

# Orthopedic Lumps and Bumps

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# General Information

- Most masses you will find are benign
- You can save your patient's life by knowing when to be suspicious for malignant masses
- Musculoskeletal Handbook of Pathology and Disease by Adams and Frassica et al.

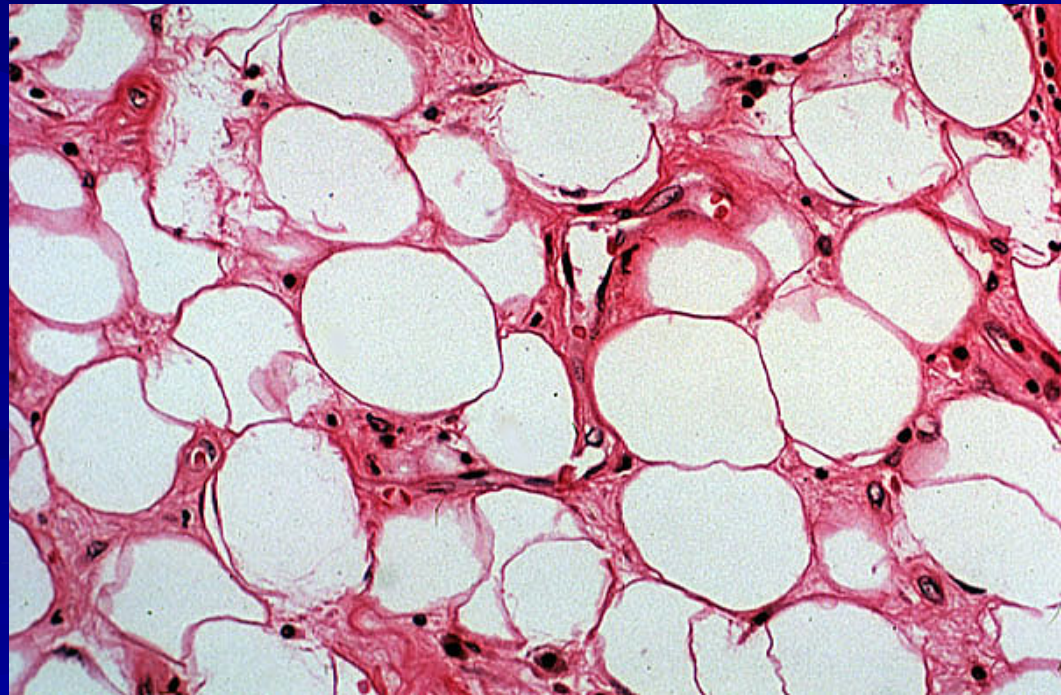


# Lipomas

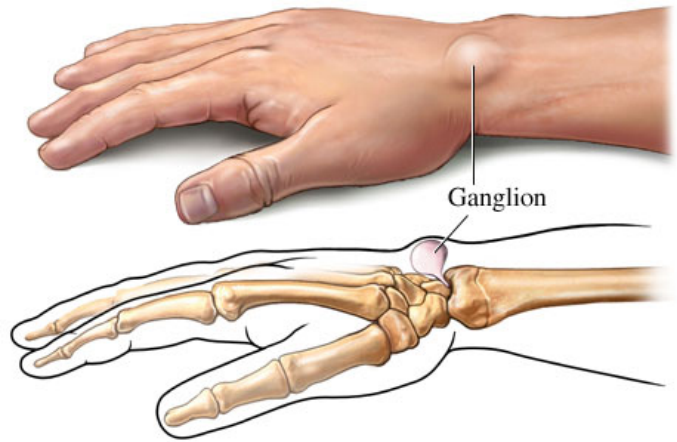
- Most common soft tissue tumor in adults
- Some are familial
- Slow growing and painless
- Often occur in proximal locations of the extremities and trunk
- Look the same on MRI as normal fatty tissue and are well circumscribed

# Lipomas

- Often can be left alone
- Remove if they bother patients either functionally or aesthetically
- Malignancy rare







# Ganglia



- Most common tumor of the hand/wrist but also often found around the knee and foot
- Outpouching of the synovial lining of a joint
- Soft, mobile, benign tumors
- Most left alone
- Aspiration of the gelatinous fluid of the cyst has high recurrence rate

