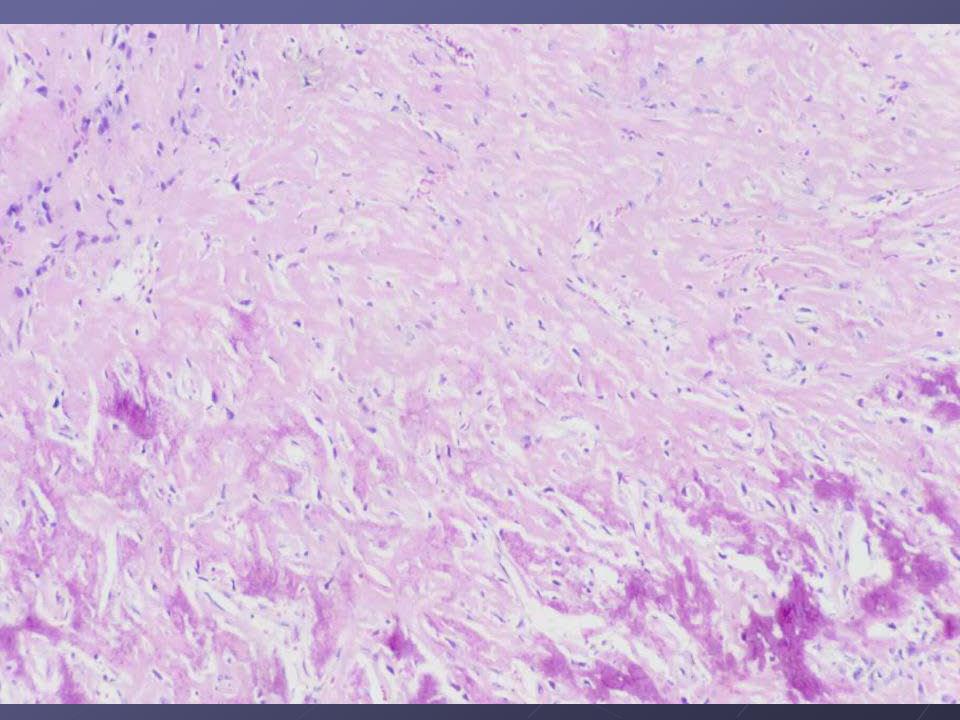
CM

- 60 YO WITH THIGH PAIN
- PERIOSTEAL BASED MASS AND EROSIONS





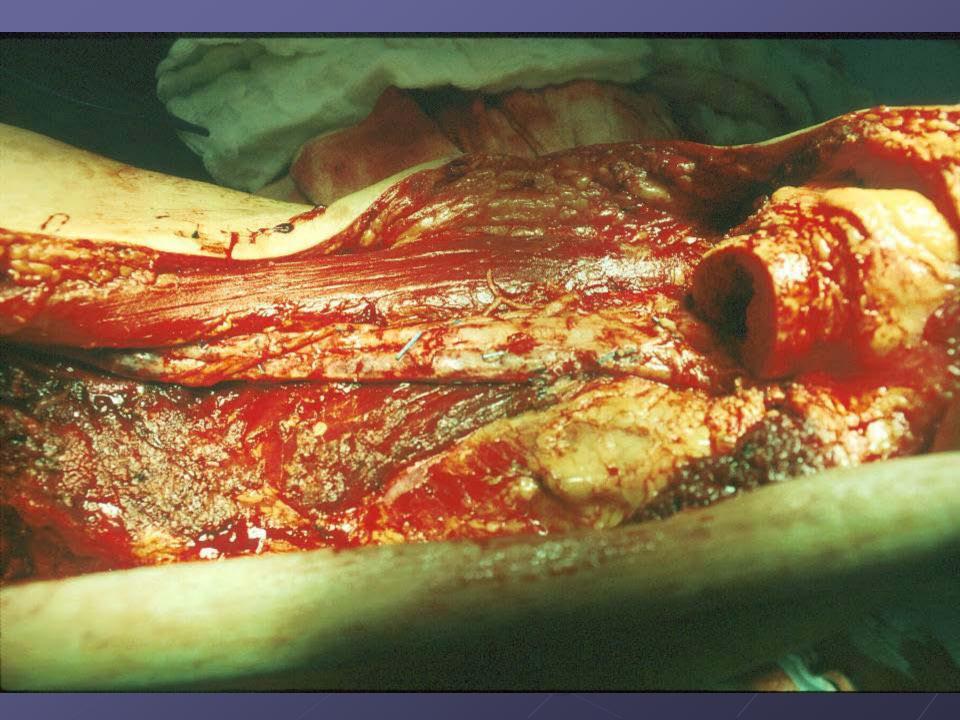


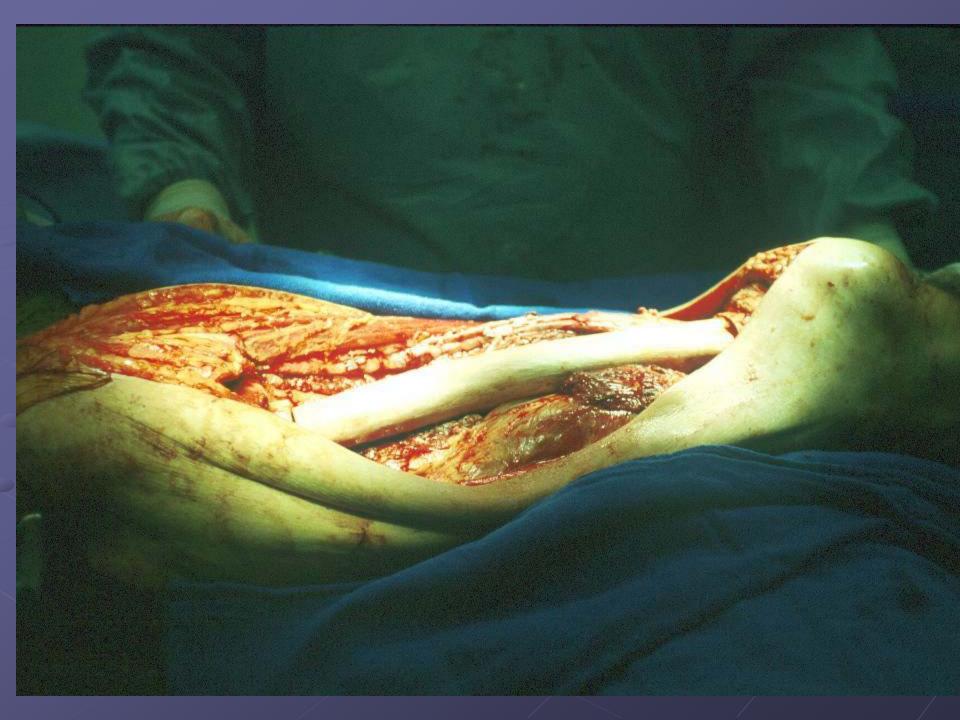


PERIOSTEAL OSTEOSARCOMA

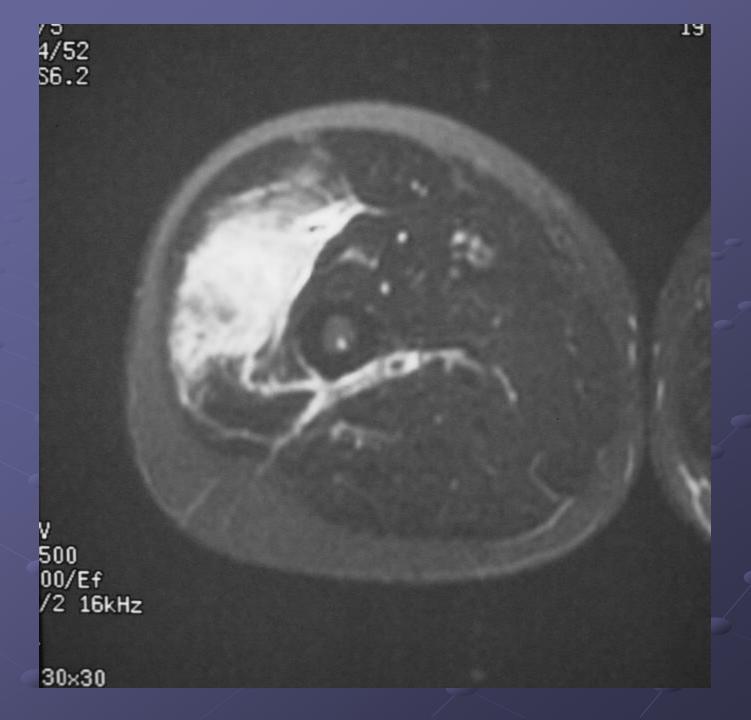
- Young adults, older than parosteal
- Less ossification (mostly cartilage)
- XR... 'aggressive' periosteal chondroma
- Intermediate grade... mostly cartilage with malignant cells producing osteoid
- Wide resection (chemo questionable)

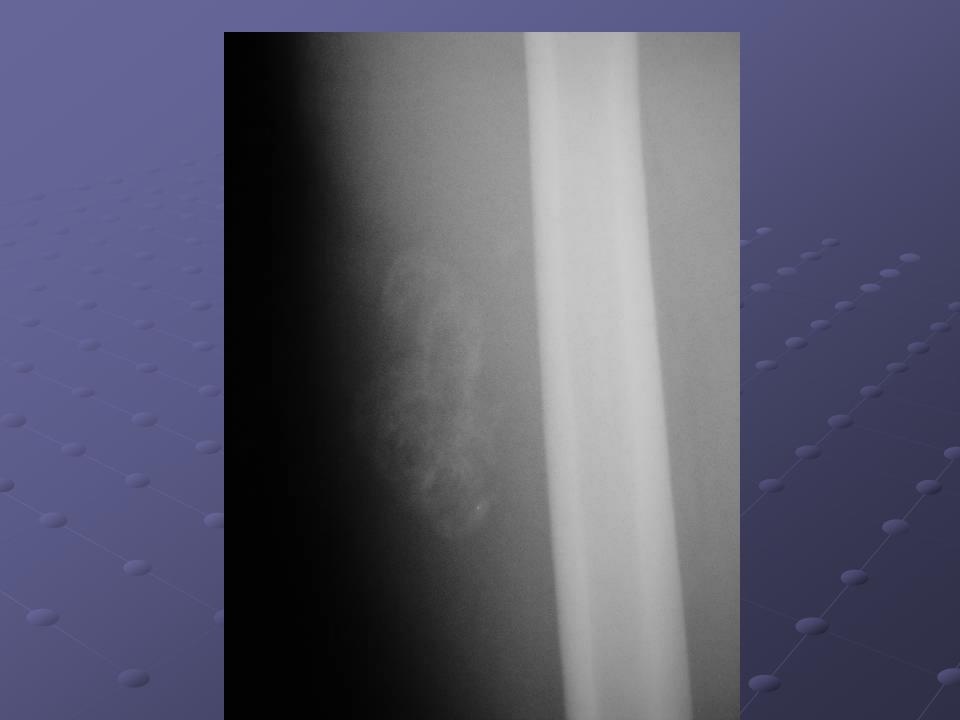


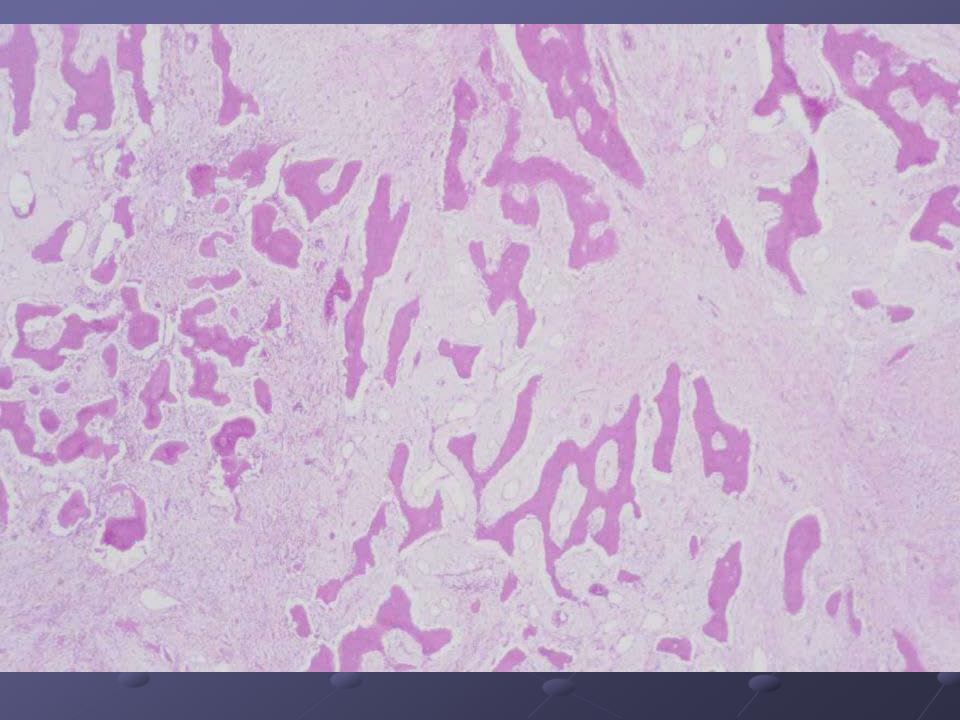




- 15 YO MALE NO DEFINITE TRAUMA
- SOCCER PLAYER
- THIGH MASS, MINIMAL PAIN





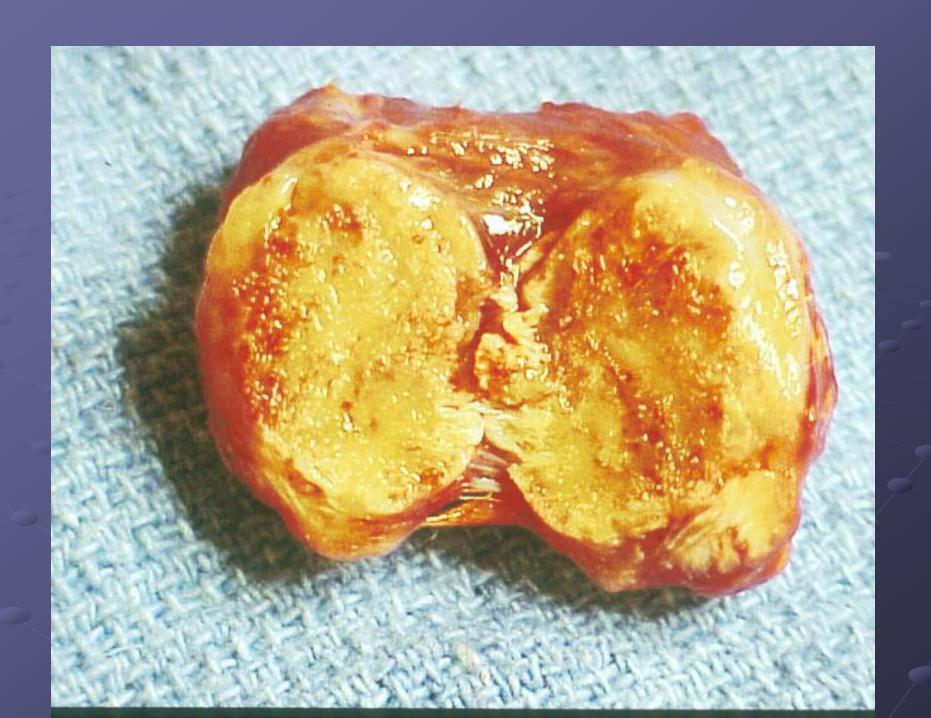


MYOSITIS OSSIFICANS

- Trauma
- Zoning phenomena (histo and x-ray)
- Progressive ossification with time... followup films
- X-ray all soft tissue masses
- Rx...observe





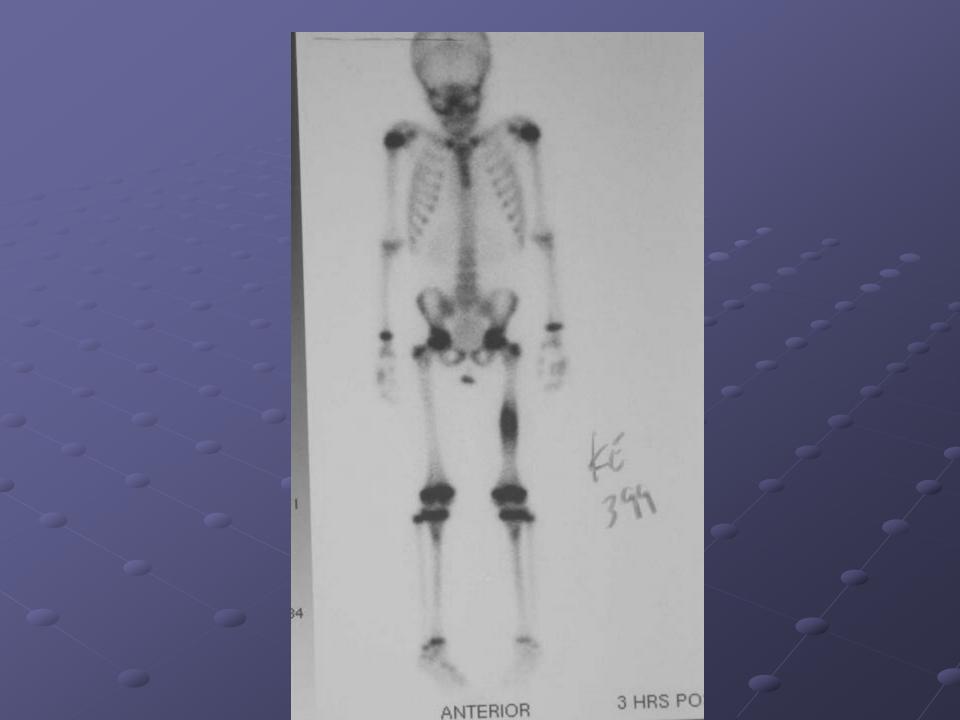


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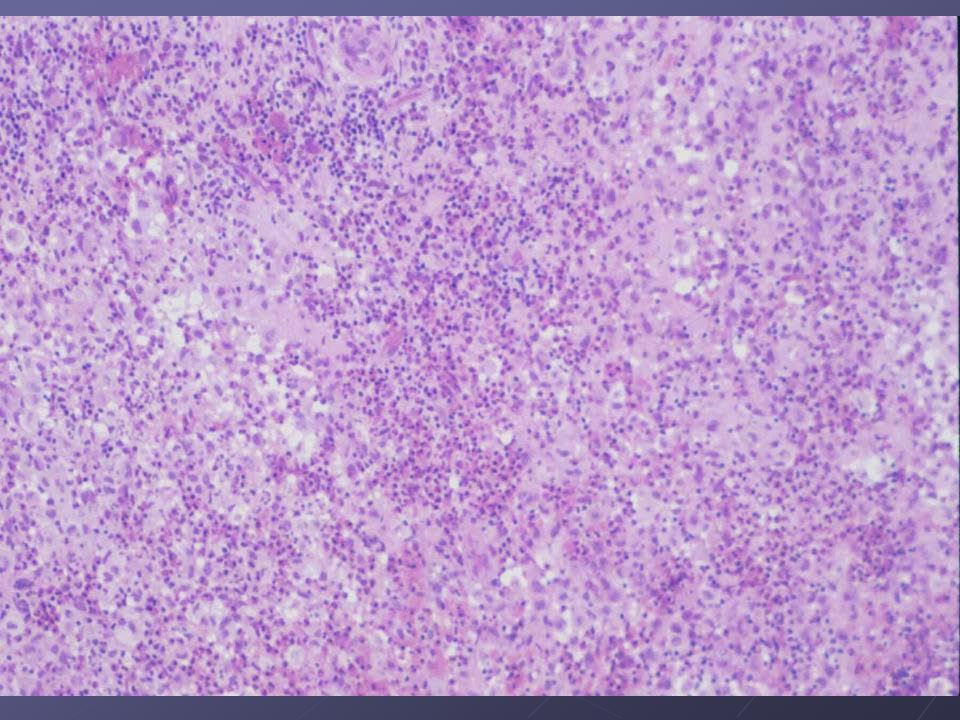
- 6 YO WITH THIGH PAIN
- NO TRAUMA
- NO SYSTEMIC SIGNS

