

# Tenosynovial Giant Cell Tumor, Intraarticular

## ■ Best diagnostic clues

- Radiography: no mineralization;  $\pm$  erosions,  $\pm$  well-margined subchondral cysts
- MR: low signal intensity (SI) synovial proliferation on all standard sequences; effusion
  - » Demonstrates extent (diffuse vs. localized)
  - »  $\pm$  blooming on gradient-echo,  $\pm$  enhancement,  $\pm$  erosions

## ■ Location of tenosynovial giant cell tumor (TSGCT): synovial joints

- Knee: 80% of cases
- Hip, ankle, elbow, shoulder, wrists

## ■ Morphology

- Diffuse TSGCT: widespread distribution corresponding to shape of joint and associated synovial spaces
- Localized TSGCT: singular round, ovoid, or lobulated mass in synovial joint

# Top Differential Diagnoses

- Gout
  - Juxtaarticular location
- Amyloidosis
  - No blooming on gradient-echo
- Hemophilic arthropathy
  - Overgrowth of epiphyses/metaphyses
- Synovial chondromatosis
  - No blooming on gradient-echo; mineralized intraarticular bodies may be present

# X-Ray

- No mineralization
- Effusion/joint distension
- Cartilage preserved until late in process
- Assess for associated cartilage space narrowing and osteophytes
- $\pm$  erosion(s)
- $\pm$  large, well-margined subchondral cyst(s)
- Localized TSGCT: visible soft tissue mass surrounded by fat, if centered in fat pad

# MRI

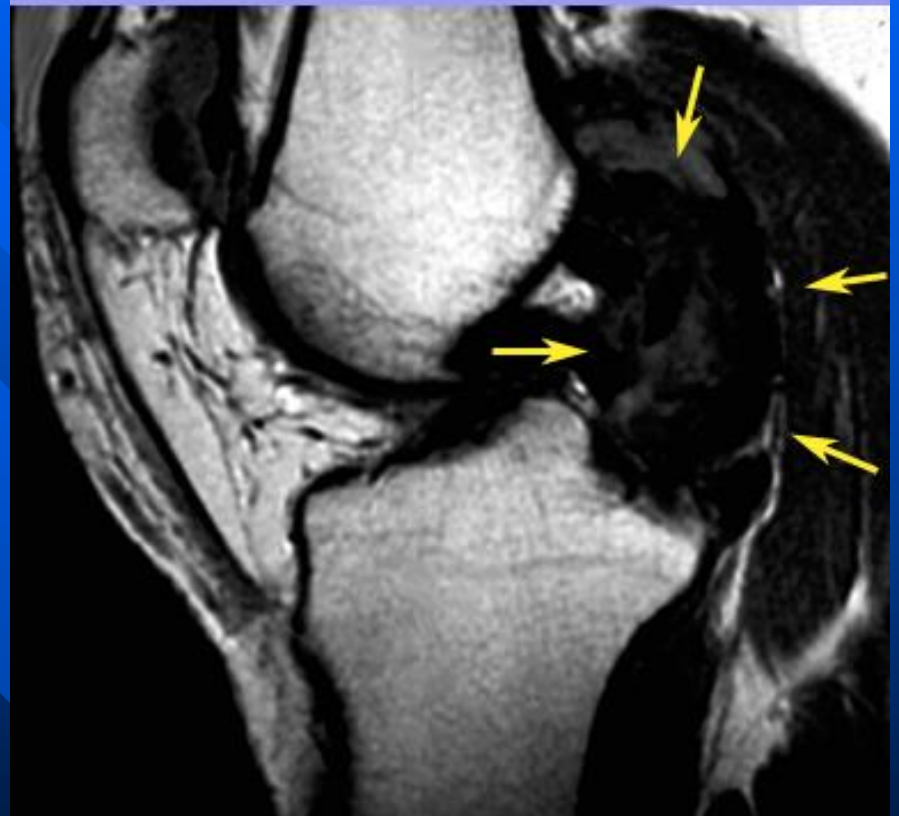
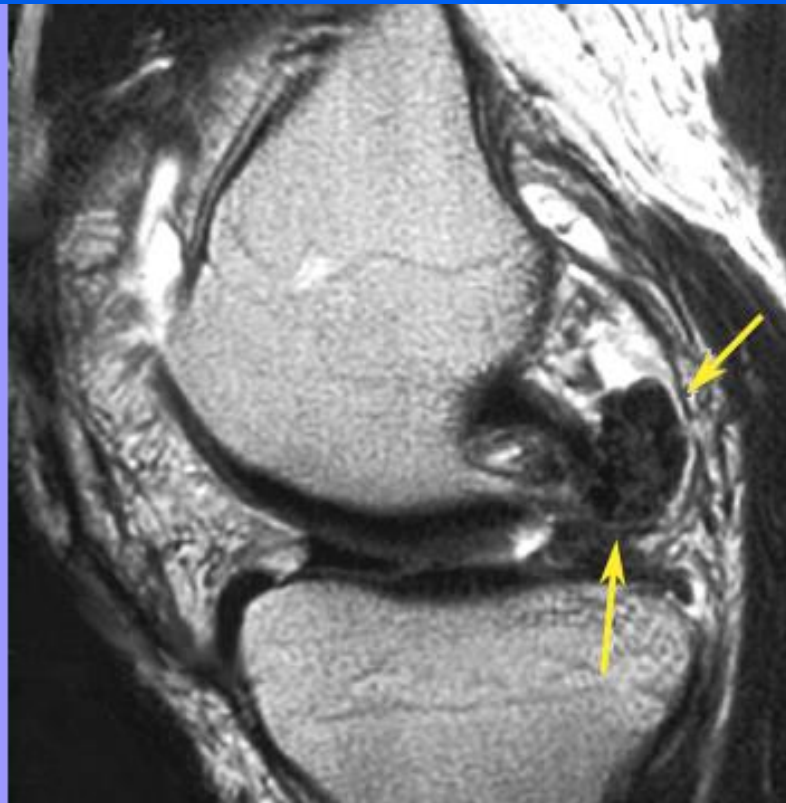
- Effusion
- T1: predominantly low to intermediate SI; assess for areas of internal low SI (hemosiderin deposition)
  - Internal signal that shows fat is uncommon finding (from lipid-laden macrophages)
- T2: predominantly low to intermediate SI; assess for areas of internal low SI (hemosiderin deposition)
- Gradient-echo: assess for blooming (hemosiderin deposition); not present in all cases
- C+: expected to avidly enhance inhomogeneously, but enhancement is not present in all cases
- Erosions
  - May be subtle and more difficult to appreciate compared to radiographs or CT
- Diffuse TSGCT
  - Widespread or multifocal extensive solid- or shaggy-appearing mass-like synovial thickening through joint
  - $\pm$  extension into synovial cysts or through capsular defects along juxtaarticular ligaments
- Local TSGCT
  - Solitary mass