# Ganglia

- Removal of the cyst and its stalk from the joint results in much lower recurrence rate

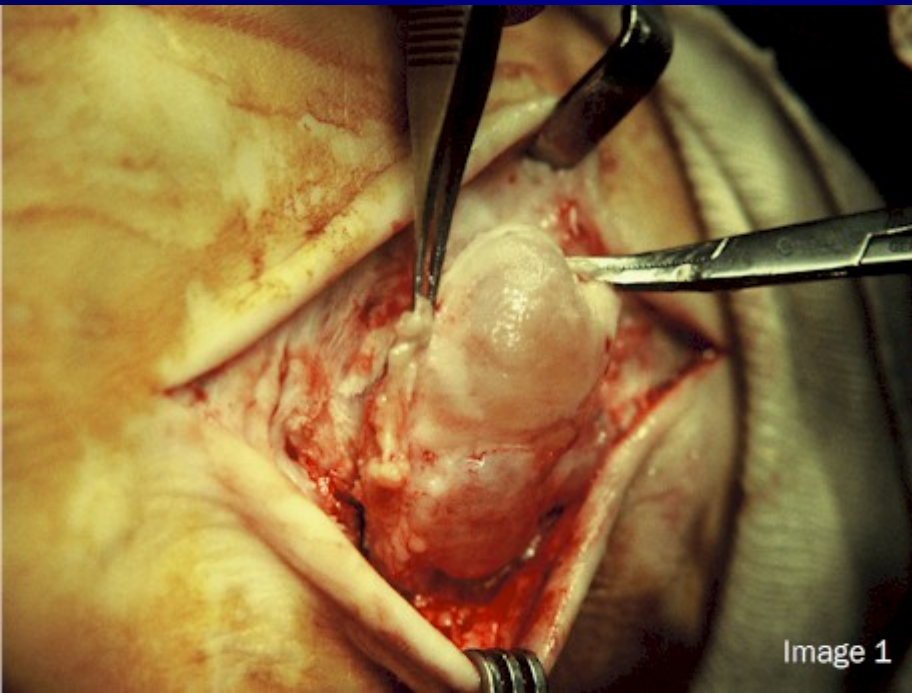
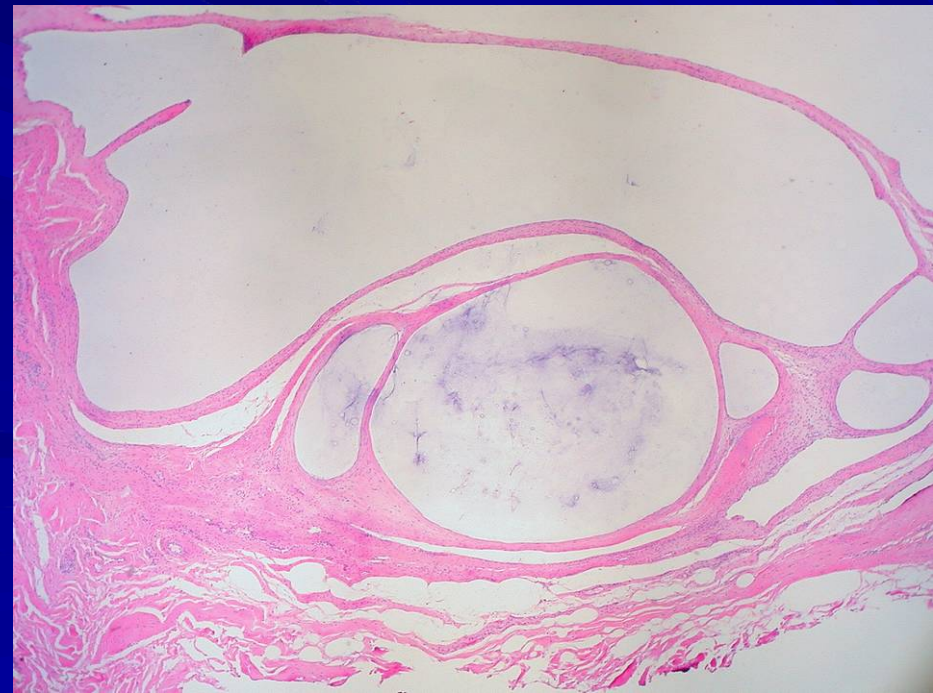