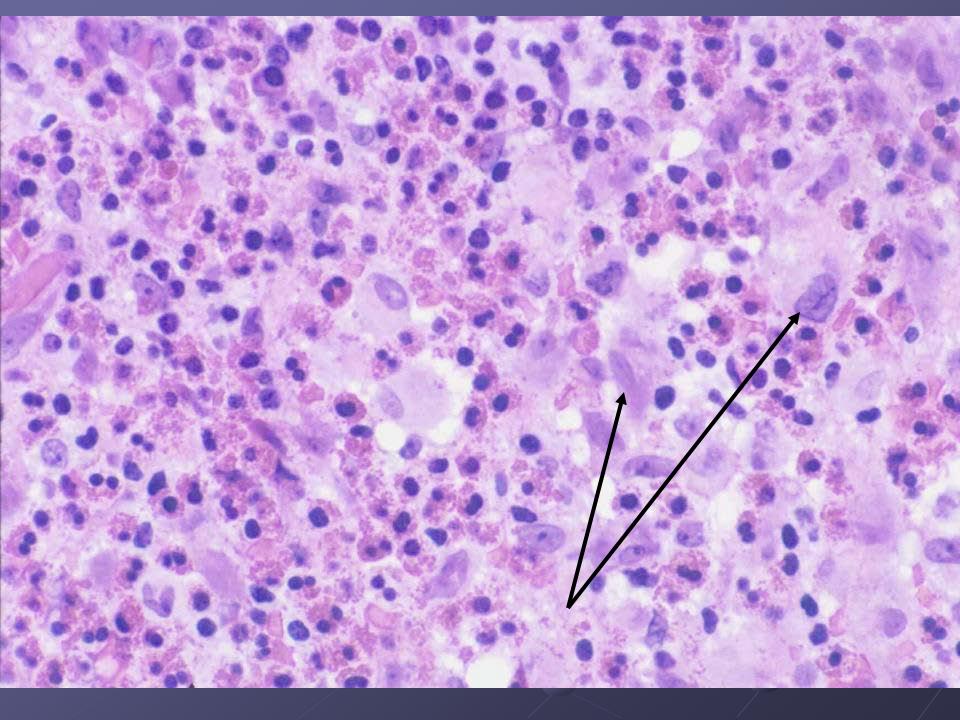






TSE/M SL 13 5 cm





EOSINOPHILIC GRANULOMA (LANGERHANS GRANULOMATOSIS)

- Young, may be multi-centric or associated with systemic disease (HSC, Litterer-Siwe)
- Permeative (great imitator), cold bone scans, skeletal survey, CT of chest/abd/pelvis
- Histo.. Langerhans cells, eosinophils, Birbeck-granules, mimic infection
- Rx.. Observe (resolve), steroid injections for size and pain, chemo if systemic

MQ

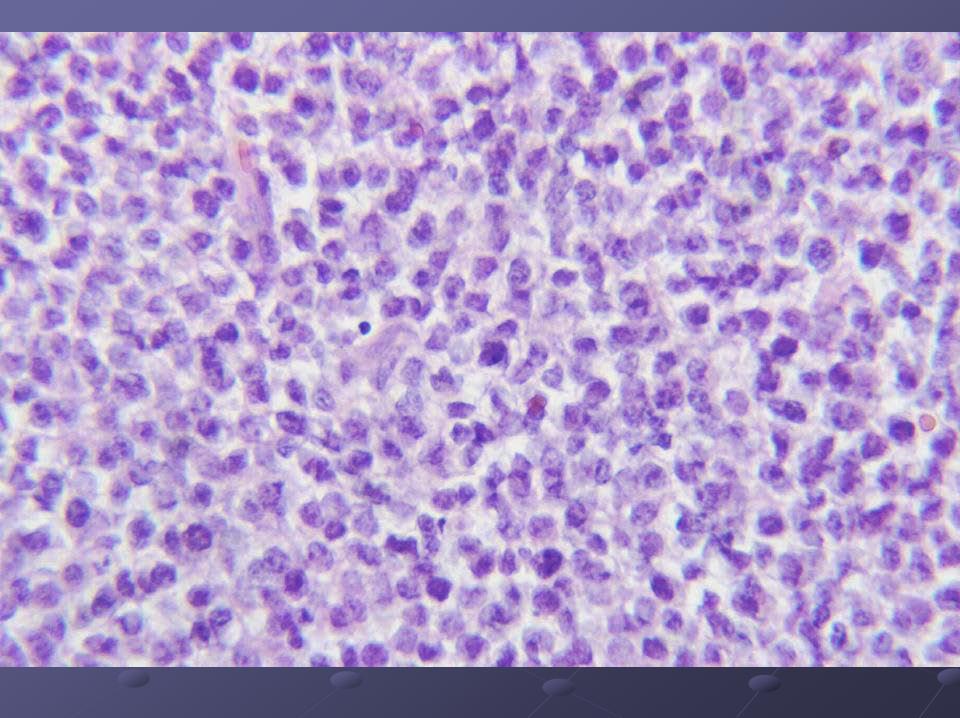
- 4 YO THIGH PAIN AND MASS
- FEVERS AND CHILLS
- NO TRAUMA





nead FH 52 nead Sc 5 SE/M SL 10 Sc 5 SEM SL 11 A 5 cm 5 cm



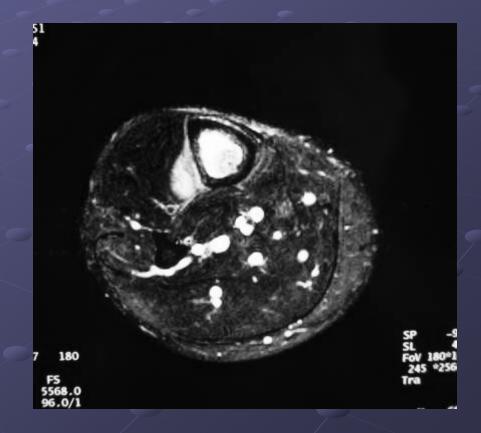


EWINGS

- 4-14, diaphyseal, flat bones, systemic signs
- X-ray.. Permeative, onion skinning, soft tissue mass, hotter bone scan
- Histo.. Small round blue cell (lymphoma, PNET, neuroblastoma, rhabdomyosarcoma), 11-22 translocation
- Rx.. All get chemo, wide surgery (limb salvage), XRT if not resectable, 60-70% 3YS





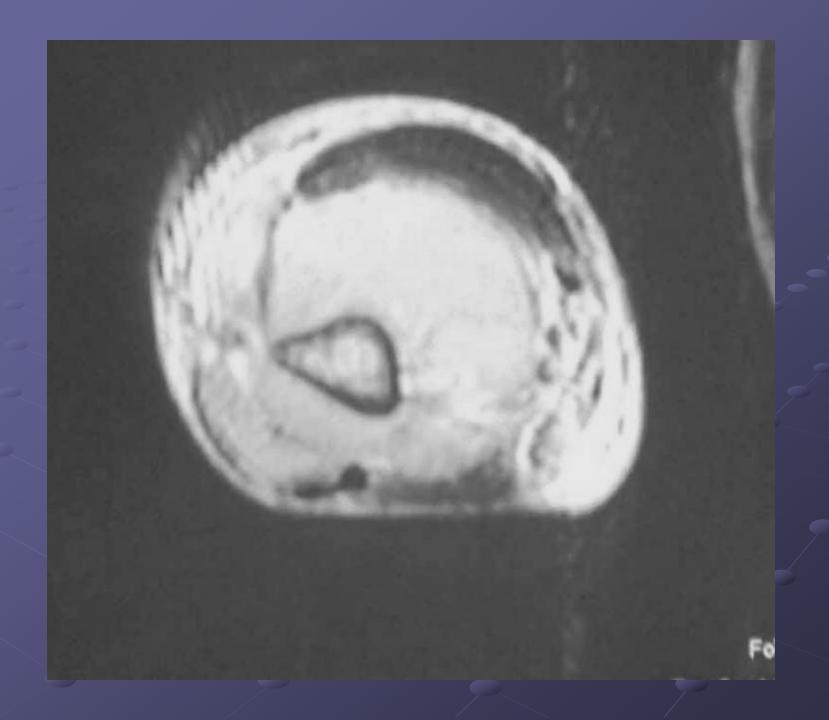


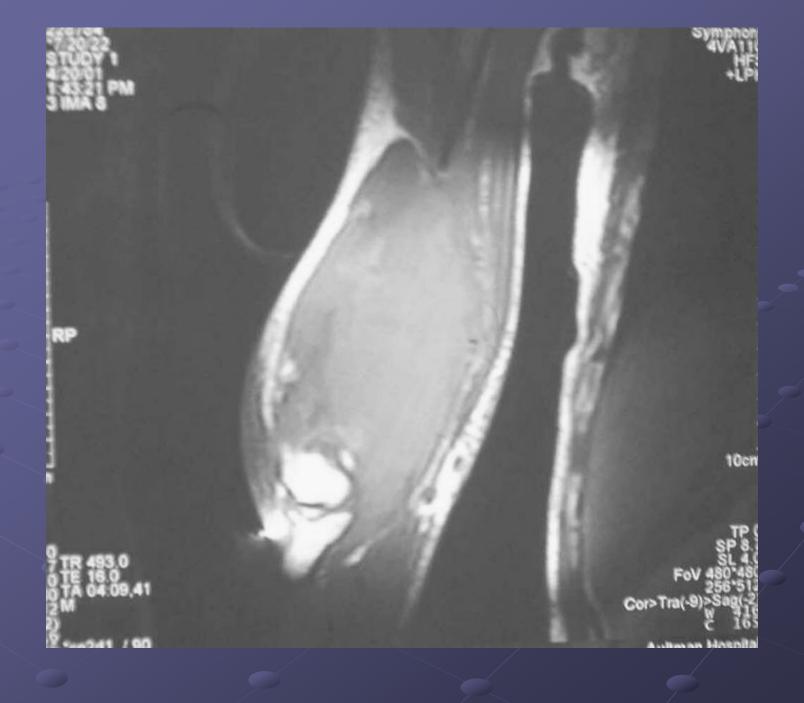
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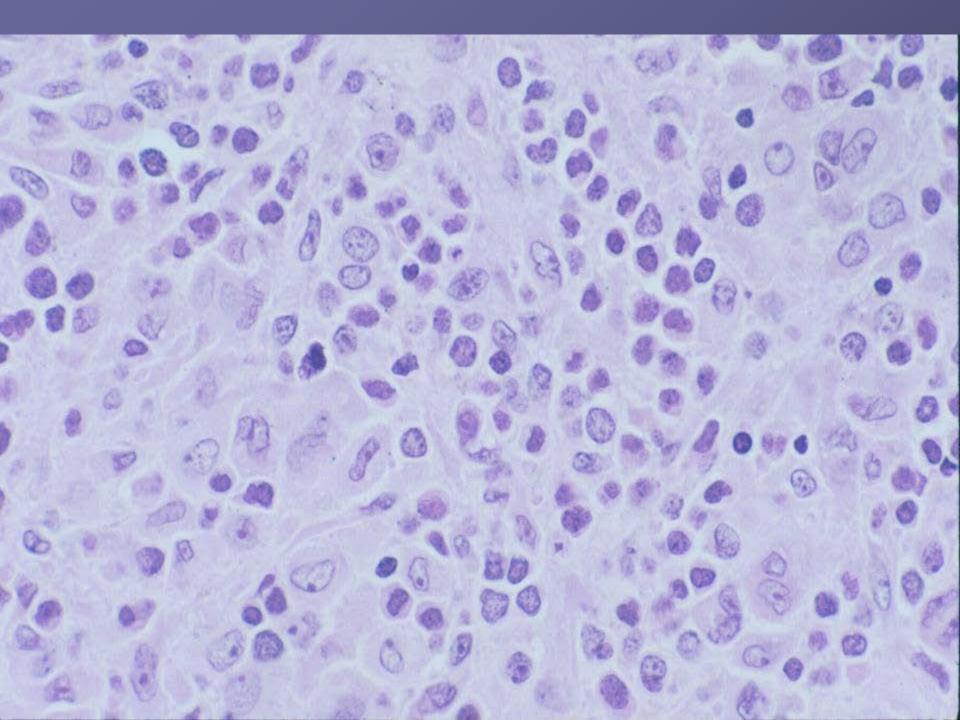
- 55 YO WITH ARM PAIN AND MASS
- NIGHT SWEATS AND FEVERS
- NO OTHER SITES OF PAIN OR CANCER

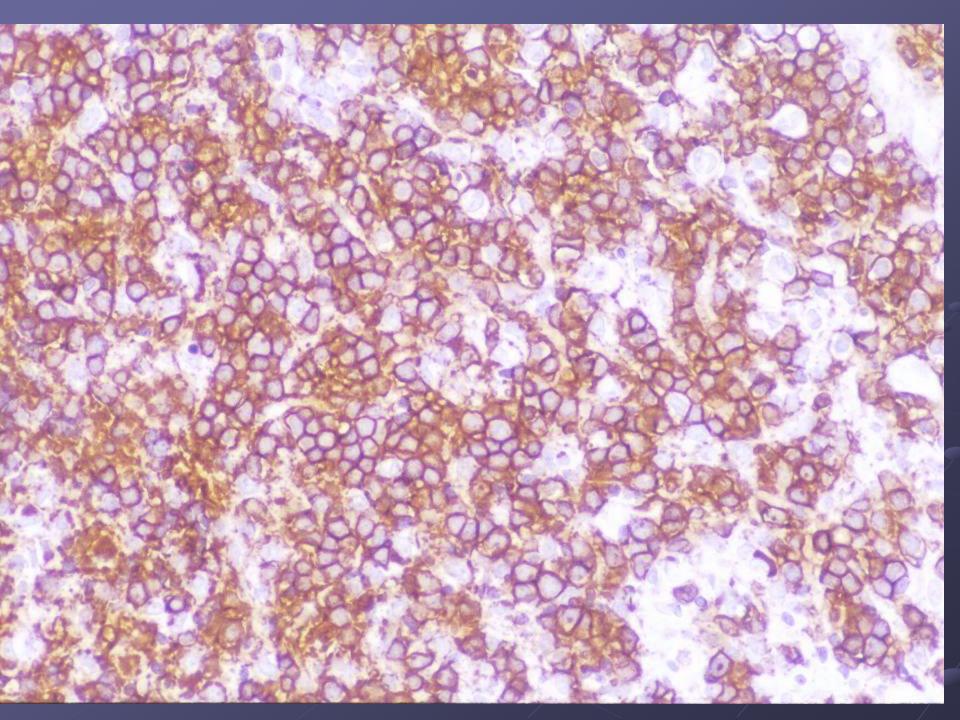












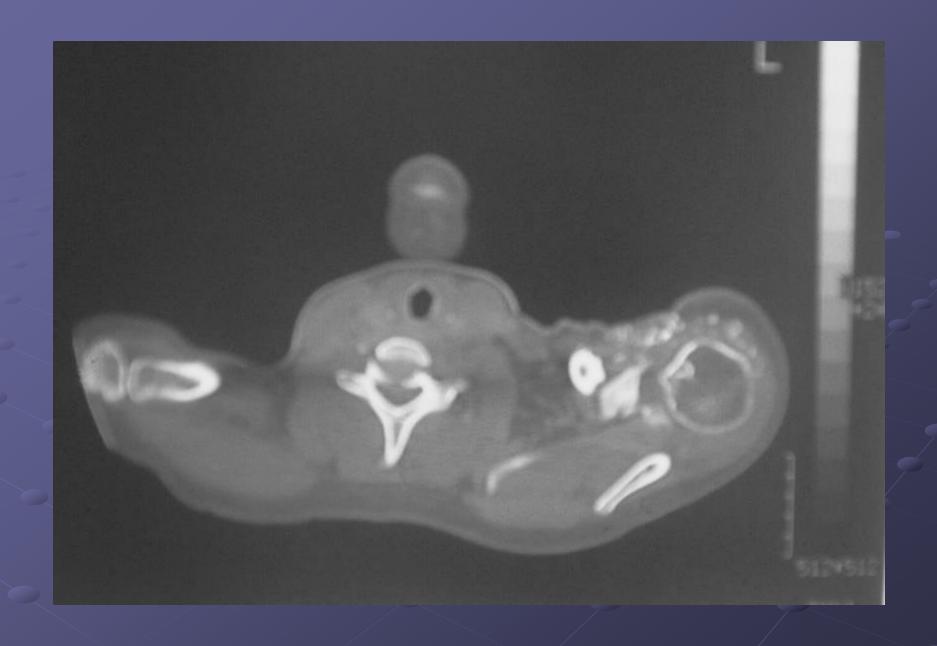
LYMPHOMA

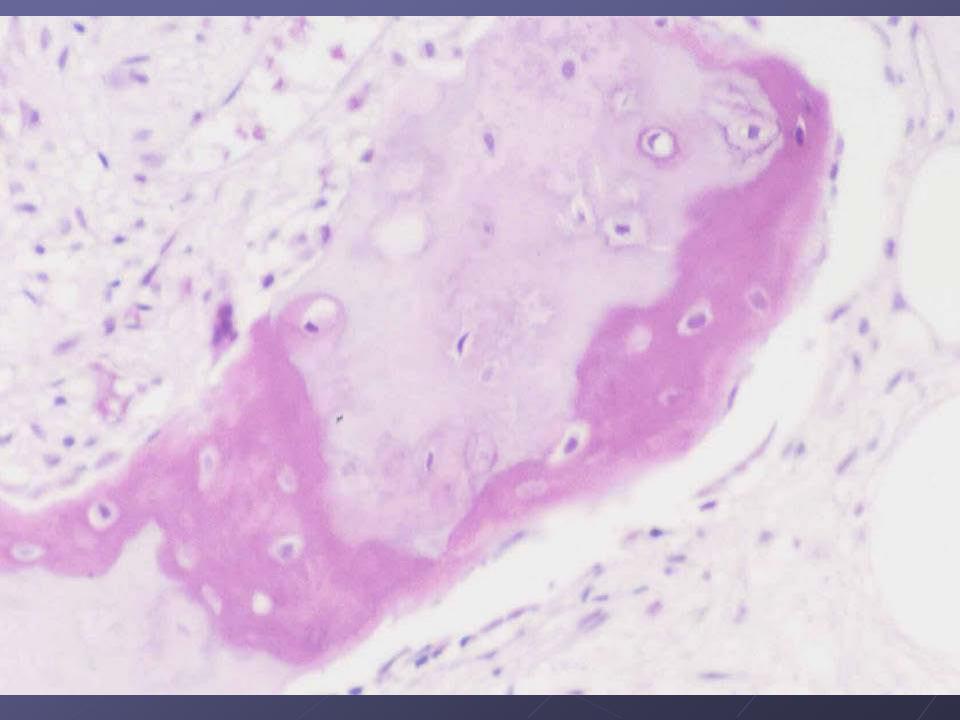
- Usually B cell, non-Hodgkins, can only involve bone
- Stage with CT chest/abd/pelvis, bone marrow biopsy, bone scan
- X-ray.. Permeative, may be normal, bone scan hot
- Rx.. Chemo, surgery for palliation