# Pigmented Villonodular Synovitis



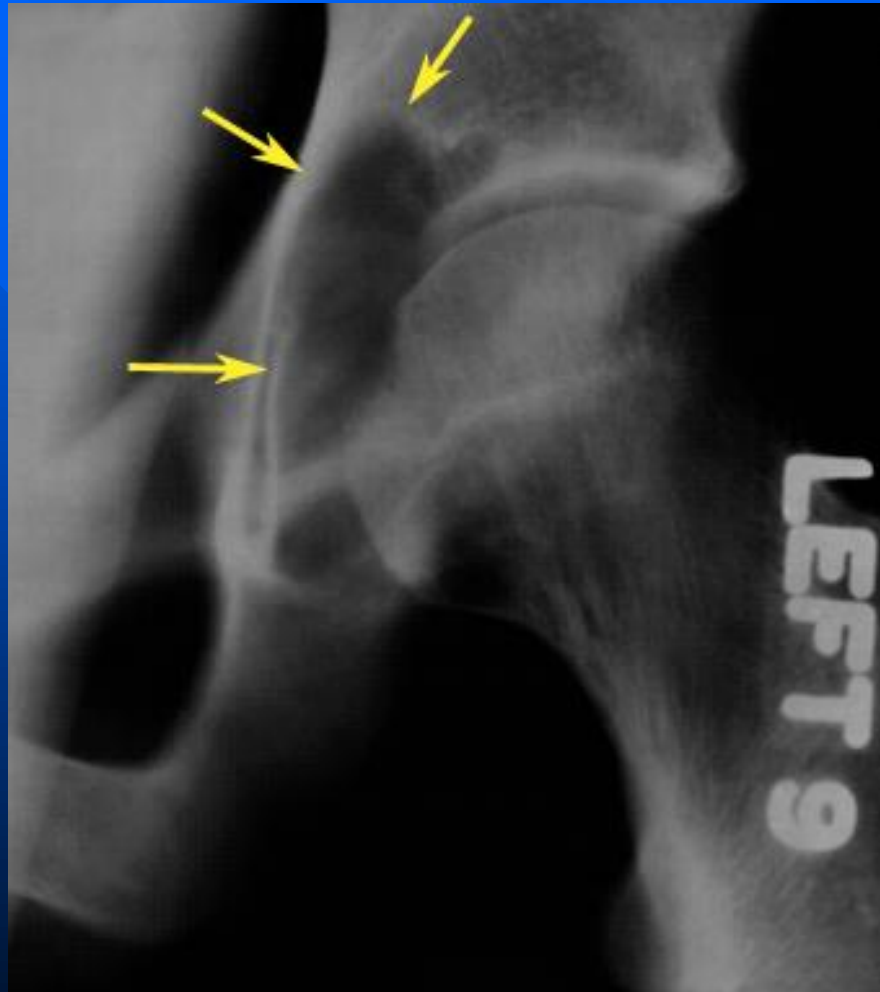
marked soft tissue swelling, cystic changes in both the femur and tibia  
without significant joint space narrowing

# PVNS



Can be diffuse or focal “mass like”

# PVNS





# PVNS