Image 1





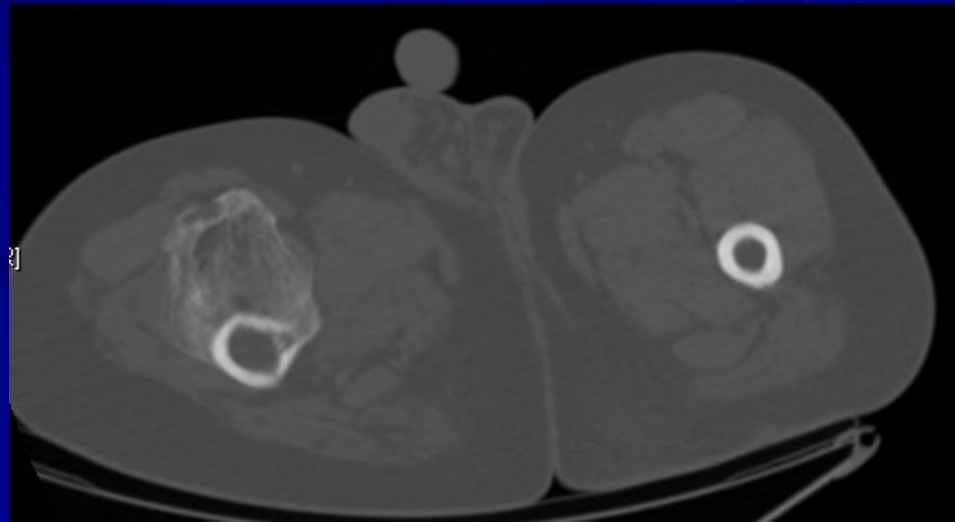
# Myositis Ossificans

- Often results from trauma in the 10-40 year old age group
- Will develop tender soft tissue mass within days of trauma but becomes hard within 1-2 months
- Often found in the quadriceps and brachialis
- Often we leave this alone and only excise if symptomatic after it is mature



# Myositis Ossificans

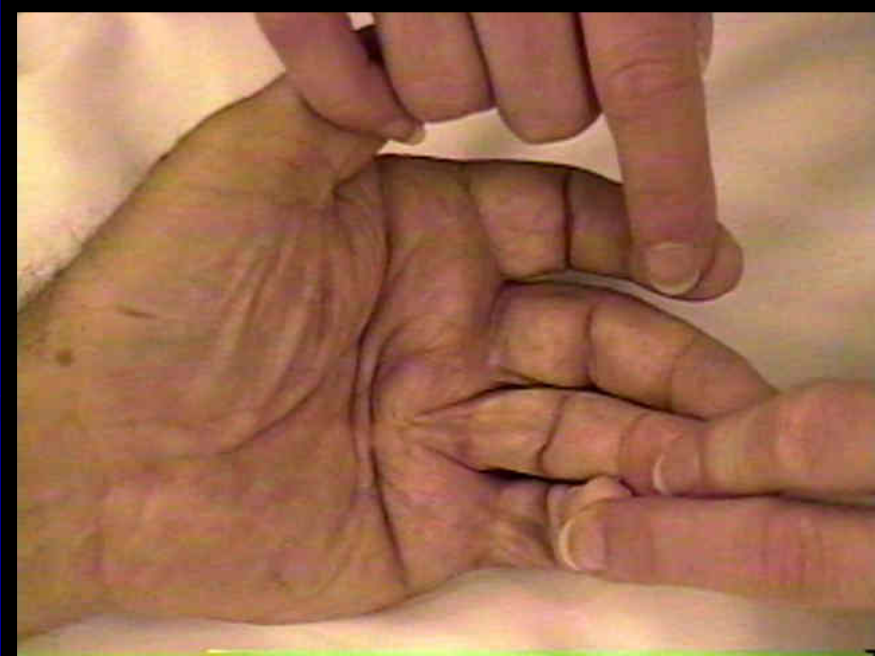
- MRI will often show enhancement of the area early
- Peripheral mineralization will occur after about 6 weeks and is best appreciated on CT