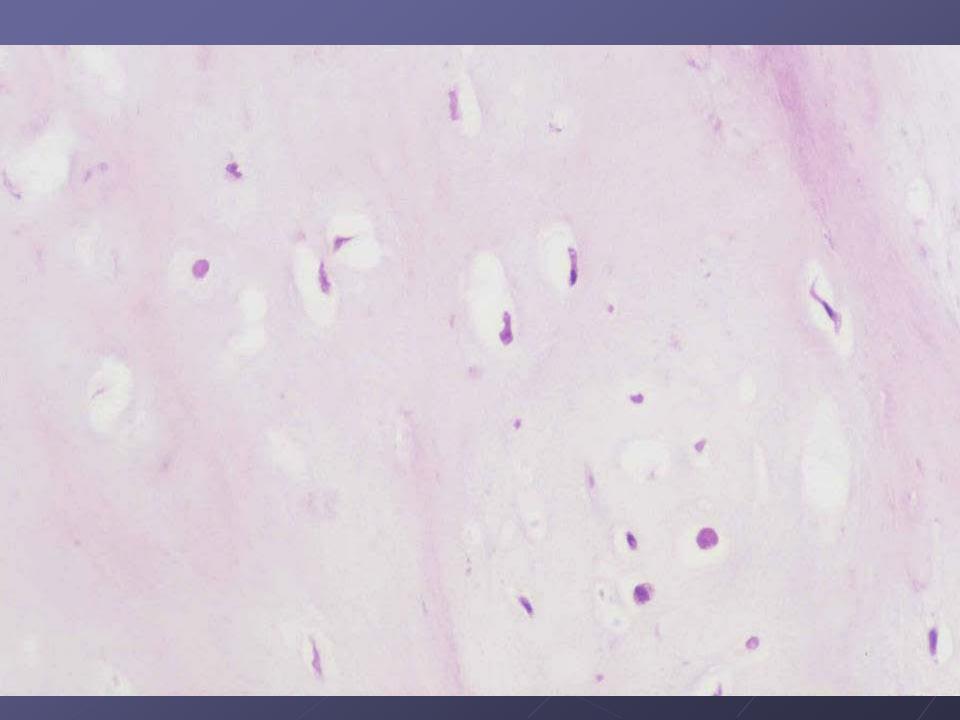
- 40 YO FEMALE WITH SHOULDER PAIN AND LOCKING FEELING
- NO TRAUMA

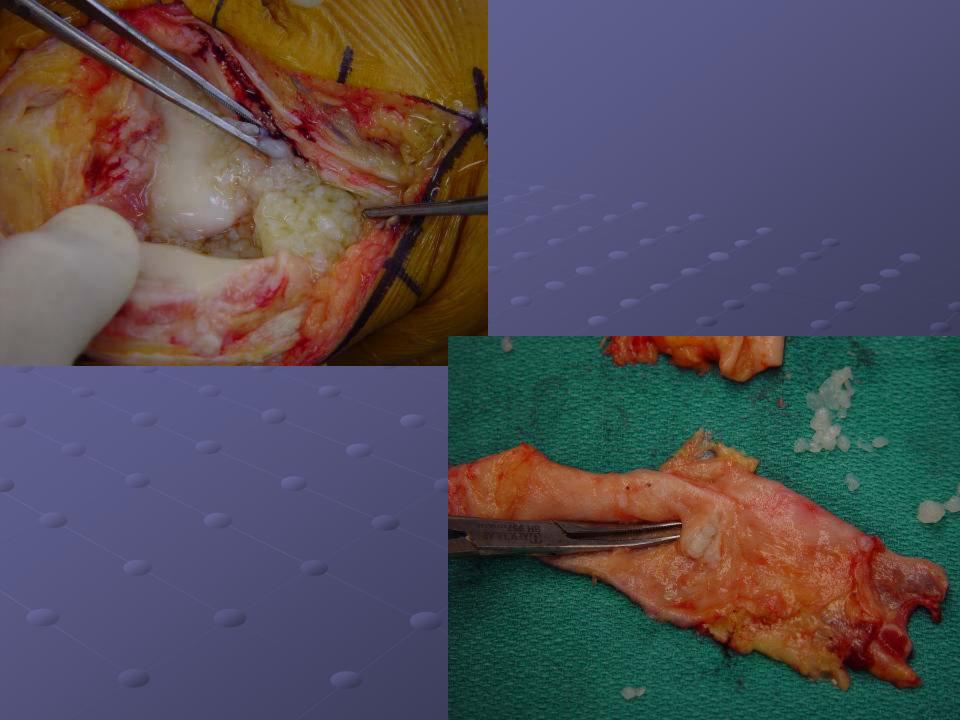










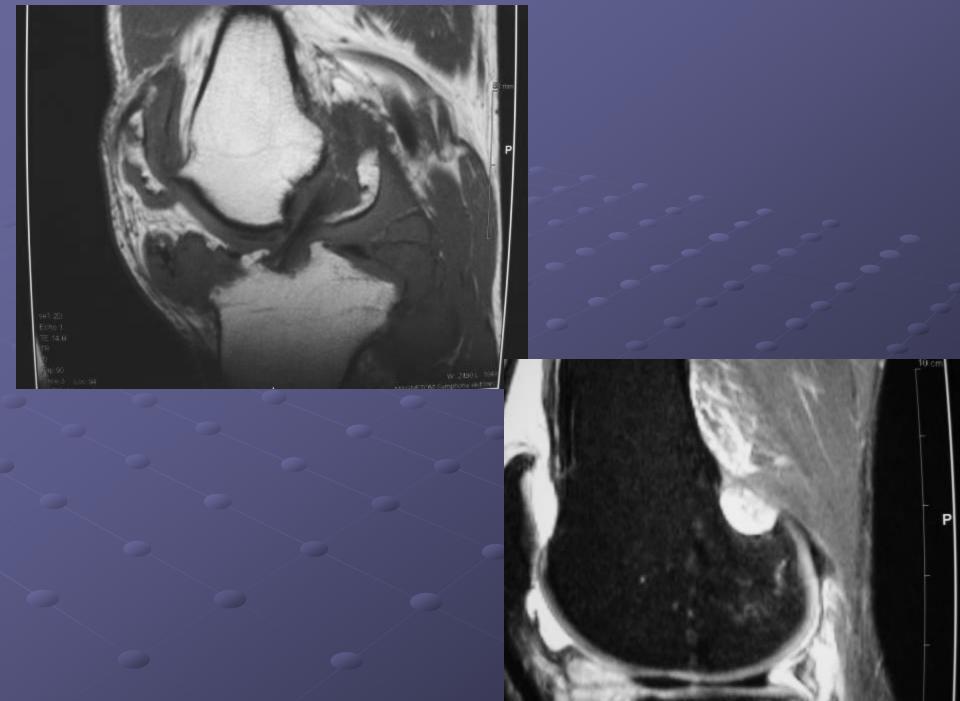


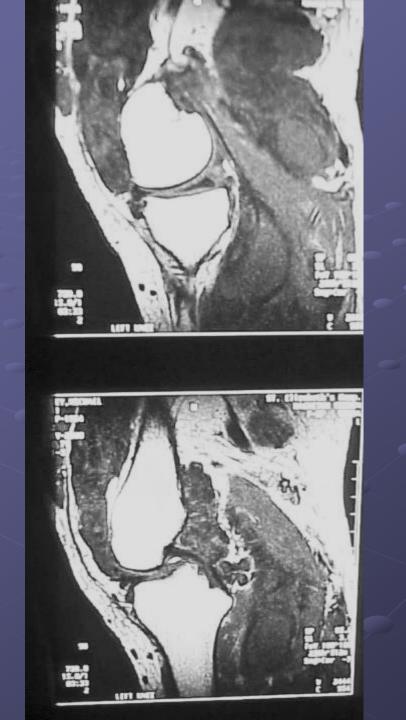
SYNOVIAL CHONDROMATOSIS

- Benign
- Synovectomy (scopic difficult due to many fragments)
- Eventual joint destruction... knee replacement

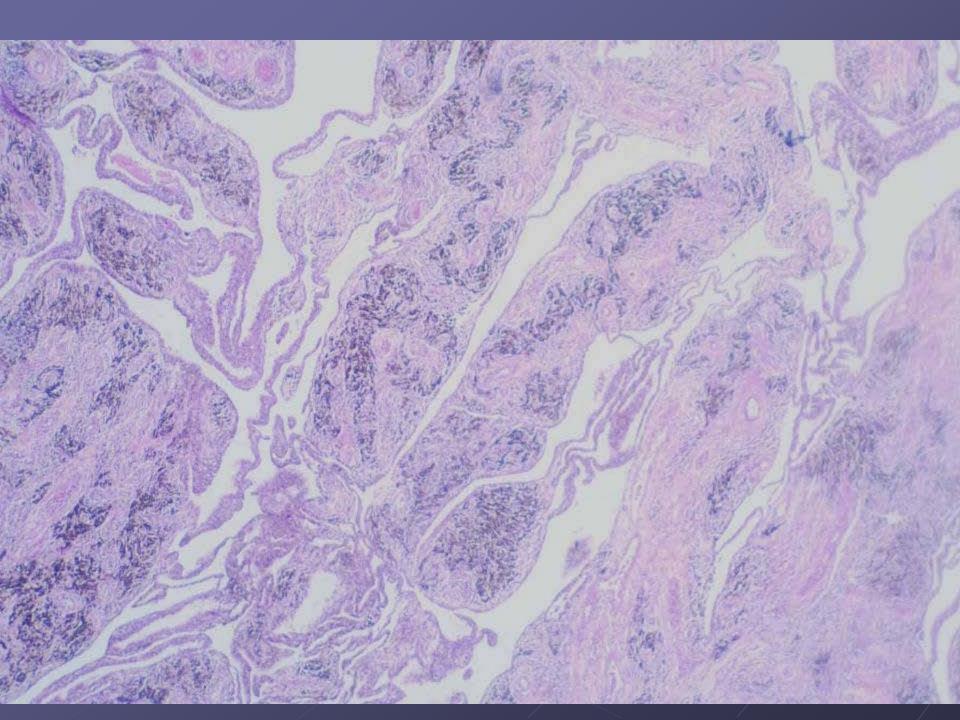
- 35 YO WITH KNEE PAIN AND SWELLING
- RECURRENT PROBLEM

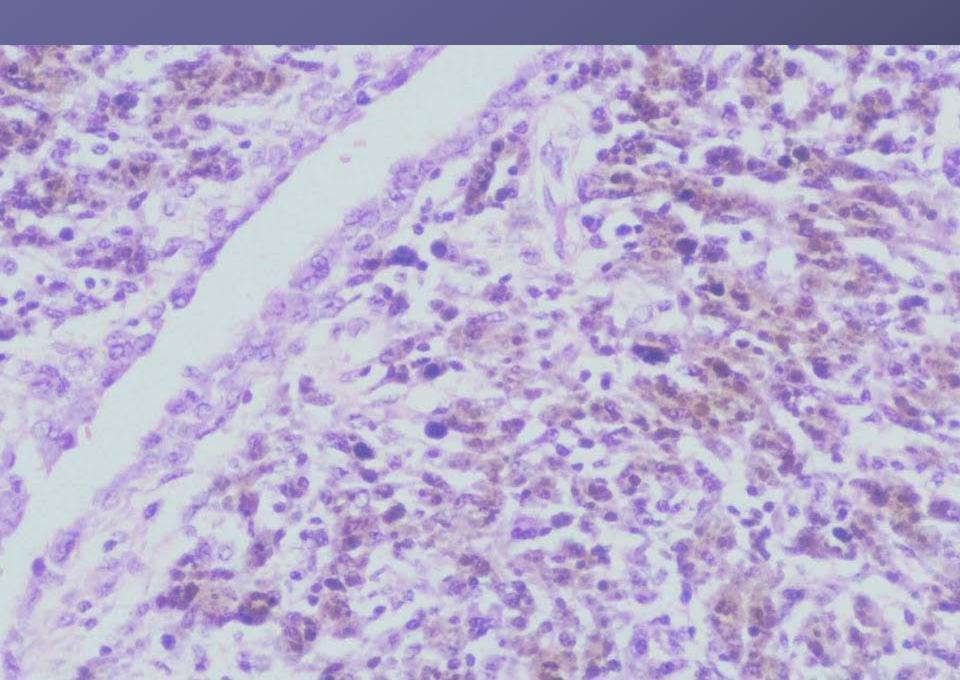


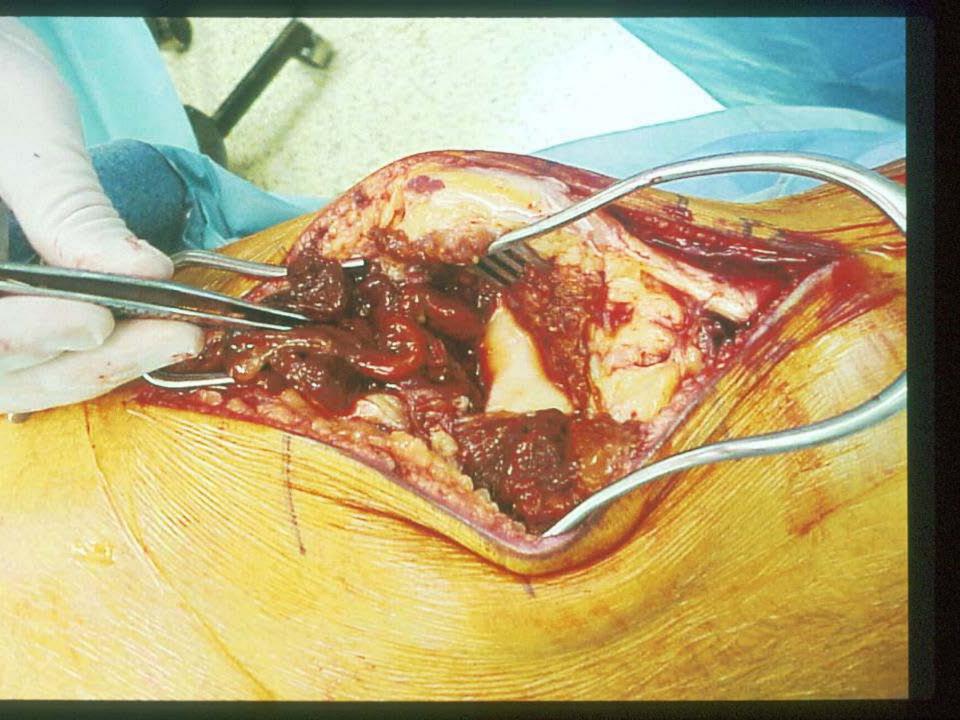


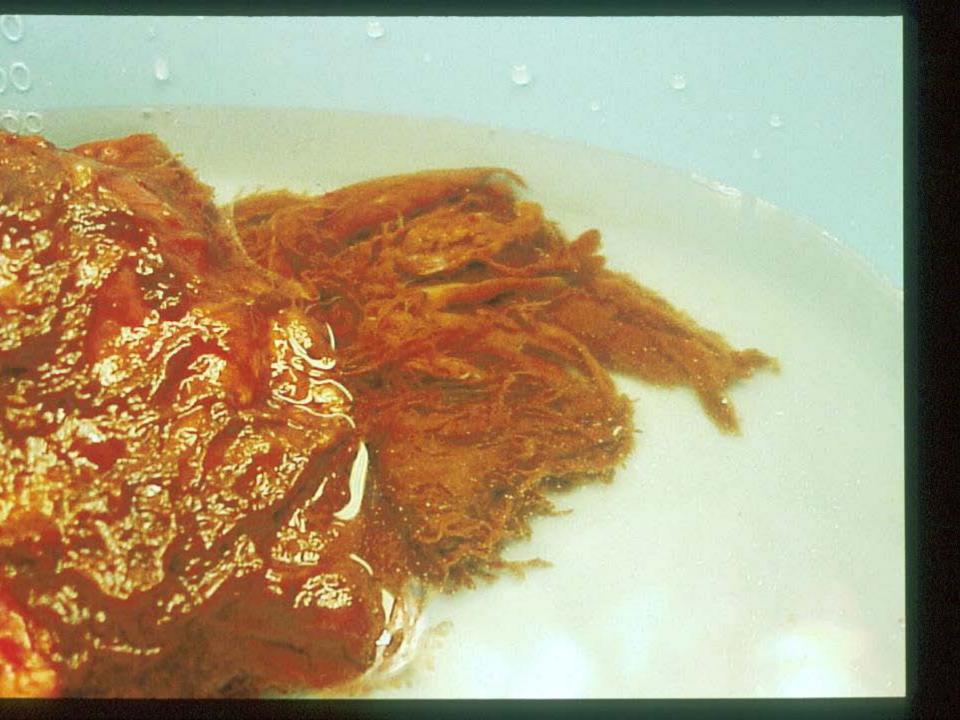


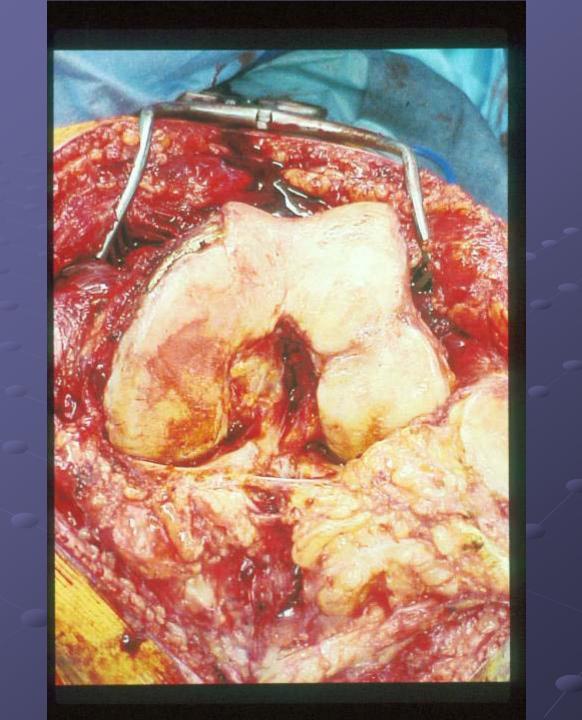






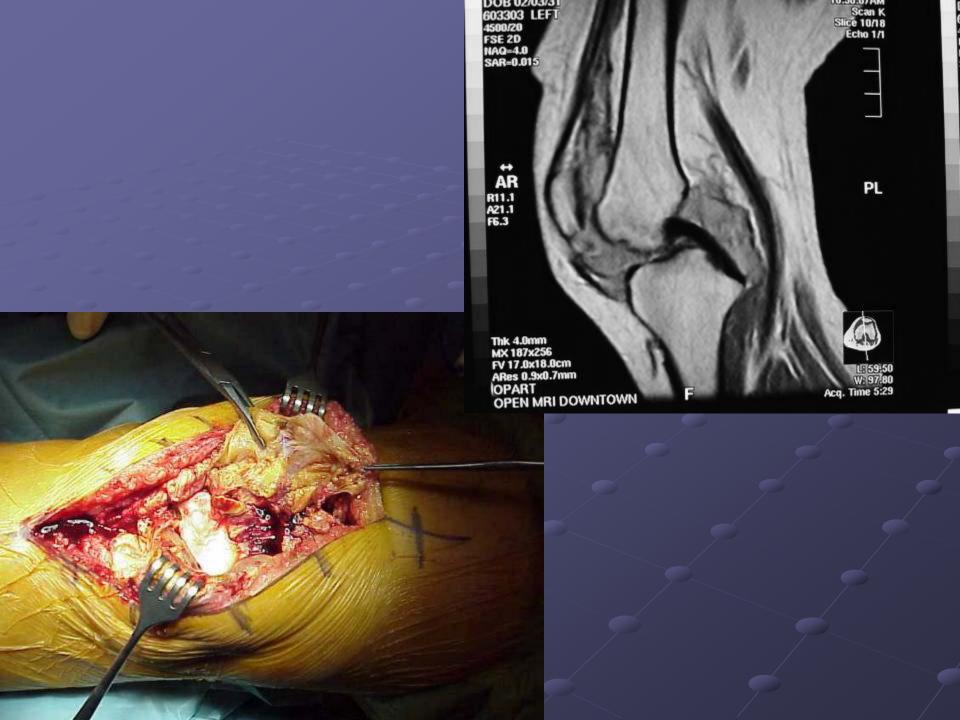






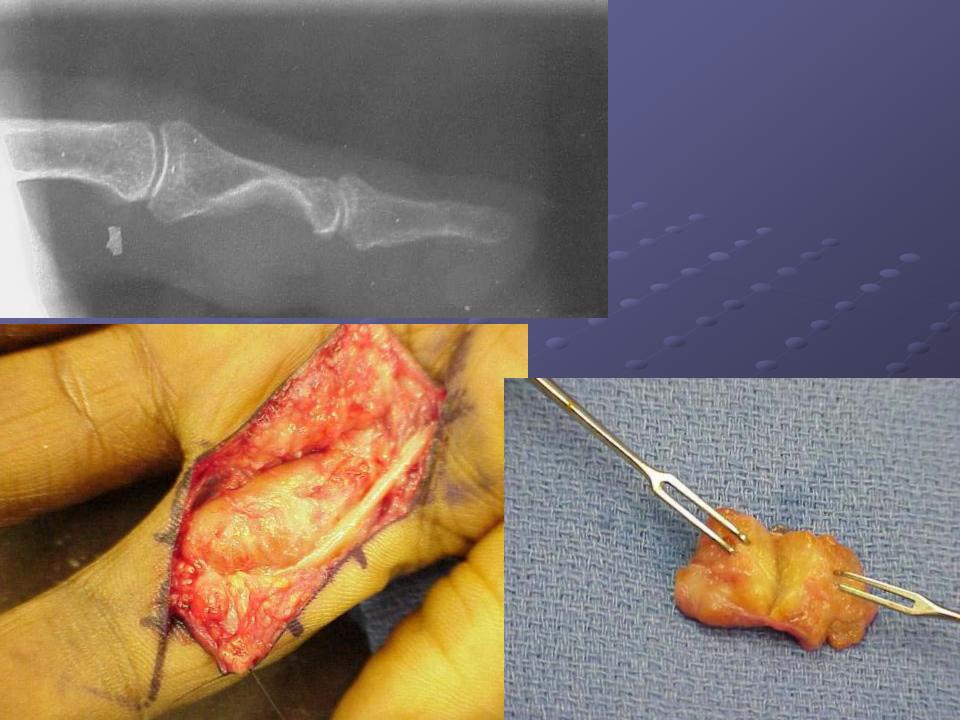
PIGMENTED VILLONODULAR SYNOVITIS

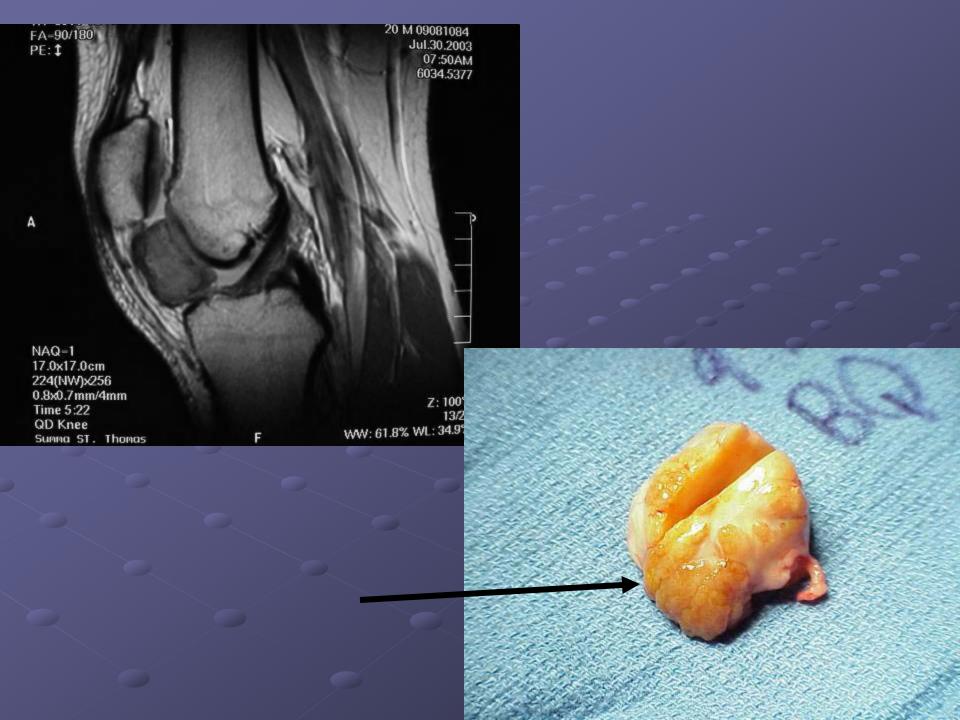
- Knee most common, nodular vs. diffuse
- X-ray.. erosions on both sides of the joint
- MRI.. Synovial replacement, dark on T1 and T2 with bright fluid, may erode bone
- Histo.. Fronds with fibroblasts, diffuse hemosiderin and giant cells
- Rx...
 - Synovectomy (scopic first)
 - Open synovectomy for recurrence
 - Eventual total joint, process stops