# Superficial Fibromatoses

- Proliferation of the normal fascial bands in the palm and digits
- Dupuytren's Disease is an example
  - Northern European descent
  - Smoking
  - Alcoholism
  - Diabetes Mellitus
  - Anticonvulsant use



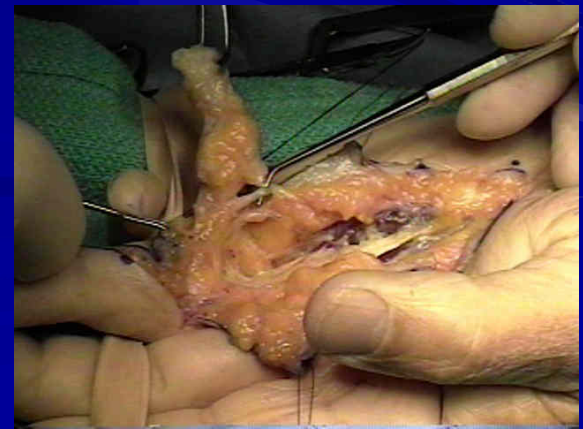
# Dupuytren's Disease

- Autosomal Dominant with incomplete penetrance
- Estimated 1/5 of all individuals over 60 have this to some degree
- Bilateral in 50%
- Men more common by 5:1
- Typically results in progressive flexion contractures of the digits



# Dupuytren's Disease

- Often conservative treatment unless contractures become severe
- Recurrence high with removal and complications abound
- Same pathology can occur in the foot (Lederhosen's Disease) and penis (Peyronie's Disease)



# Not all Soft Tissue Tumors are Benign

- Account for 1% of adult malignancies
- 25% of malignant soft tissue tumors are metastatic on presentation
- Metastasis of these usually by hematogenous spread
- Most common site of metastasis is to lung (50%)





# Synovial Sarcoma

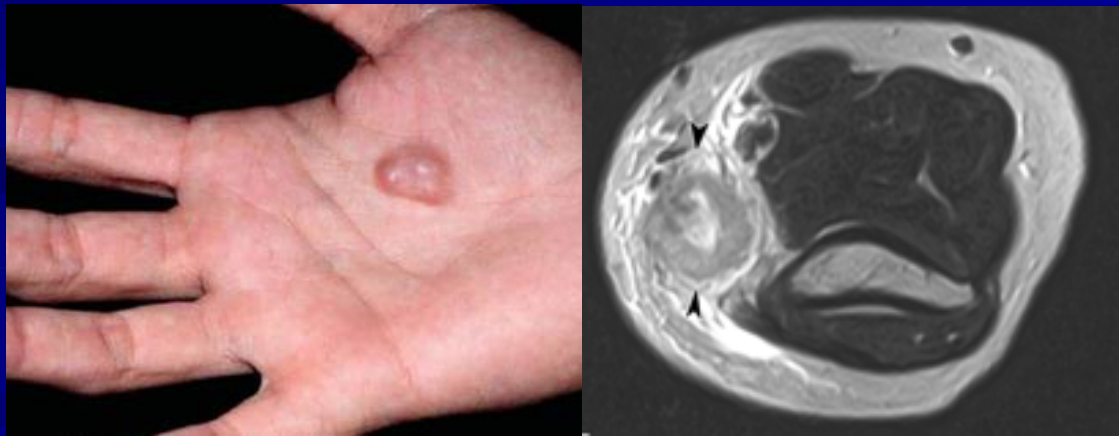
- Most common Sarcoma of the foot but usually found near the knee
- 20-40 year olds
- Often found on xray as calcification



# Epithelioid Sarcoma

## Most common sarcoma in the Hand

- Slow growing and usually superficial, so can be difficult to diagnose as malignant
- Usually less mobile
- MRI will show increased uptake on T1 and T2 weighted images



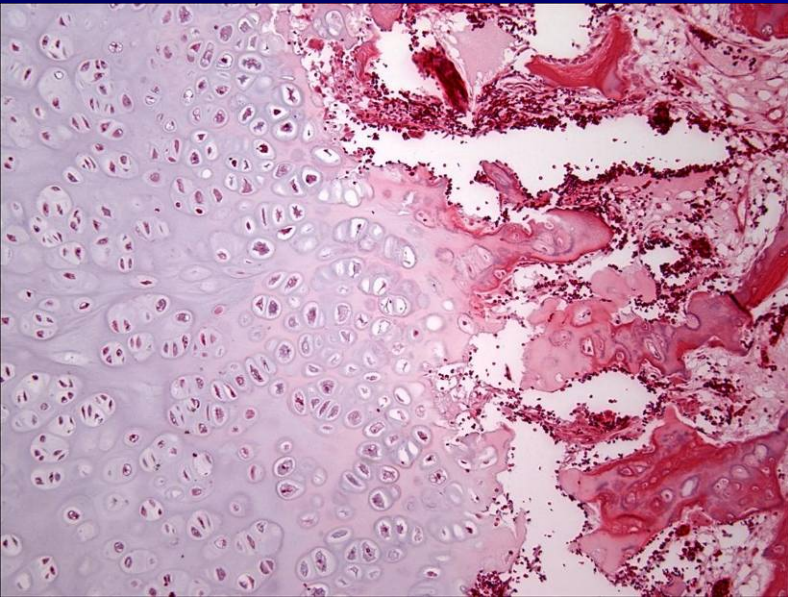
# Bone Tumors

- While most are benign, a higher percentage of these are malignant compared to soft tissue tumors



# Osteochondroma

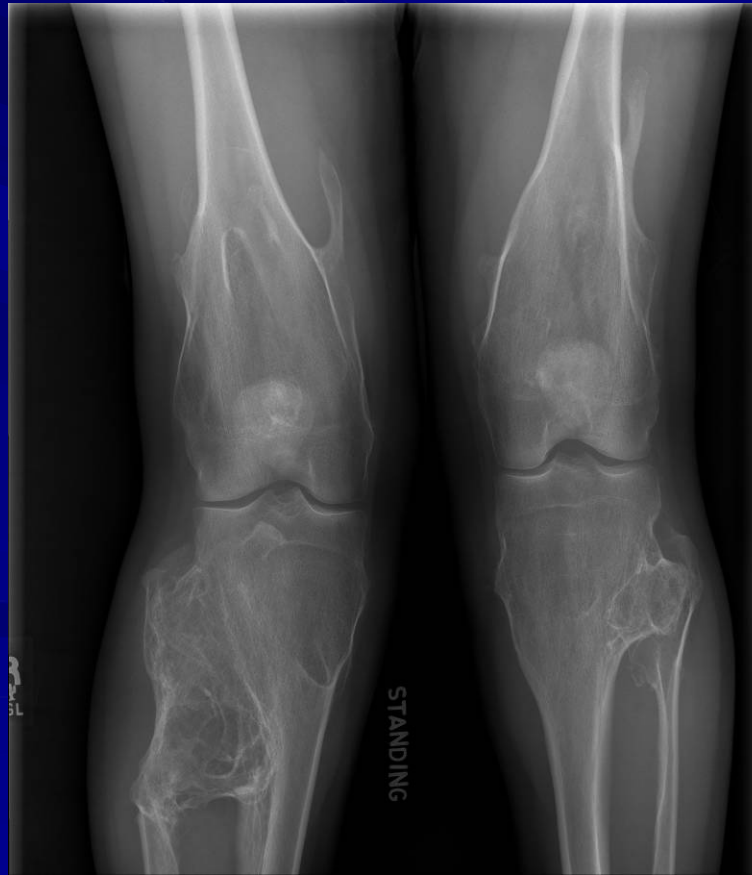
- Hard lump usually found near the knee
- Cartilage capped calcification found in adolescents and young adults
- Tumor points away from the joint





# Osteochondroma

- Multiple Hereditary Exostosis is Autosomal Dominant and is more likely to become malignant