- 35 YO WITH PAINLESS FINGER MASS
- NO TRAUMA

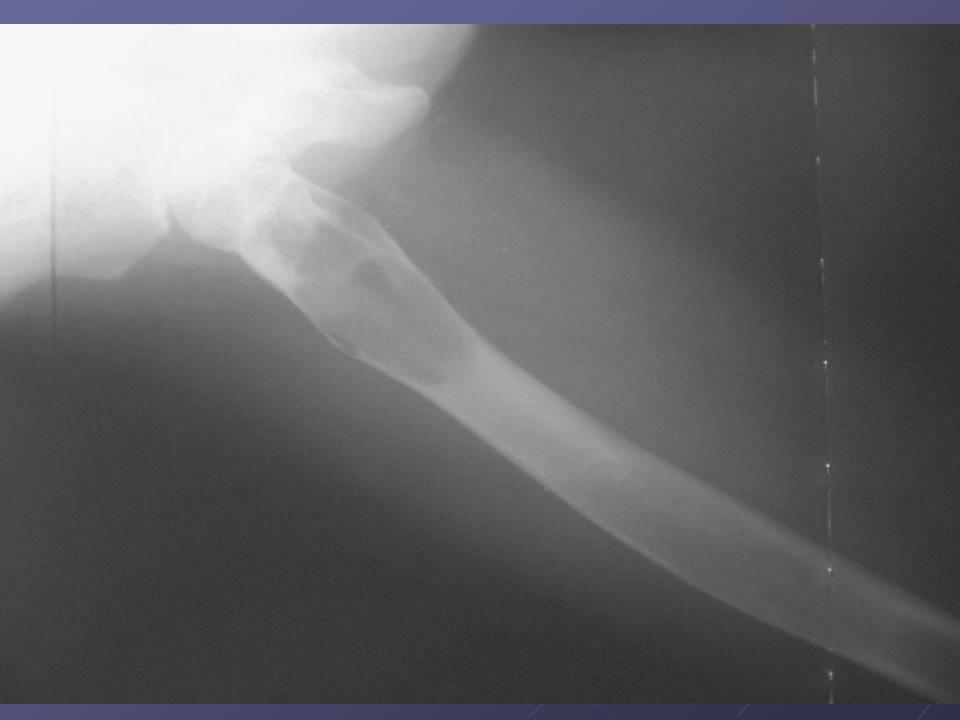


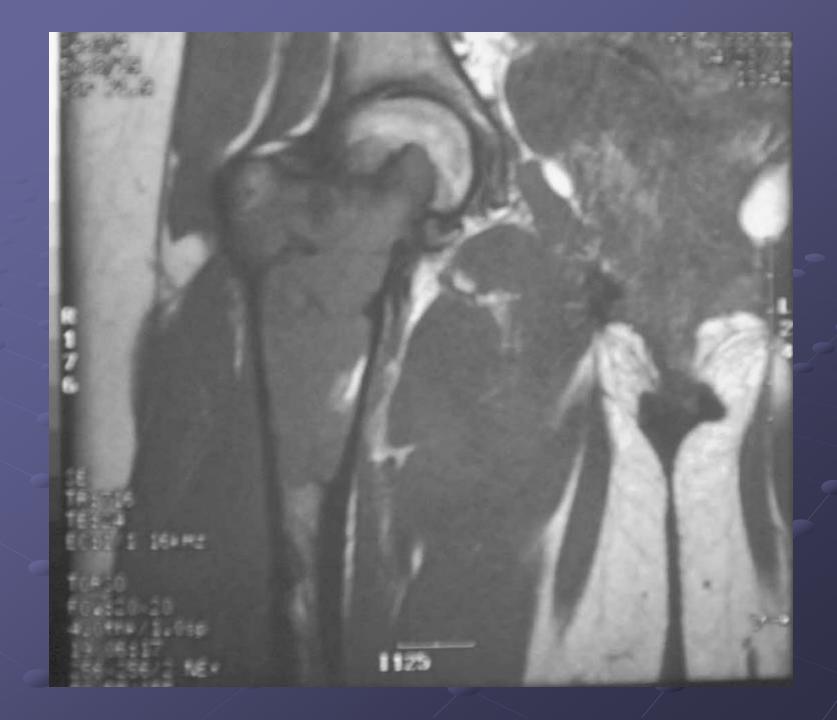


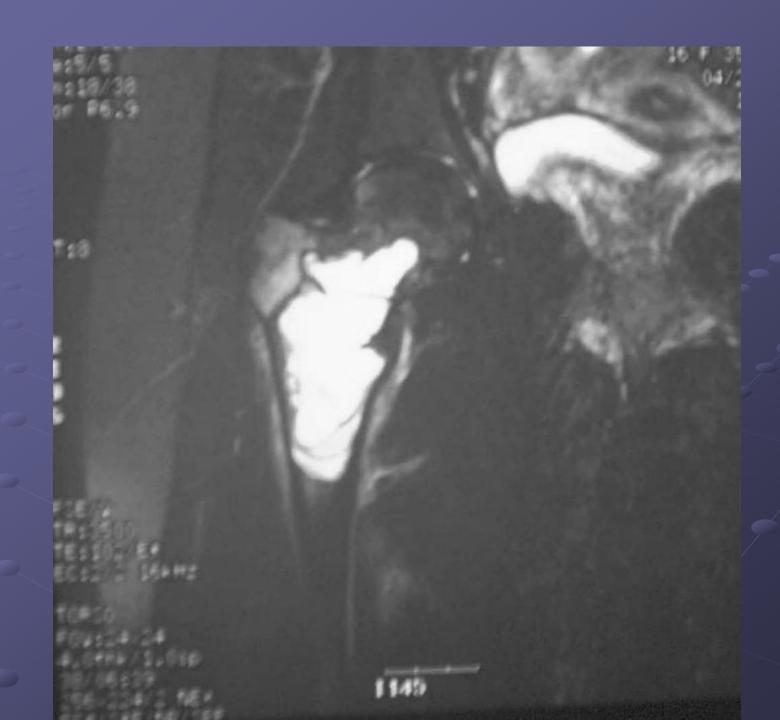
KB

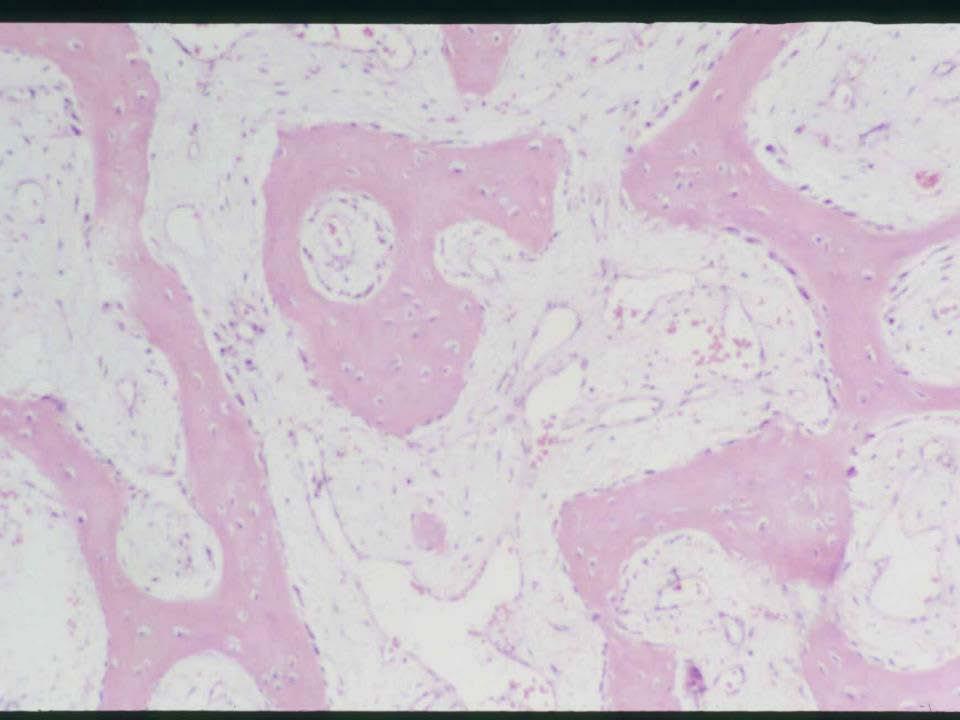
- 25 YO WITH ACTIVITY RELATED PAIN
- NO OTHER SITES OF PAIN

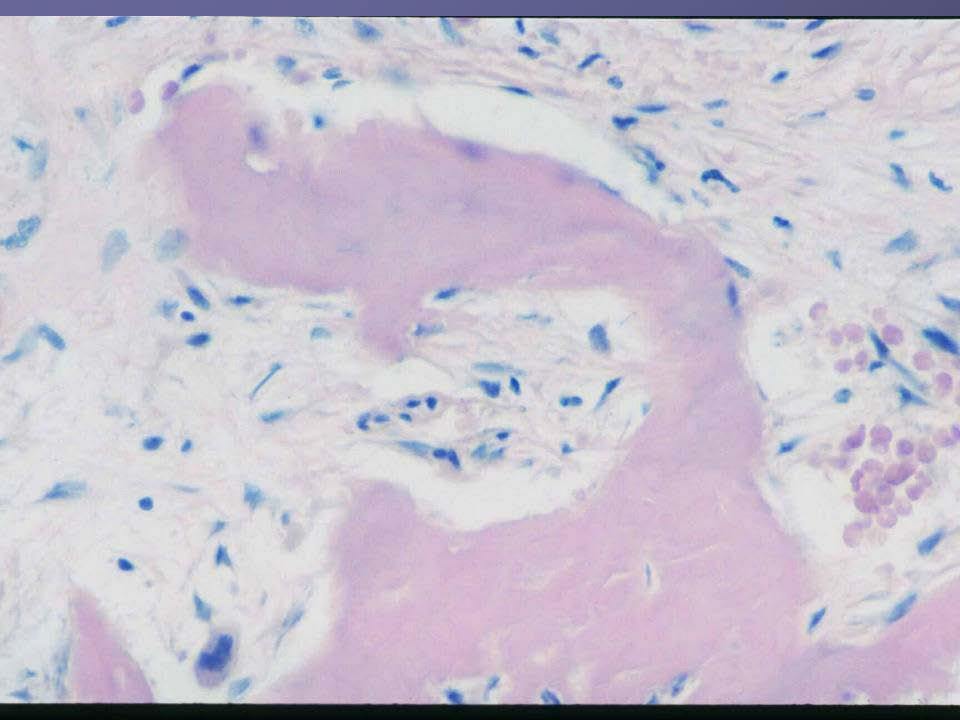










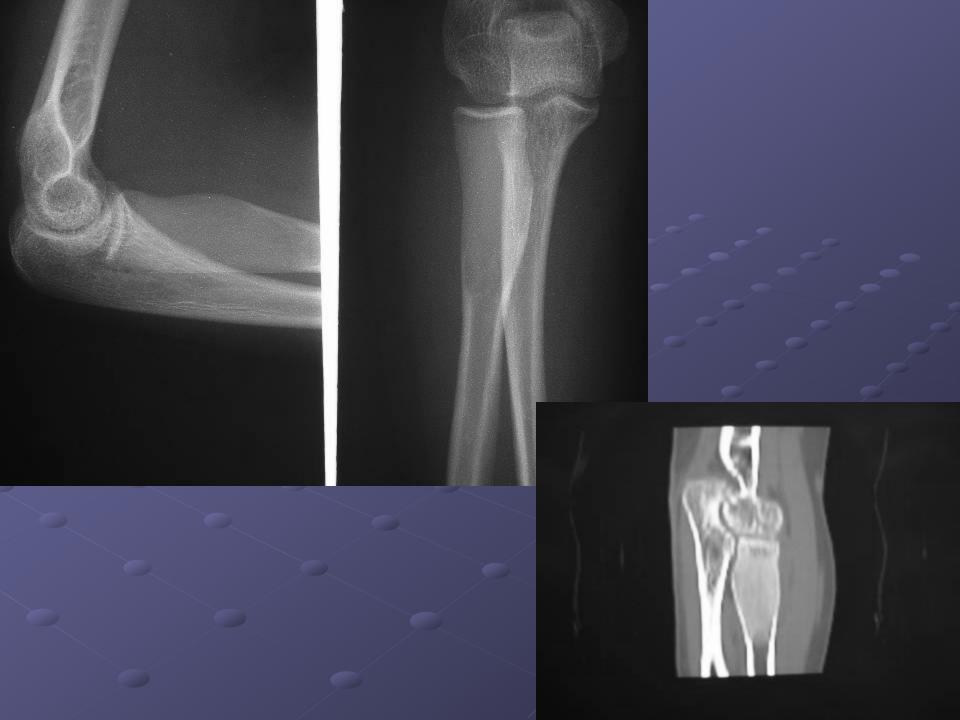


FIBROUS DYSPLASIA

- May be isolated, polyostotic or associated with McCune-Albrights
- Ground glass, any location, bone scan very hot
- Rare if any malignancy
- Histo.. Chinese letters, no osteoblasts, bland fibroblasts
- Rx.. Non-op, fix deformities and fractures, use cortical allo, intramedullary fixation