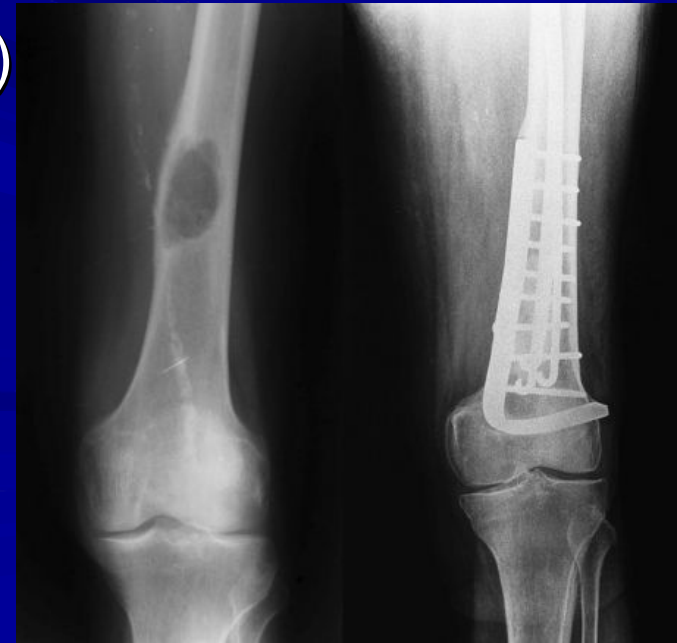
# Non-Ossifying Fibroma

- Occurs in 30% of population and most found incidentally on xray of younger adults
- Observation because most will disappear
- Curettage and bone graft for large or painful lesions



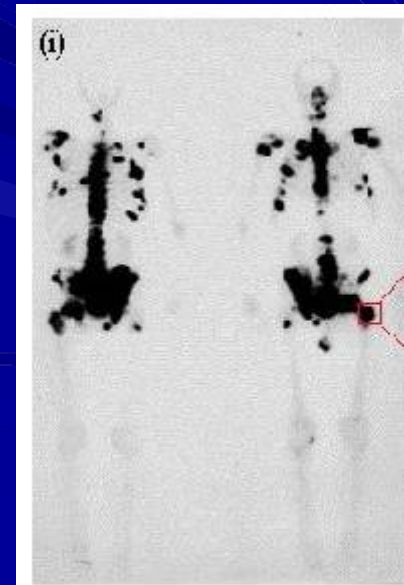
# Malignancies

- Metastatic lesions account for majority of malignant bone tumors and are found in >40 year olds
- 25% of metastatic cancer patients present with pathologic fracture
- Mnemonic BLT Kosher Pickle:
  - Breast (both lytic & blastic on xray)
  - Lungs (lytic)
  - Thyroid
  - Kidney
  - Prostate (blastic)



# Unknown Primary Site Work-up

- Plain films
- Bone Scan
- CXR
- CT chest, abdomen and pelvis
- CBC/ESR/CRP
- Basic chemistries w/ Ca & Phos
- LFTs
- Electrophoresis





# Metastatic Treatment

- Consider fixation or prosthesis if higher risk for fracture:
  - >50% if in diaphysis
  - >75% if in metaphysis
  - Weight bearing pain
  - Lytic lesions
  - Chronic pain after radiation



# Metastatic Treatment

- Postop radiation 2-3 weeks later if sensitive
  - Prostate (very)
  - Lymphoid
  - Breast

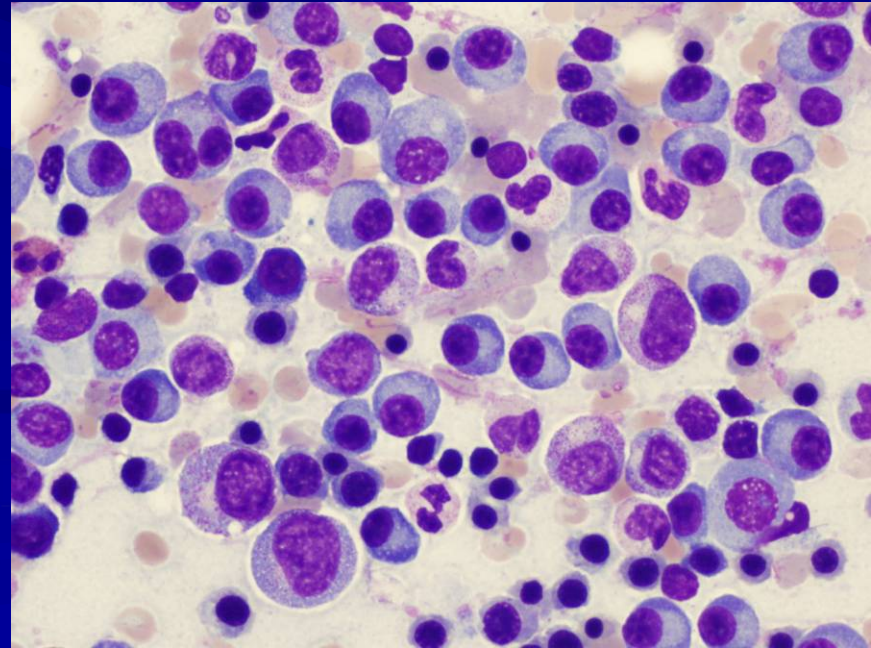


# Median Survival after Bone Mets

- Thyroid – 48 months
- Prostate – 40 months
- Breast – 24 months
- Lung/Renal/Melanoma – 6 months

# Multiple Myeloma

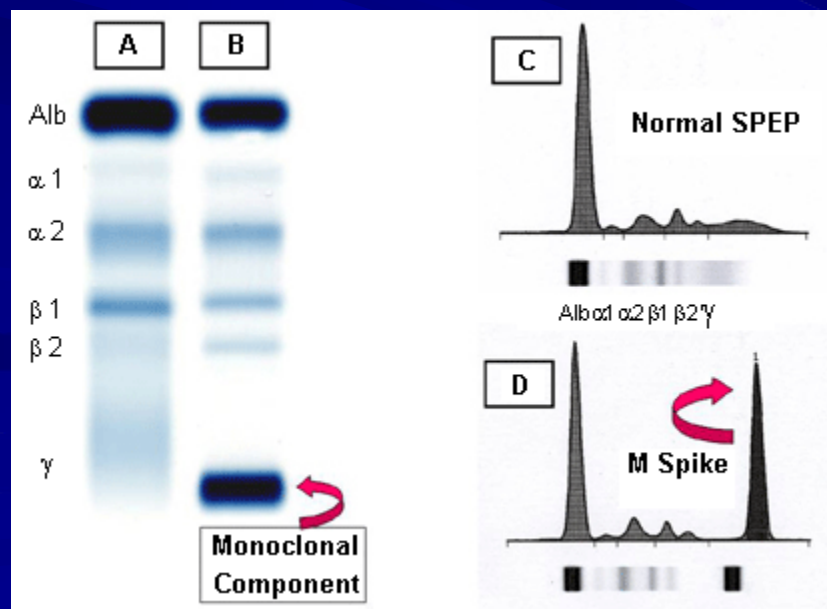
- Diffuse osteopenia and punched out lytic lesions
- Bone marrow is overtaken by atypical monoclonal plasma cells





# Multiple Myeloma

- M protein and Bence-Jones light chain protein spikes in >99% patients
- SPEP >75% sensitive and UPEP adds 20% sensitivity for 95% sensitivity in diagnosis

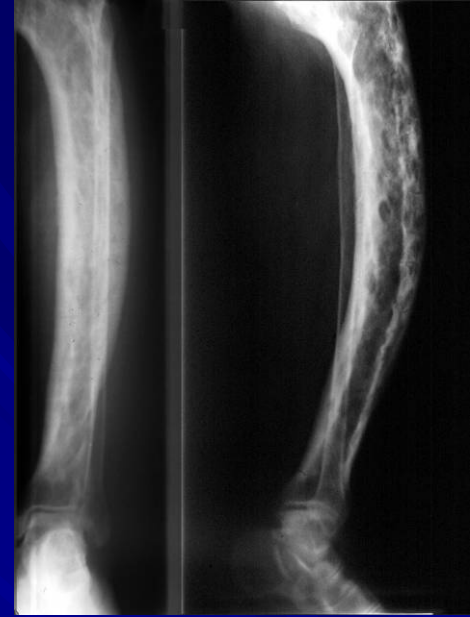


# Multiple Myeloma

- Hemoglobin  $<12$  and ESR  $>50$  in more than 2/3 of patients
- Cold on bone scan
- Median Survival approximately 2 years
- Greatest prognostic factor is renal function as most die of renal failure
- Treat bone lesions with bisphosphonates (osteoclast inhibiting agents)

# Paget's Disease

- Flame-shaped radiolucency and bowing of long bones
- 4% of population >50 yo
- 15% >80 yo
- Increased Cranial diameter