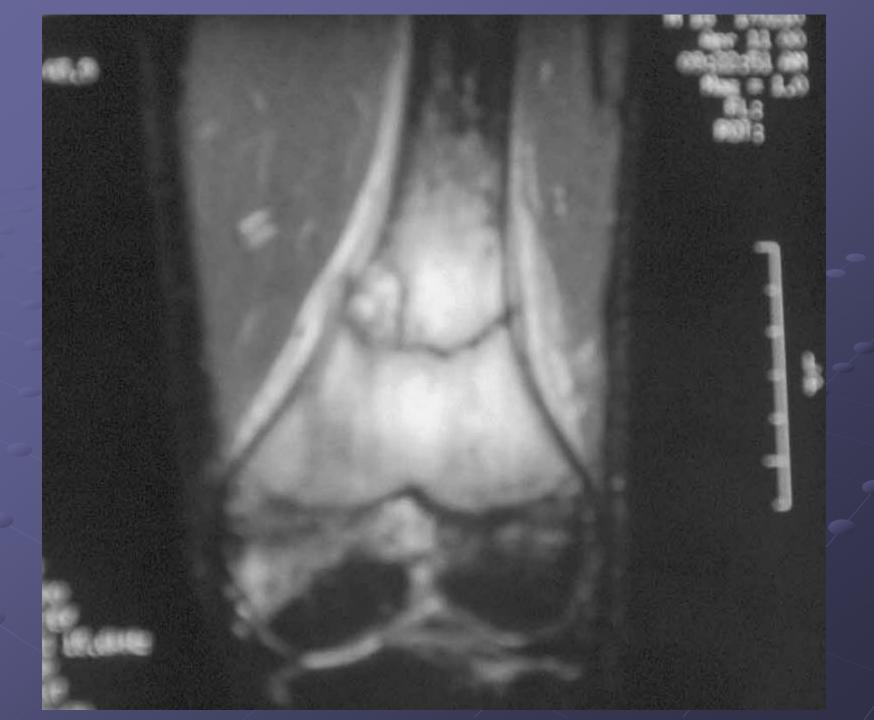
Stress fracture risk

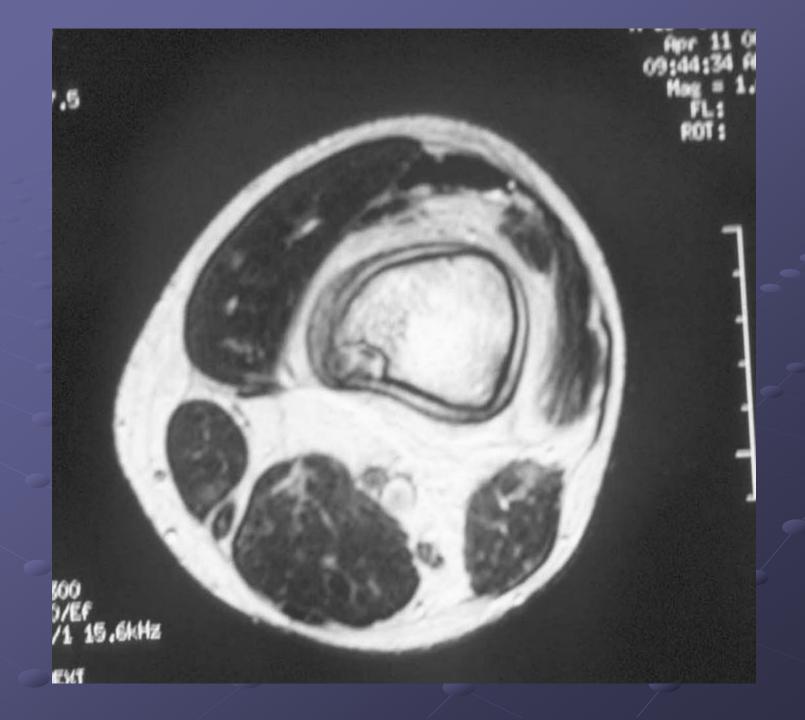


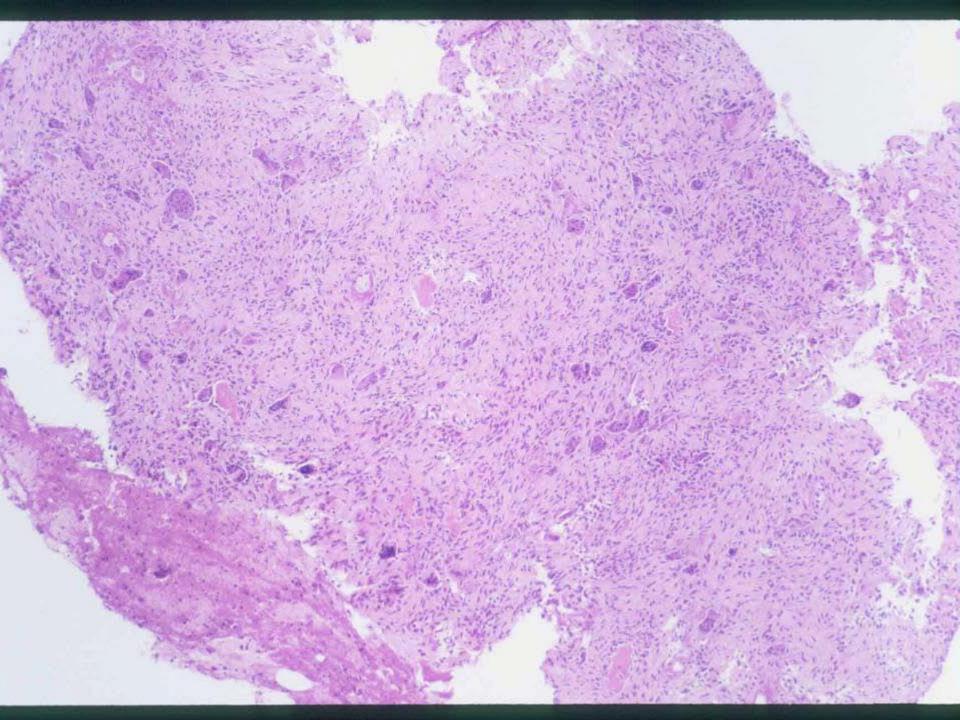
- 14 YO WITH ACUTE ONSET PAIN
- NO ACUTE INJURY
- NO PRE-EXISTING PAIN

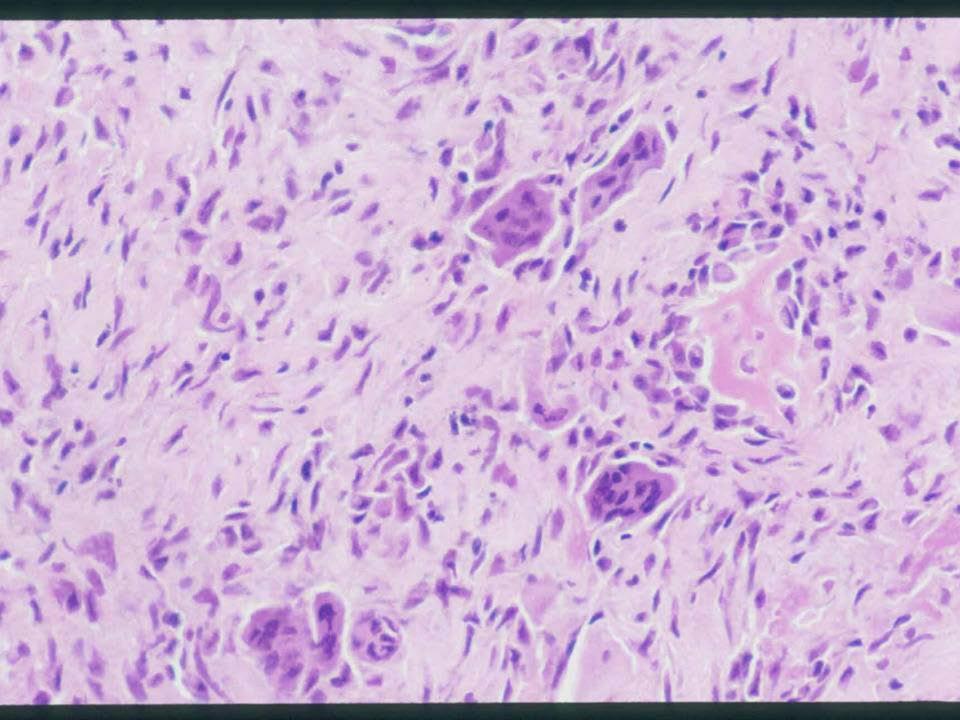












NON-OSSIFYING FIBROMA

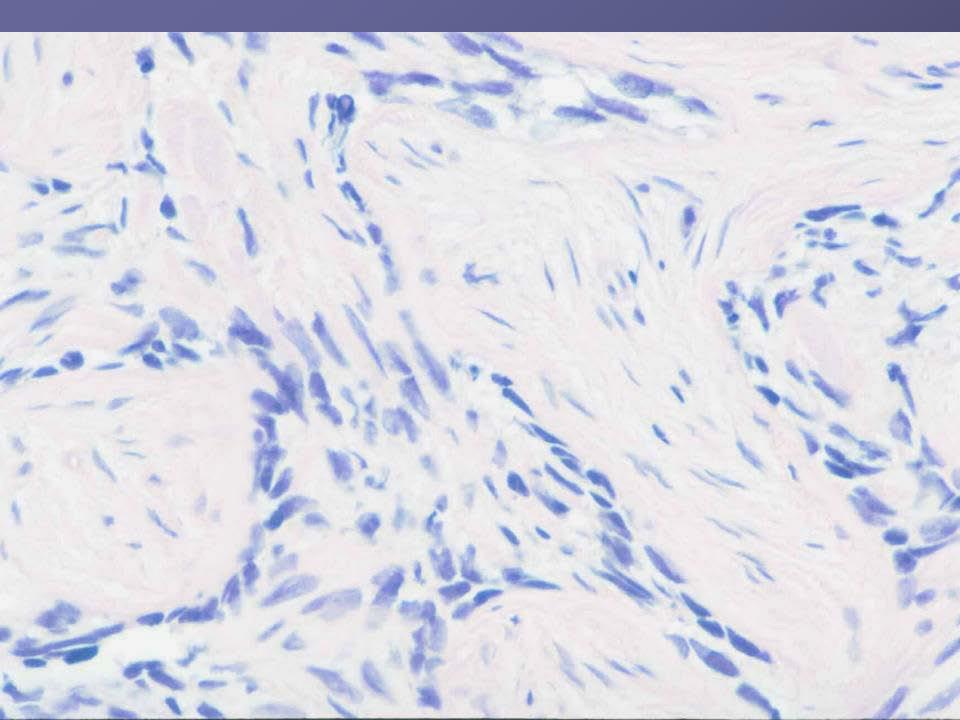
- Metaphyseal, eccentric, immature
- Resolves with maturity by ossifying
- May have hot bone scan, staging rarely needed
- histo.. Fibroblasts, rare giants, hemosiderin, clefts when healing
- Rx.. Observe, stabilize fractures or if pain (stress fx), size not usual determinant





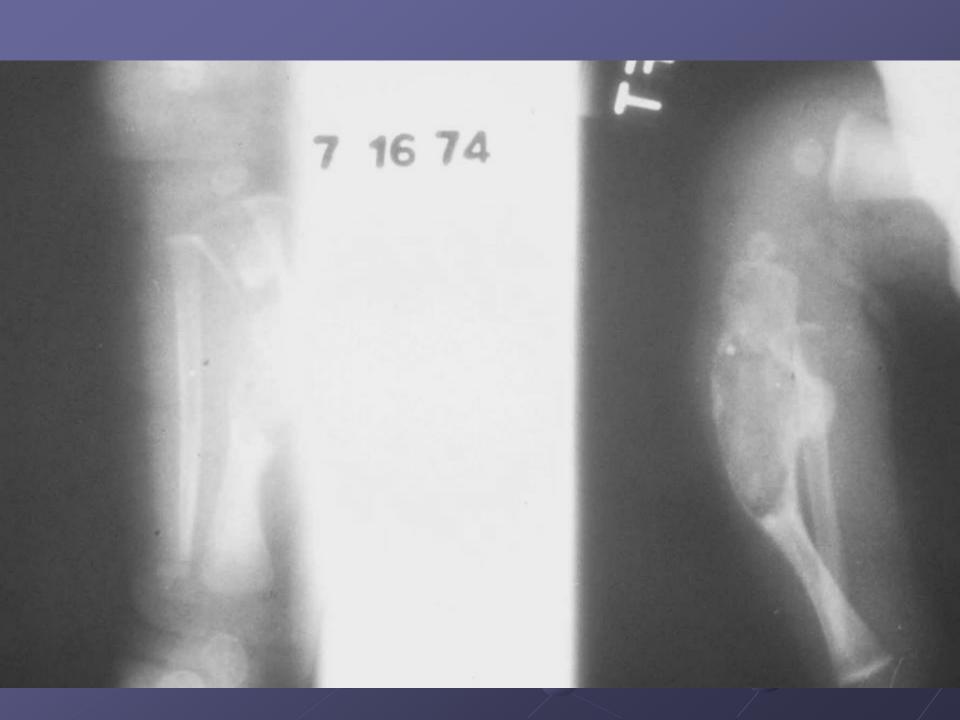
- 45 YO MALE
- ACHING PAIN
- NO TRAUMA





ADAMANTINOMA

- Low grade sarcoma (I)
- Tibia +/- fibula, multicentric in bone
- Adult
- ?relation to fibrous dysplasia and osteofibrous dysplasia (Campanacci's)
- Wide resection, NO adjuvant
- BKA, if extensive involvement



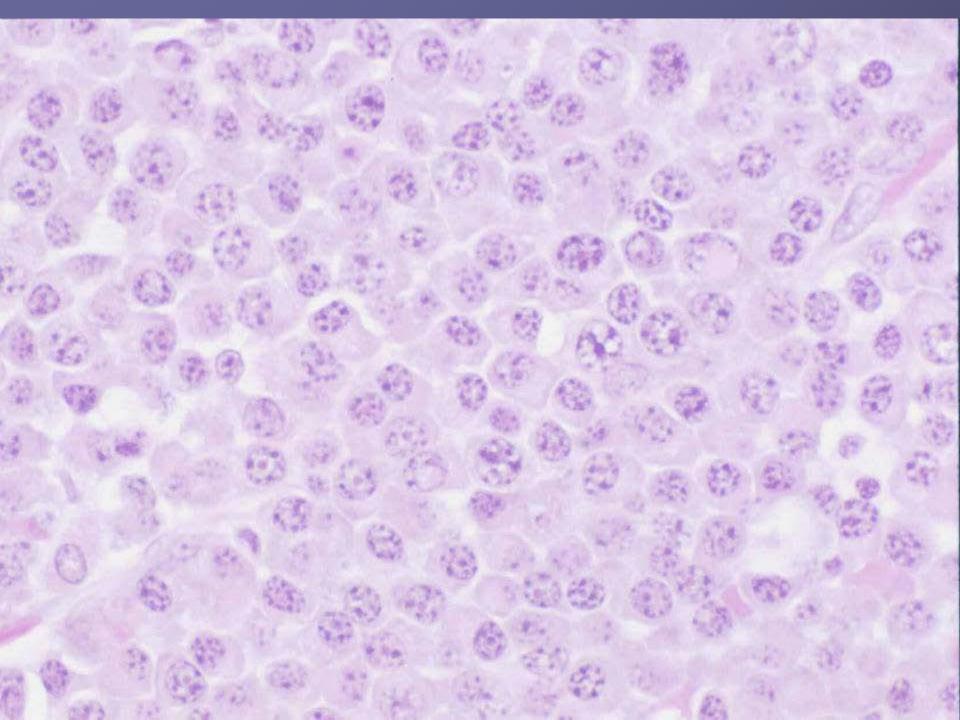
OSTEOFIBROUS DYSPLASIA (CAMPANACCI'S)

- Benign, self-limited tibial disease in infants (rare malignancy in this age group)
- Observe, avoid surgery
- May pre-dispose to adamantinoma

JC

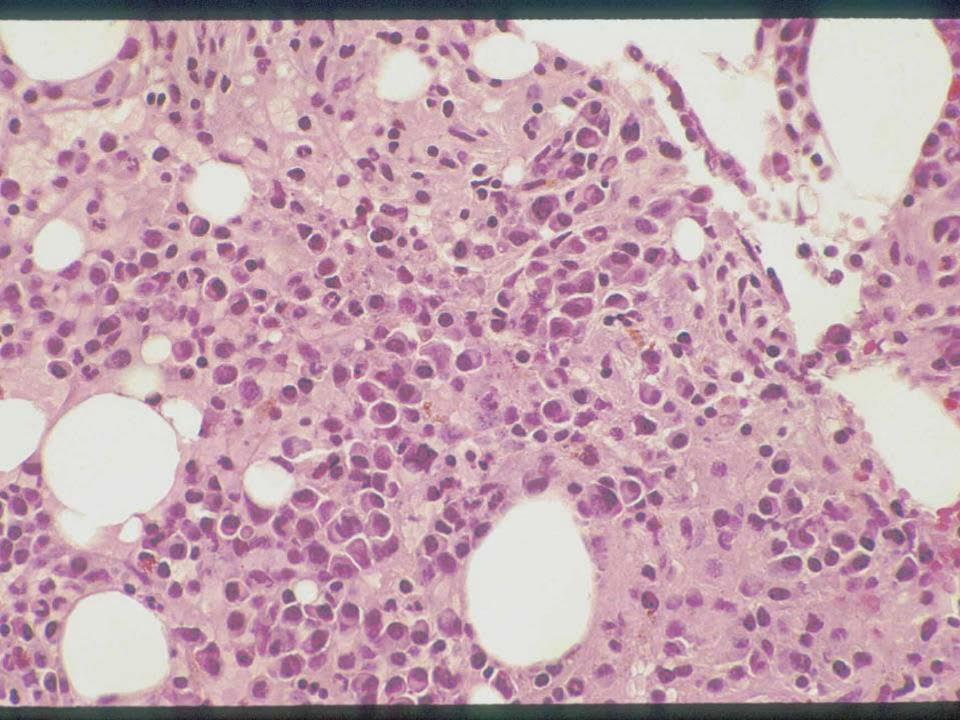
- 60 YO WITH ACHING PAIN FOLLOWED BY ACUTE INJURY WITH MINIMAL TRAUMA
- ANEMIA AND MALAISE





MYELOMA

- Adults, plasma cells
- Fine needle aspirates may be ok for myeloma, lymphoma and mets
- Osteopenia, anemia, azotemia
- SPE, skeletal survey, bone marrow biopsy
- Histo.. Plasma cells, RBC's
- Rx.. Chemo, palliative surgery (common path fx)

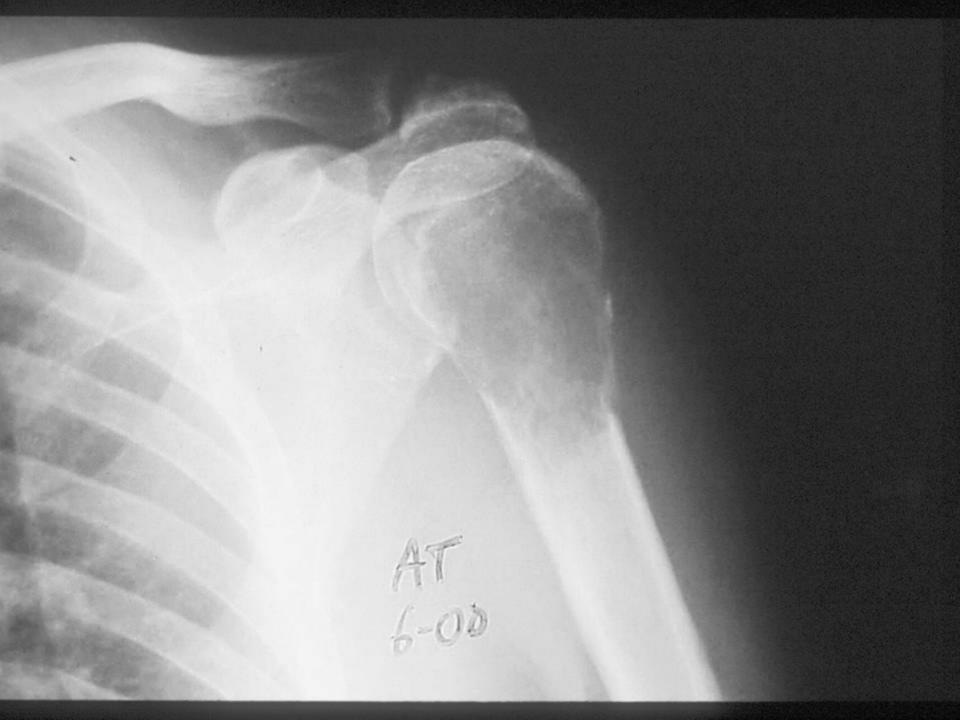


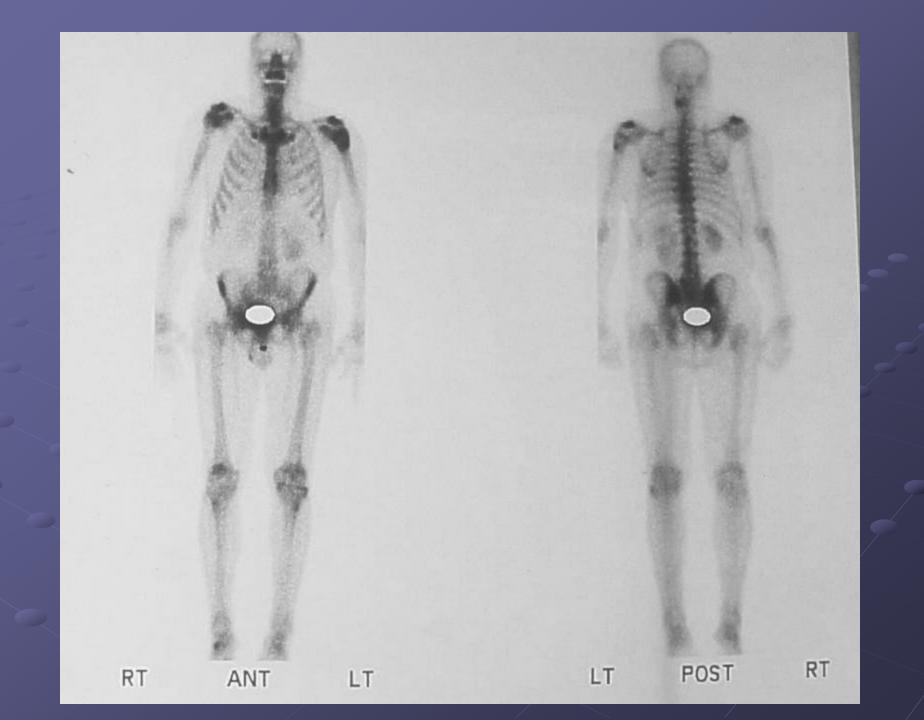
AI 1095 **7**≹0

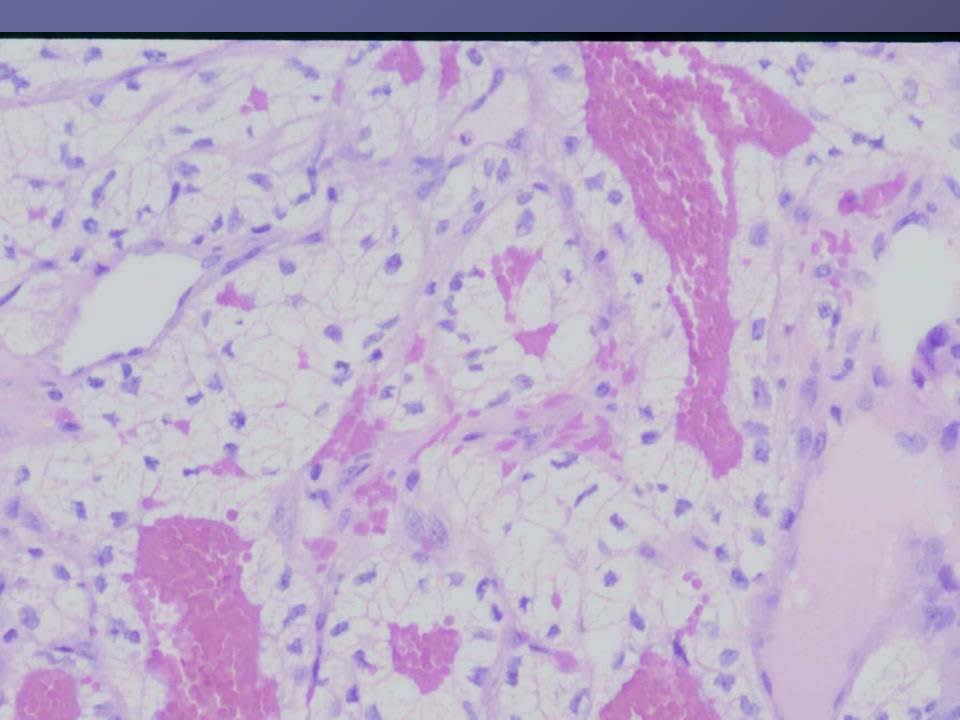


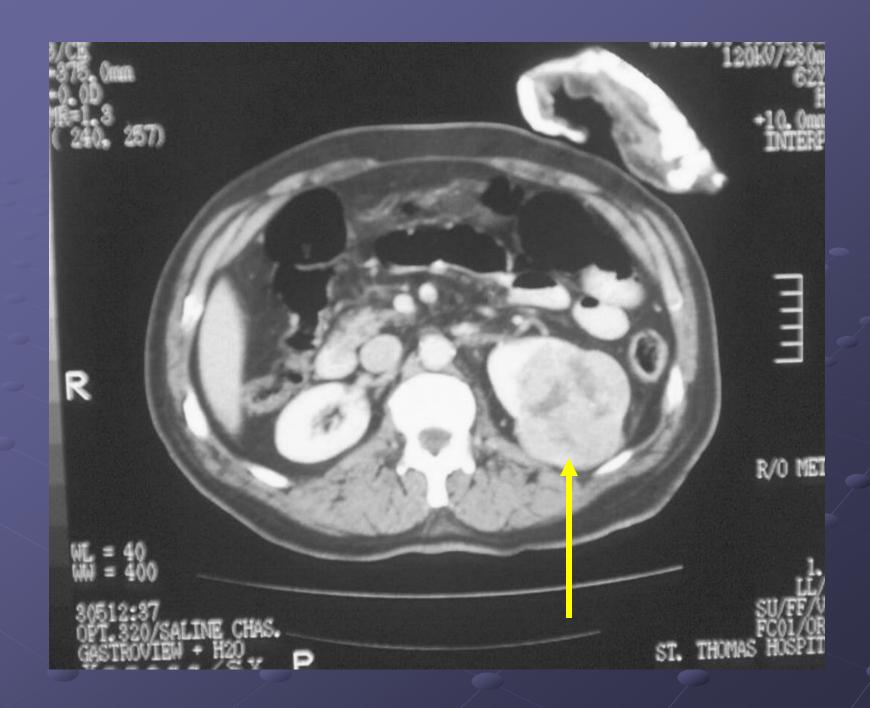
AT

- 68 YO AMISH MALE WITH SHOULDER PAIN
- HEMATURIA



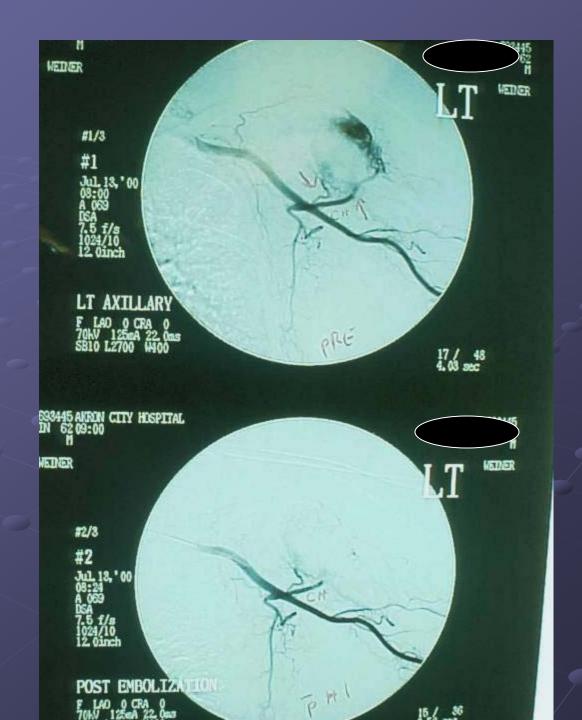


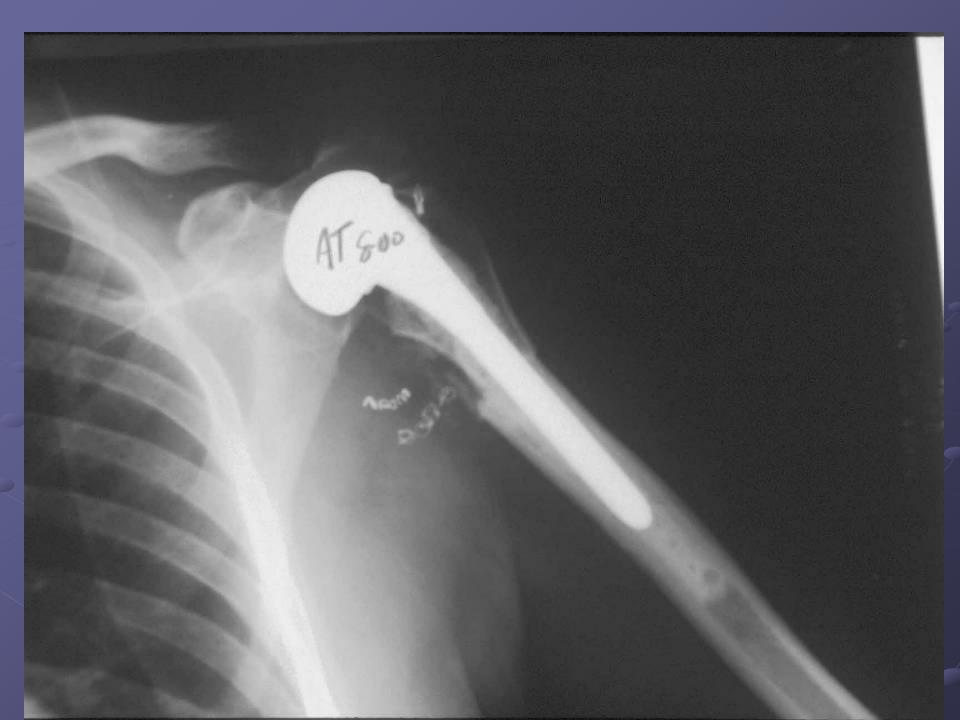




PRE-EMBOLIZATION

POST-EMOLIZATION

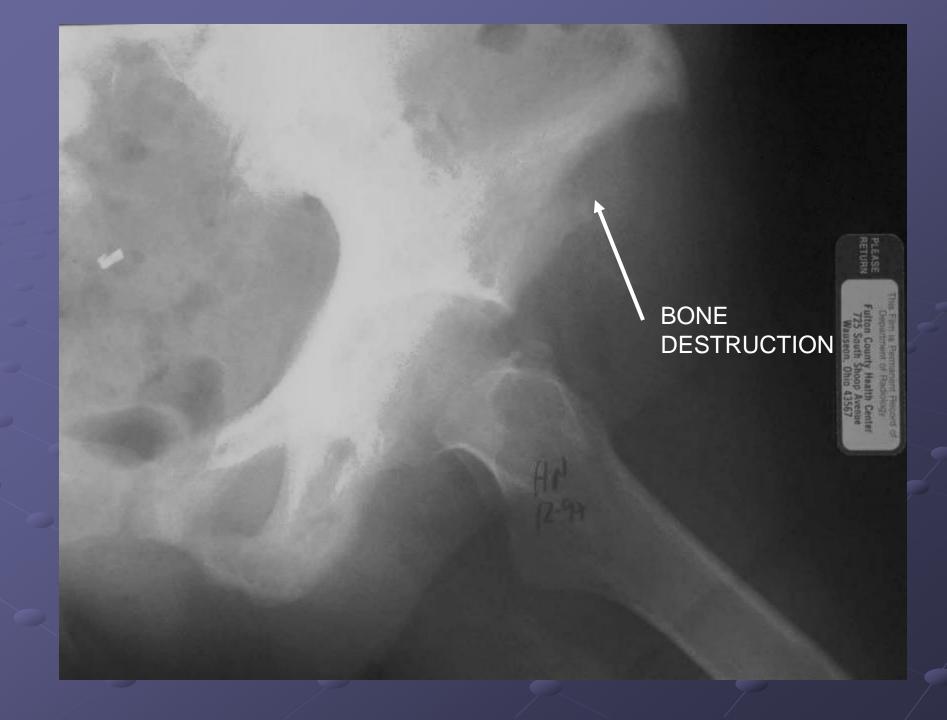


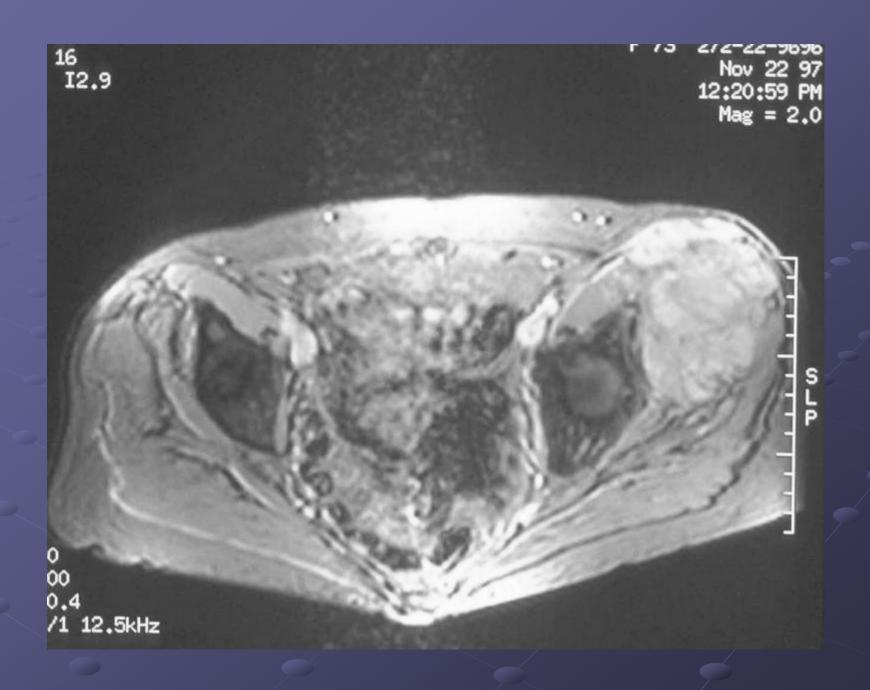


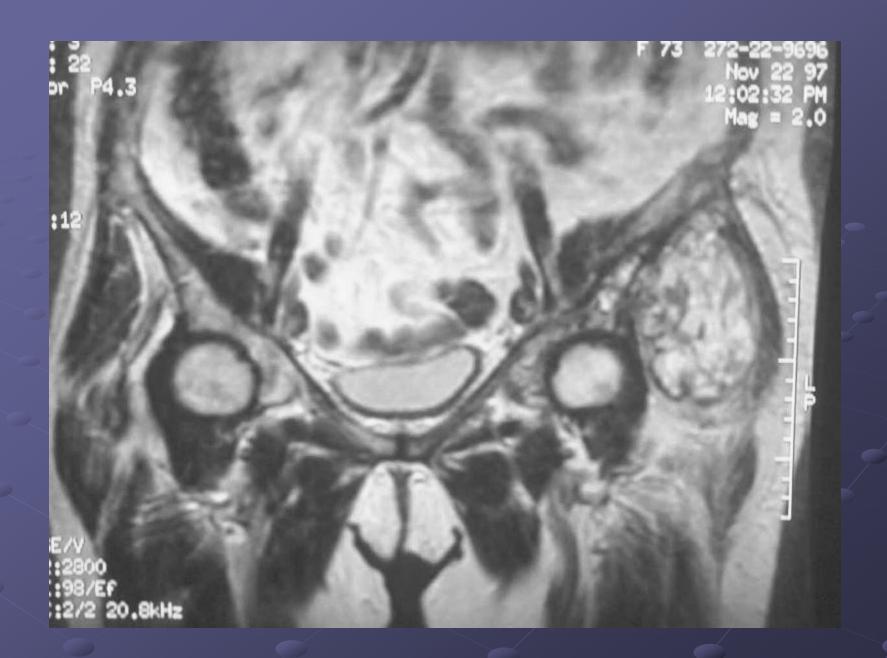
HN

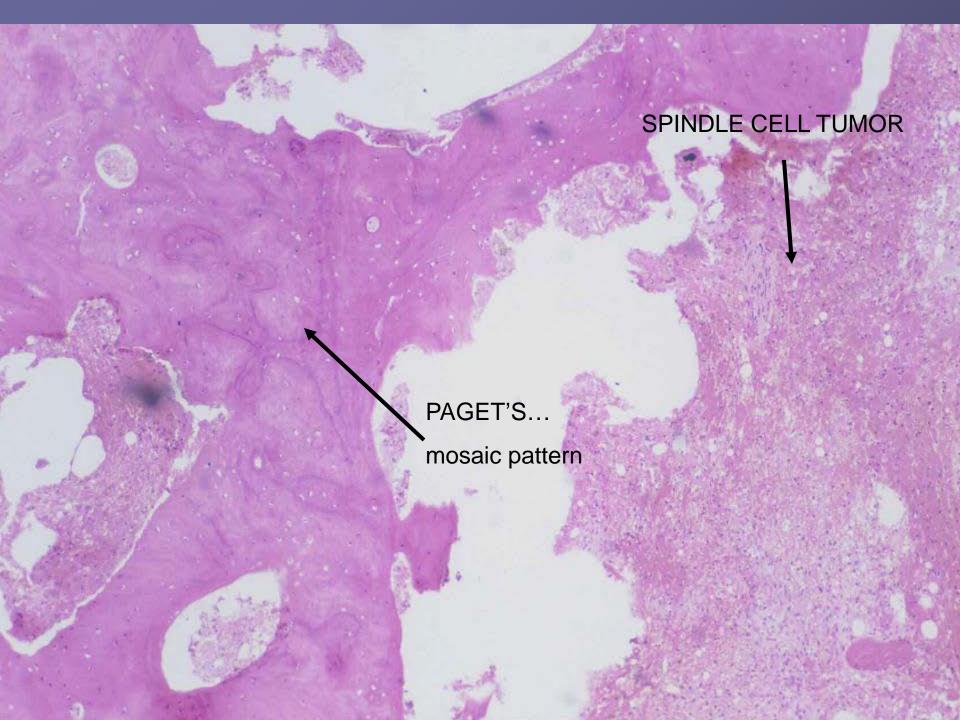
- 70 YO FEMALE
- LONG-STANDING PAGETS DISEASE
- ACUTE ONSET OF SEVERE PAIN
- SOFT TISSUE SWELLING











OP

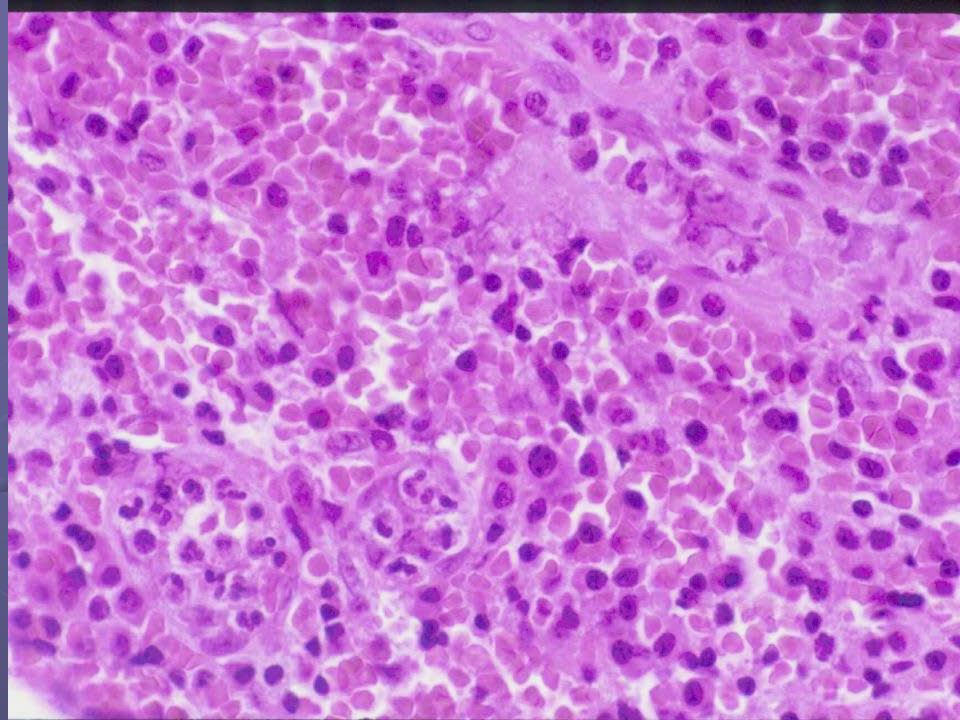
- 50 YO MALE FARMER
- ACUTE ONSET OF ATRAUMATIC PAIN
- GENERAL MALAISE

- Shoulder pain,
- Normal x-rays



• THREE WEEKS LATER





- 40 YO MALE
- MASS PLANTAR FOOT
- PAIN TOPALPATION
- NO OTHER MASSES

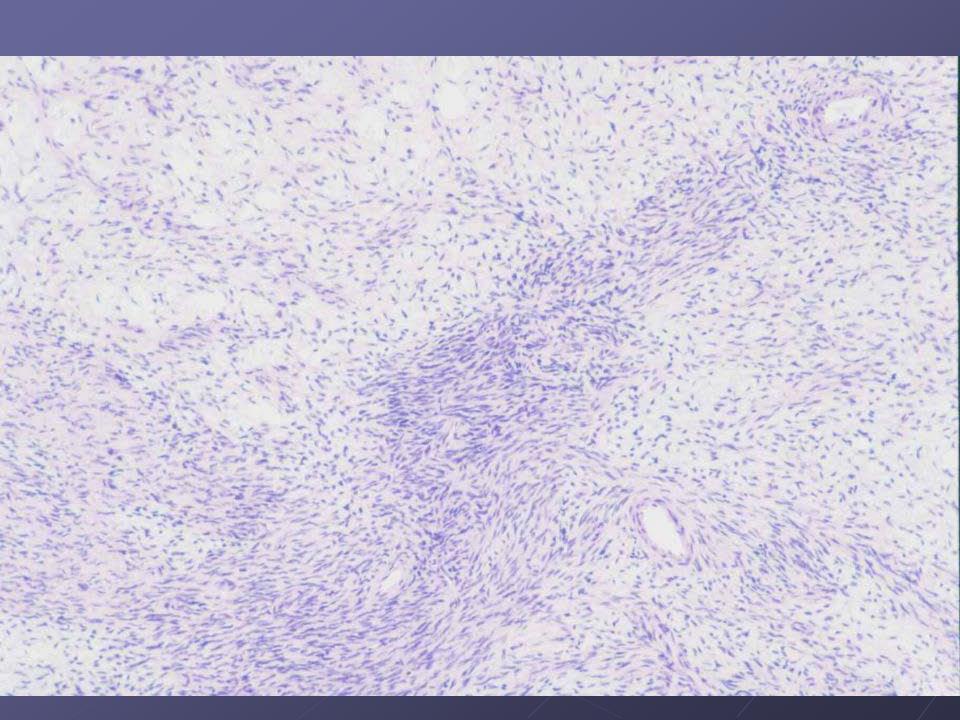




SP SL







NERVE SHEATH TUMORS

- Neurilemmoma, neurofibroma
- Antoni A and B, Verocay bodies, wavy cells
- Fusiform on longitudinal images, round on axial
- Check for NF1
- Biopsy for enlarging lesions in mature
- Marginally resect painful lesions
- Neurosarcomas are high grade... XRT with wide resection