# Paget's Disease

- Bone Scan very sensitive
- Paramyxovirus association
- If >35% of skeleton affected, can see high output cardiac failure
- Treat with bisphosphonates (Oral alendronate vs IV pamidronate)
- Rare transformation to osteosarcoma (<2%)



# Gout

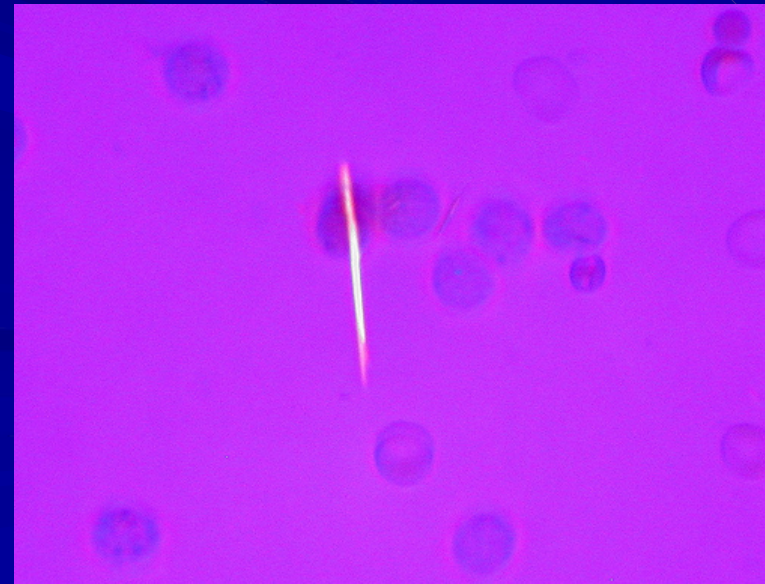
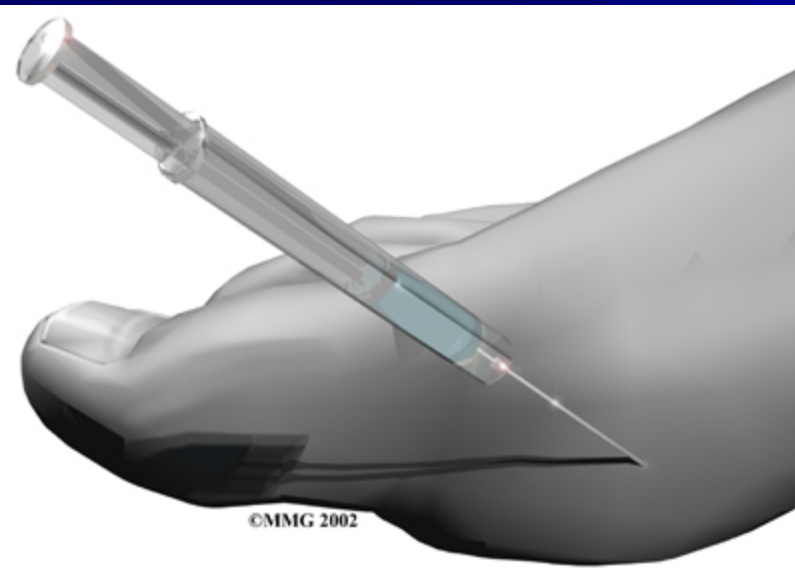
- 40 yo male awakened in middle of night with 1<sup>st</sup> MTP joint pain and swelling
- Males 9:1
- 1% of population
- Precipitation of Monosodium Urate Crystals



Acute gout with erythema (redness) of the great toe joint.

# Gout

- Aspiration of joint
- Needle-shaped, negative birefringent yellow crystals
- Serum uric acid often normal



# Gout

- Treat acute attack with Indomethacin, steroids, colchicine
- Limit meat and alcohol
- No ice on joints as this cools temperature and encourages crystal precipitate
- Chronic treatment with allopurinol

# Pseudogout

- Older patients with calcium pyrophosphate crystal deposits in joints
- Seen as linear deposits floating in joint
- Risks are joint trauma, hemochromatosis, diabetes and hyperparathyroidism





# Pseudogout

- Joint aspirate demonstrates rhomboid shaped, positive birefringent blue crystals
- Treat with NSAIDs and steroids



# Thank You