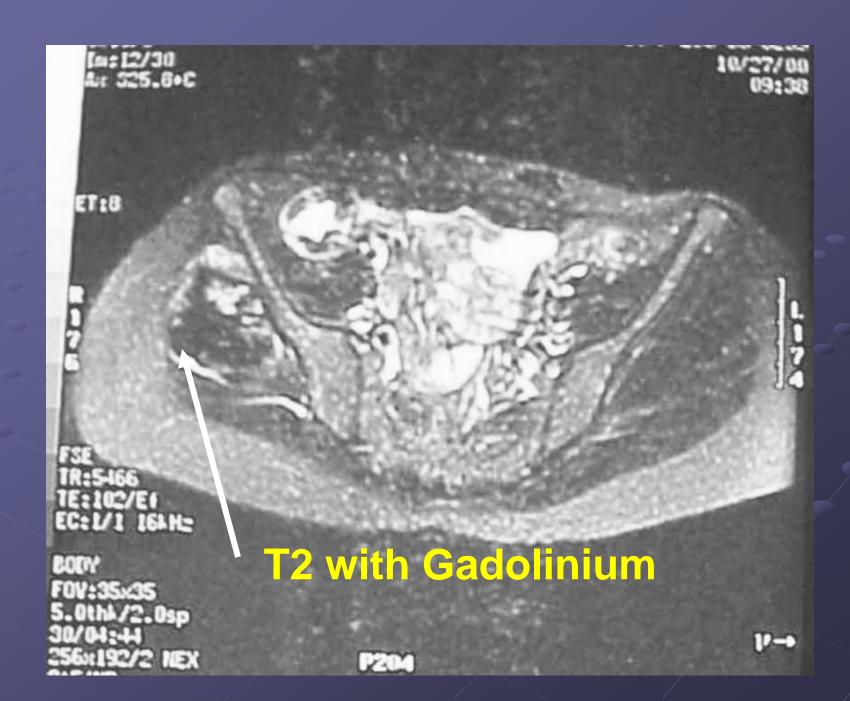


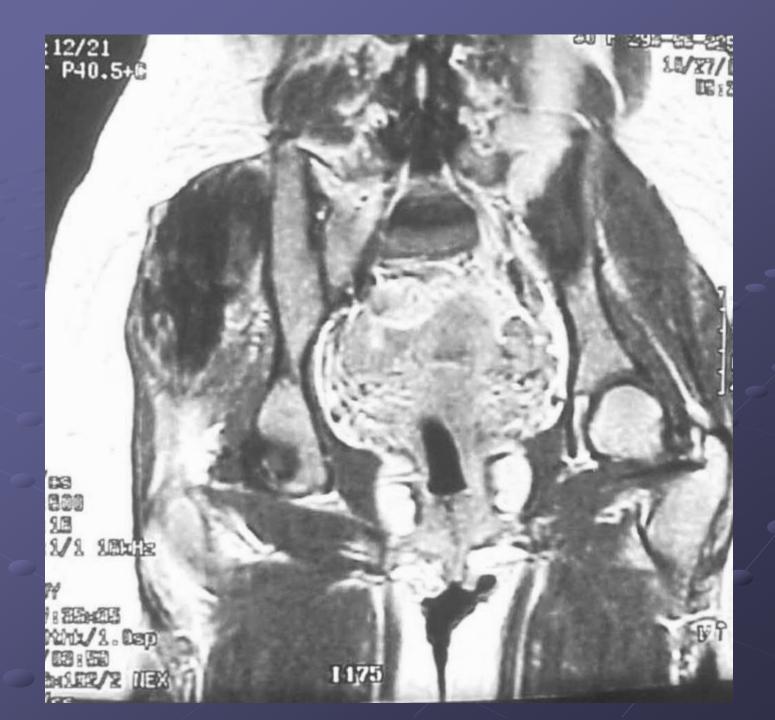


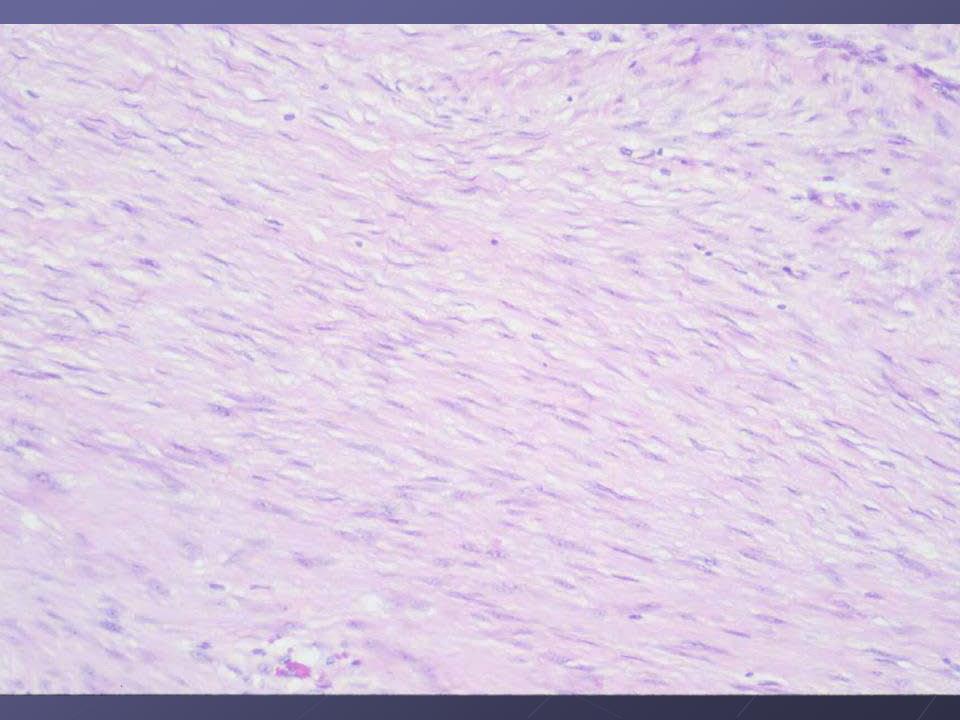


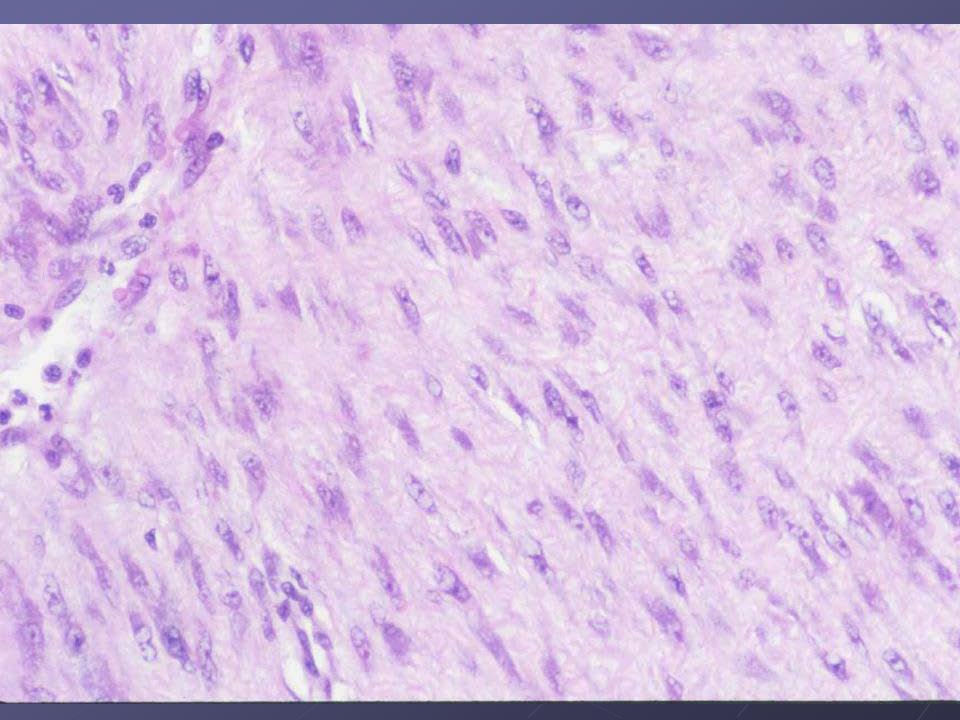
- 30 YO FEMALE
- MVA WITHOUT FRACTURE 3 YEARSAGO
- FIRM HARD TENDER MASS

10/27/00 09:27 R:850 E:16 C:1/1 16Hz 1V:35x35 Othk/2.0sp V04:15 6x192/1.5 NEX T1 weighted 11-0 P204



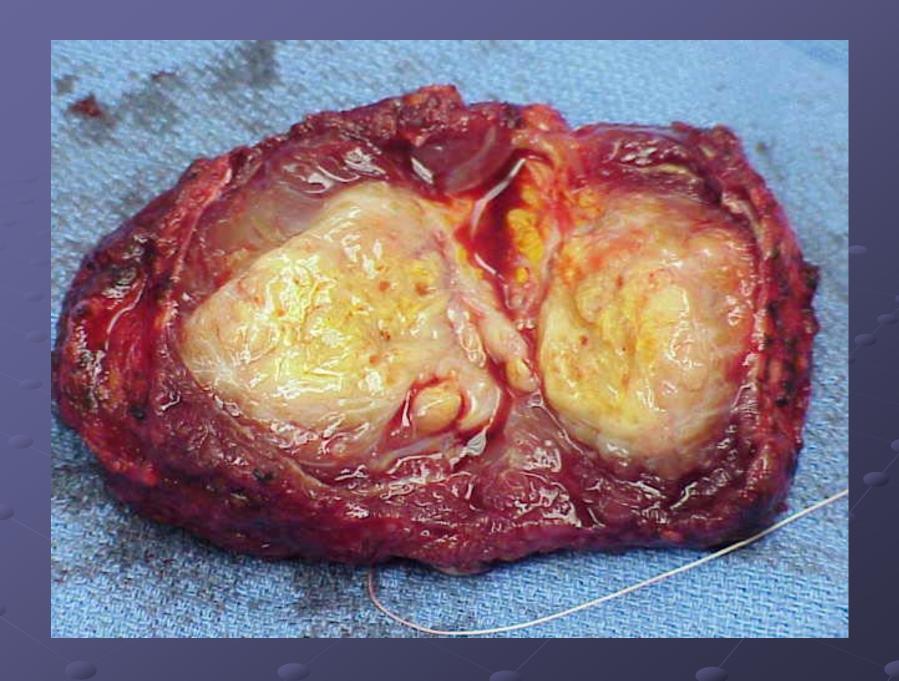






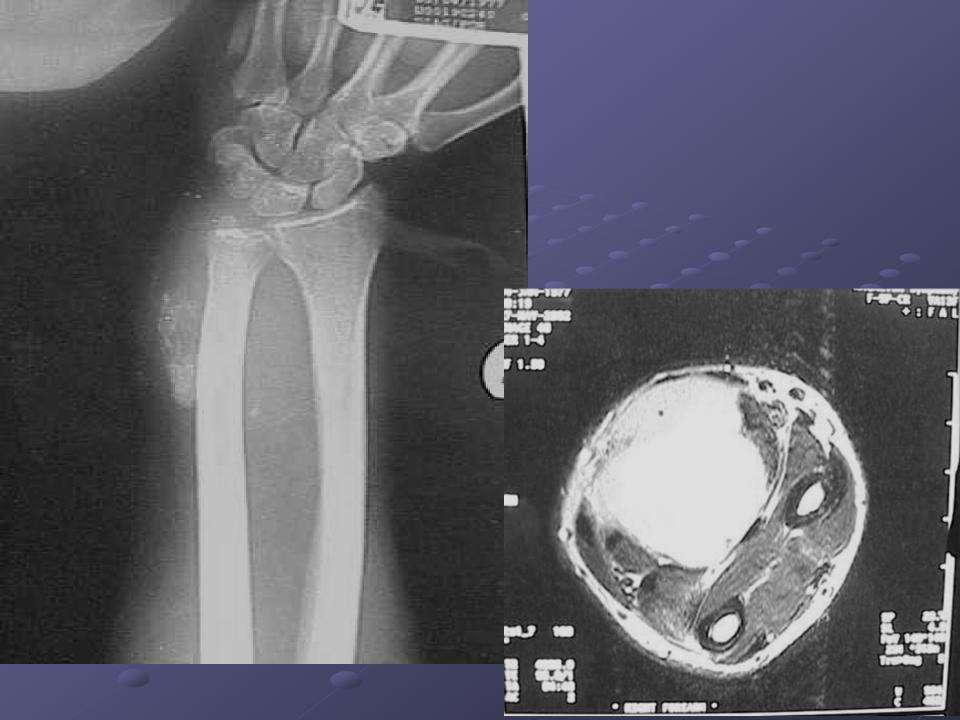
AGGRESSIVE FIBROMATOSIS

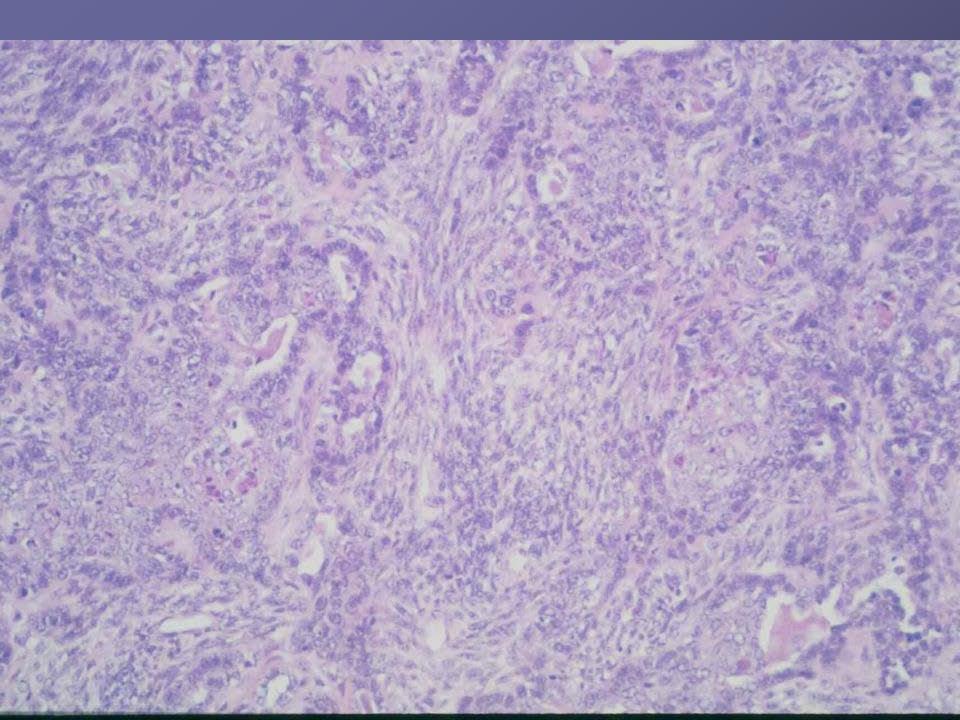
- Young adult, ?trauma, ?hormonal ?pregnancy
- Rock-like feel, slow relentless growth
- MRI.. Low intensity on T1 and T2, enhances with gad
- Histo.. Bland myofibroblasts, no mitoses
- Rx.. Wide resection, XRT if +or close margins, ?low dose chemo



KO

- 35 YO MALE WITH NO TRAUMA
- MASS ENLARGING IN FOREARM

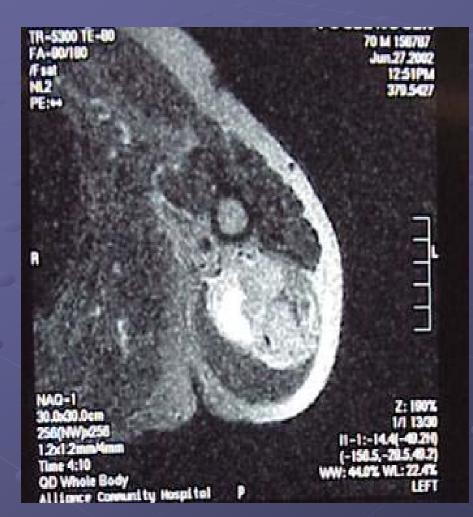




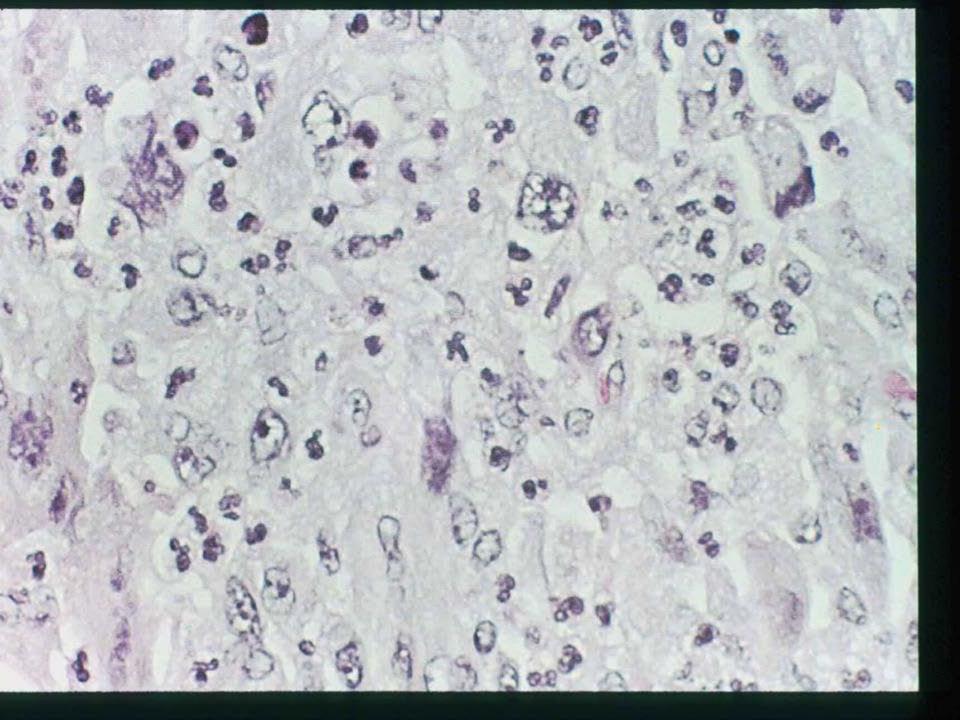
SYNOVIAL SARCOMA

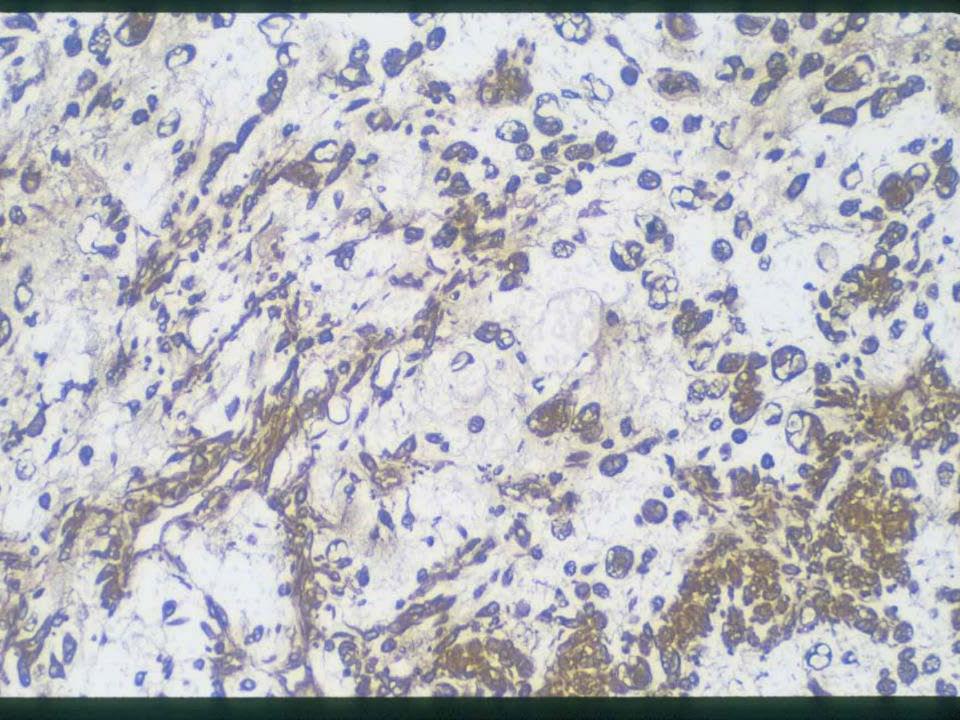
- Biphasic vs. monophasic... spindle cells and pseudo-glandular
- Often around joints but not from synovium, foot common
- Younger age than most soft tissue sarcomas
- Calcifications
- Rx.. XRT and wide resection

- 70 YO MALE WITH ENLARGING MASS POSTERIOR ARM
- PAINLESS







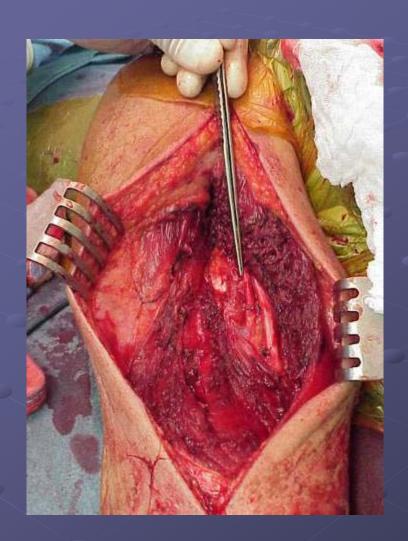


SOFT TISSUE SARCOMA

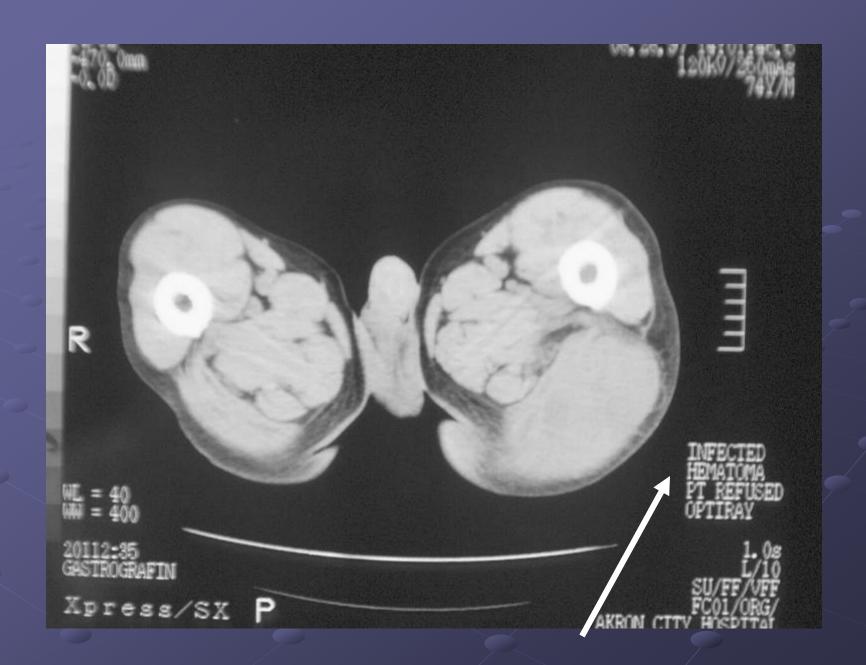
- Histology less important than histologic grade (mitoses, necrosis, anaplasia)
- All look alike on MRI
- Rx...
 - XRT and wide surgery (can save NV bundles)
 - Pre or post-op radiation
 - Chemo controversial

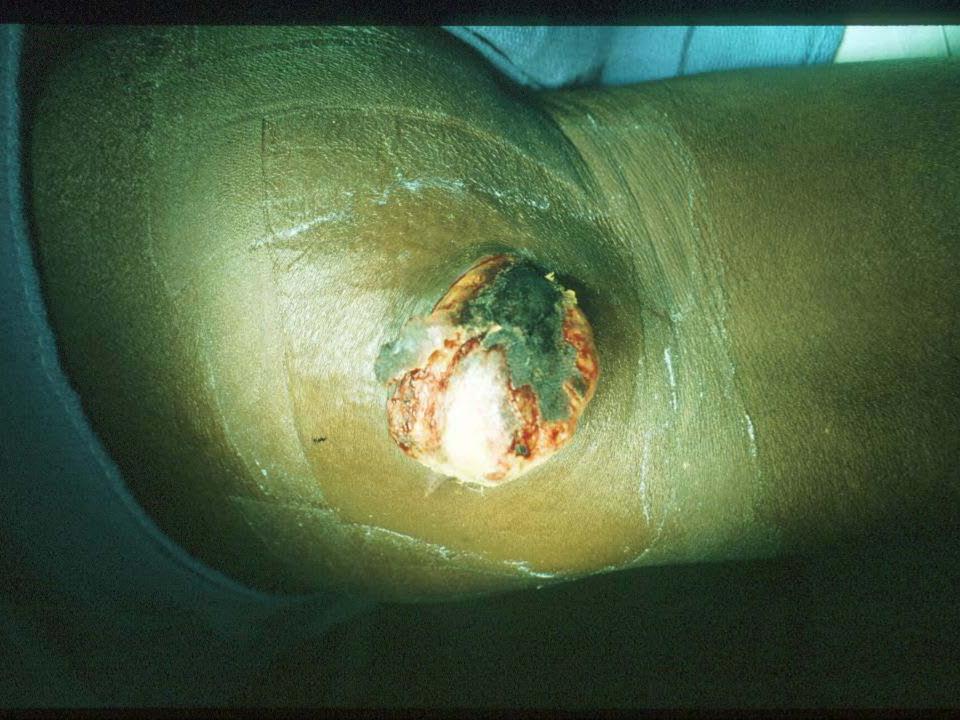


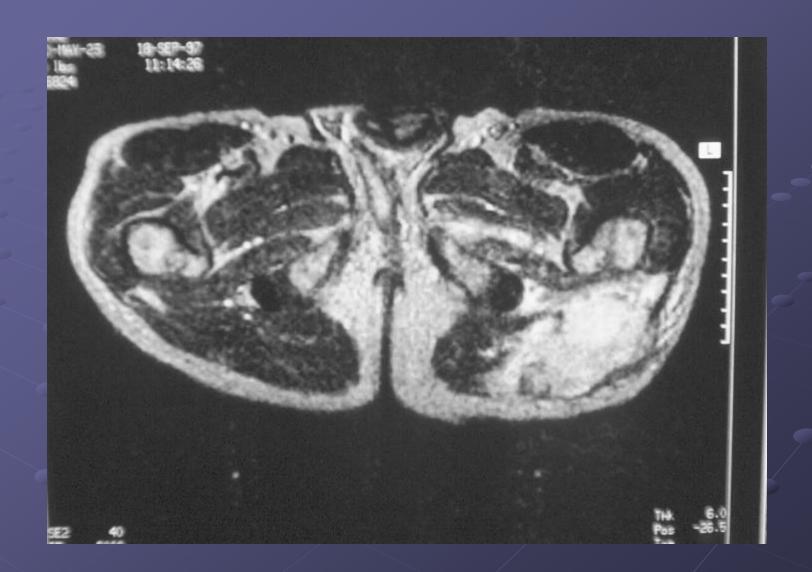


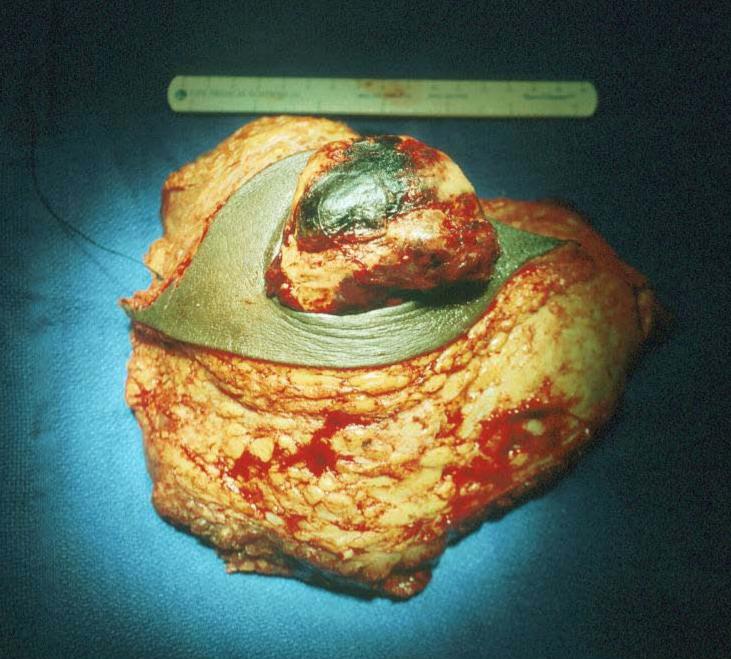






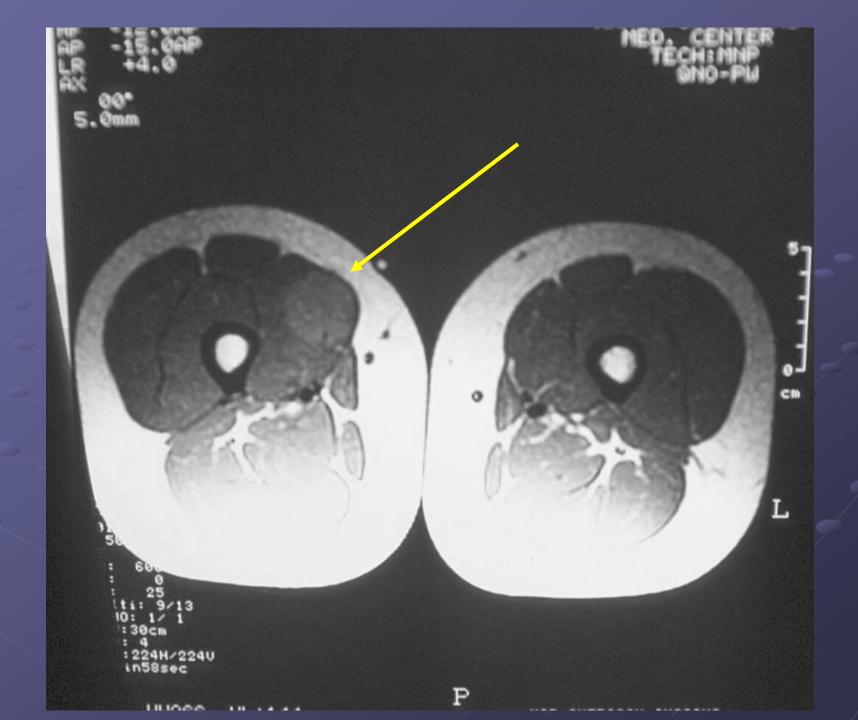




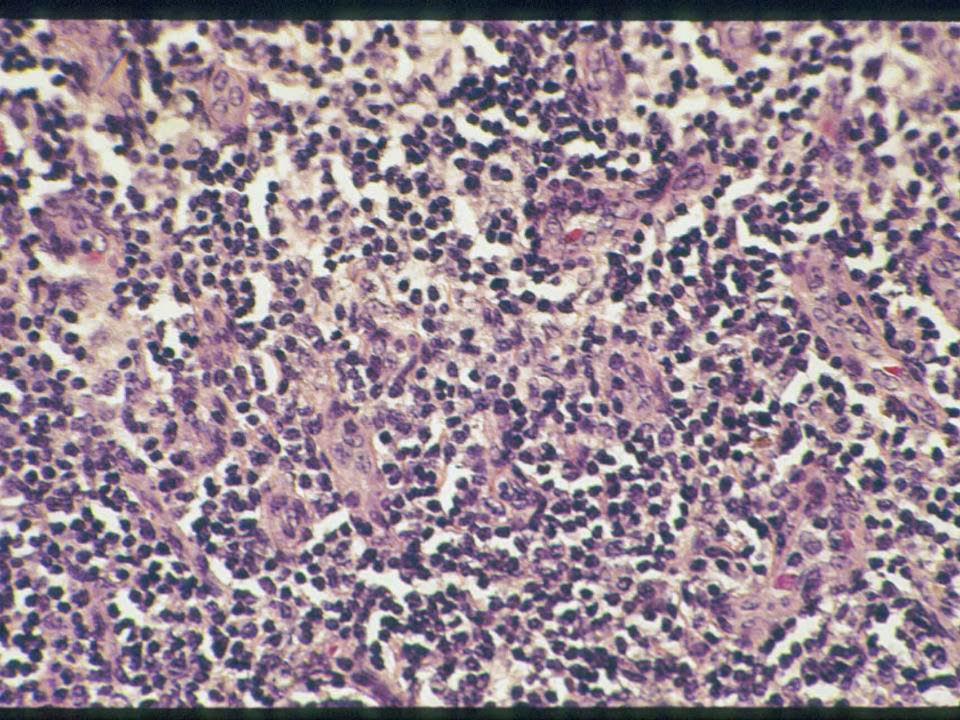


EC

- 14 YO FEMALE
- PAINLESS MASS THIGH
- ENLARGING



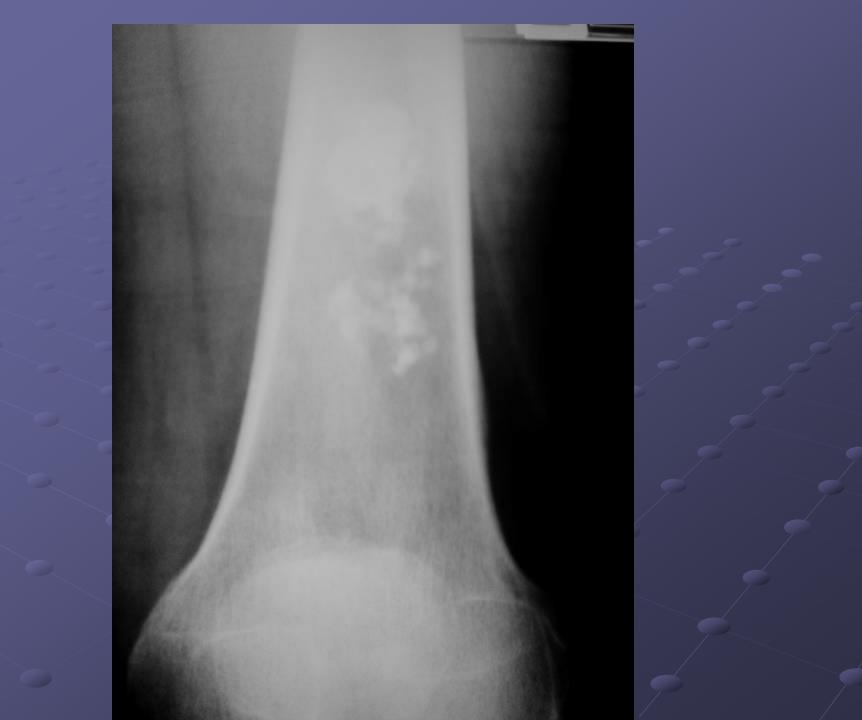




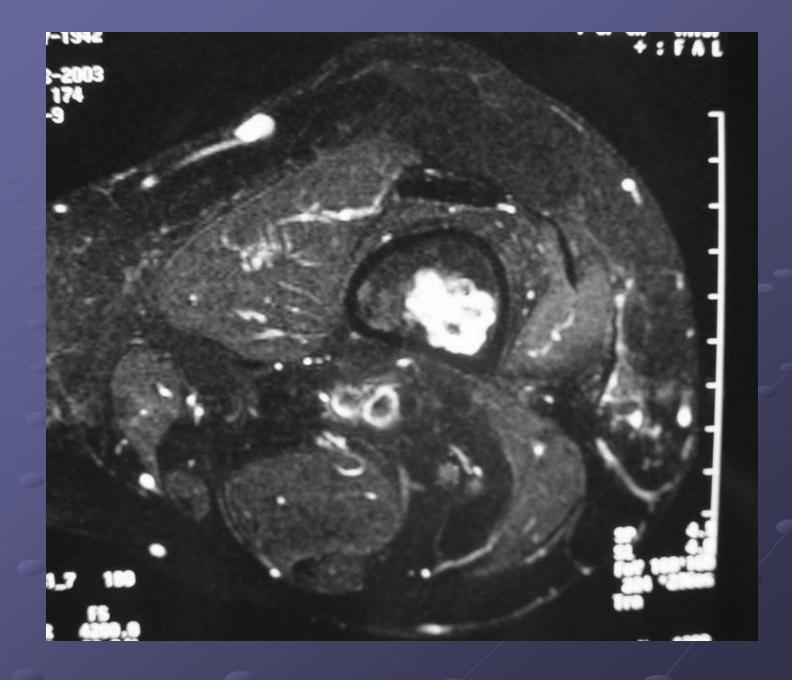
RHABDOMYOSARCOMA

- Most common soft tissue sarcoma in a young patient
- Histo.. small round blue cells, immunohistochemical staining, electron microscopy
- CHEMO (unlike other STS), wide surgery,
 XRT if margins positive

- 45 MALE
- PAINLESS LESION FOUND INCIDENTALLY



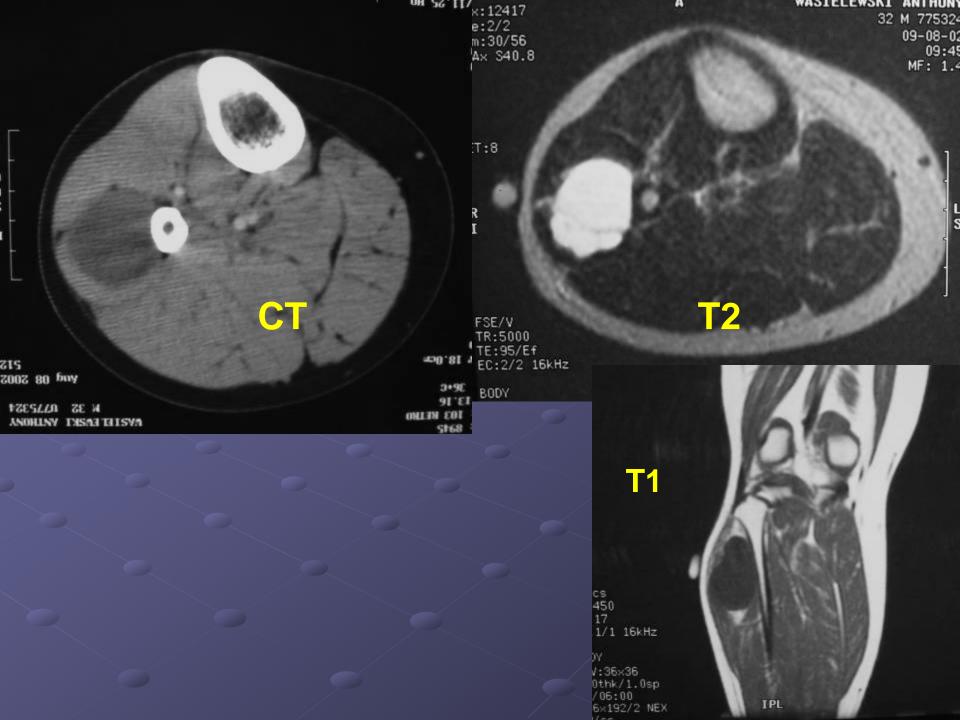




ENCHONDROMA

- Metaphyseal central, hand/feet
- Heavy calcification, bone scan not helpful
- Non-painful, look for other causes
- Rx... observe, follow-xrays
 - ? painful enchondroma vs. grade ½ chondrosarcoma (I follow at least 6 mos before considering treatment)

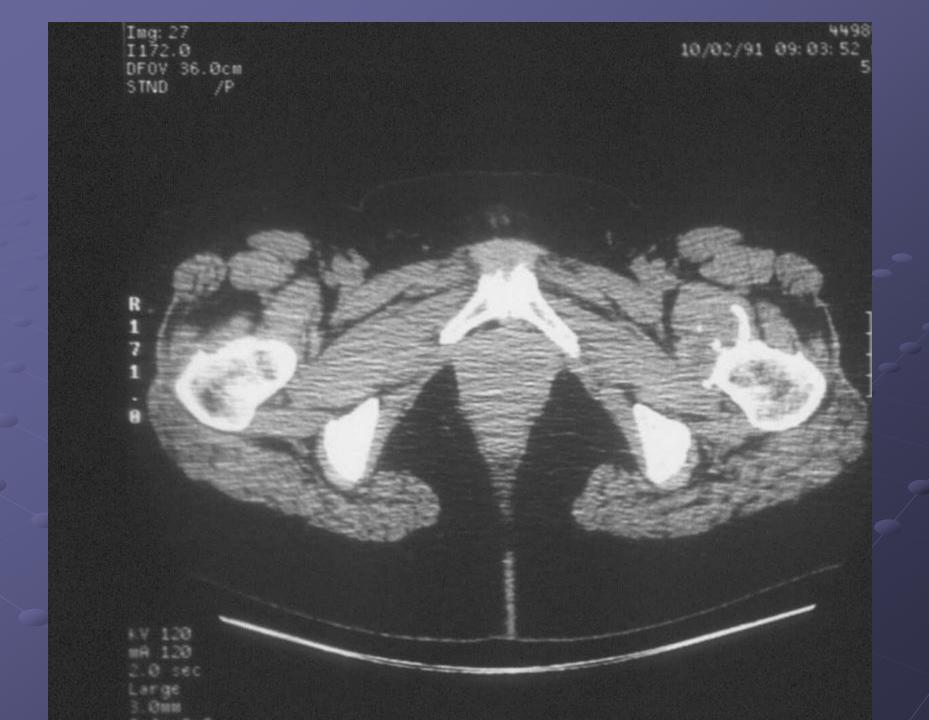
- 43 YO WITH CALF PAIN
- INCREASING AND DECREASING SIZED MASS

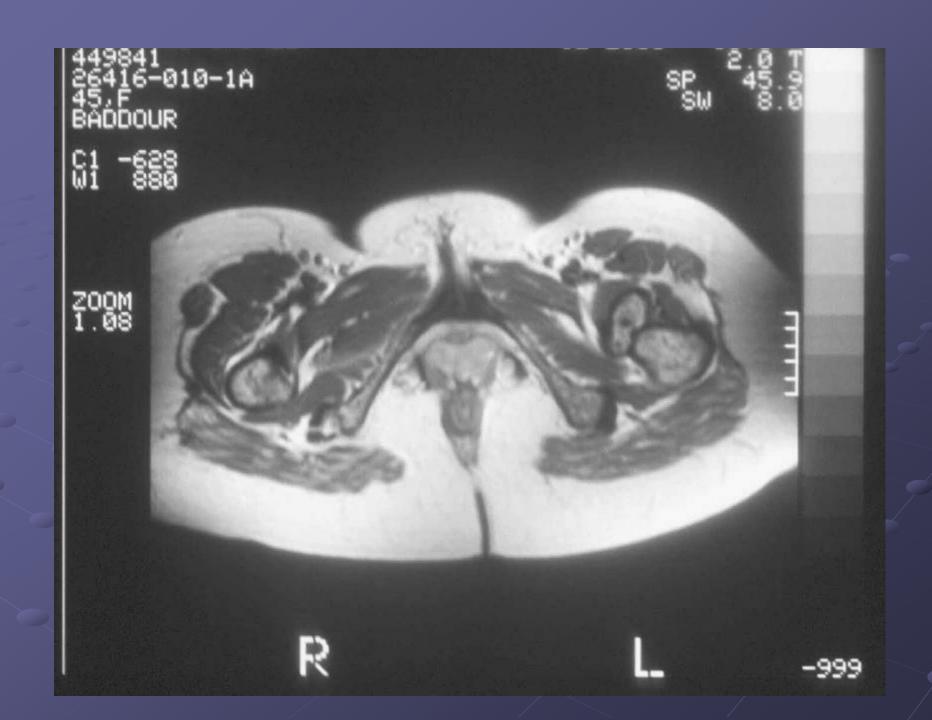


SV

- 30 YO WITH LIMITED HIP ROM
- MINIMAL PAIN
- NO TRAUMA











PERIOSTEAL CHONDROMA

- Usually deltoid insertion
- Shark bite lesion from cortex with 'benign' Codman's triangle
- May cause 'soreness' (stage 1 or 2)
- Curettage only if painful
- XR mimics periosteal osteosarcoma

