

Normal joint



Normal articular cortex

Joint disease

- 1-degenerative disease (osteoarthritis)
- 2- inflammatory disease (still disease ,RA)
- 3-infective disease (septic arthritis ,TB arthritis)
- 4-malignant disease (synovioma)
- 5-traumatic disease
- 6-congenital disease (displacement hip)
- 7-abnormal trabecular pattern (behejet disease)

Classification

- **Hypertrophic**
 - **Hallmarks**
 - **Bone production**
 - **Sclerosis**
- **Infectious**
 - **Hallmark**
 - **Destruction of articular cortex**
- **Erosive**
 - **Hallmark**
 - **Erosions**

Hypertrophic Arthritis

- **Degenerative arthritis(osteoarthritis)**
 - **Primary**
 - **Secondary**
- **Charcot arthropathy**

1° Degenerative Arthritis

- ▣ **Intrinsic degeneration of articular cartilage**
- ▣ **Excessive wear and tear**
 - ▣ **Most commonly hips and knees**
 - ▣ **Less commonly shoulders and elbows**



**1° DJD of knees affects medial,
weight-bearing surface**



**1° DJD of hips affects superior,
weight-bearing surface**

2° Degenerative Arthritis

- **Another process destroys articular cartilage**
- **Degenerative changes supervene**
- **How to recognize**
 - **Atypical locations (knee)**
 - **Atypical appearance (Marked DJD of 1 hip)**
 - **Atypical age (DJD in 20 year-old)**

2° Degenerative Arthritis

Causes

- **Trauma**
- **Infection**
- **Avascular necrosis**
- **CPPD**
- **RA**
- **Hemophilia**

Osteoarthritis (degenerative joint disease):

- RADIOLOGICAL SIGN :

1-normal bone density(no osteoporosis)

2-narrowing of the joint space maximal at weight bearing site

3- subchondral sclerosis and cyst may be seen

4-osteolytic lesion

5-sclerosis of the bone is a prominent feature

6-osteophyte formation

7-loose bodies

osteoarthritis

- 1-bone appearing closer to each other ,the joint space narrow
- 2-cysts:as the body responds to cartilage destruction and attempts to stabilize the joint , cyst or fluid filled cavities can form in the bone
- 3-uneven joints
- 4- bony spurs



2° DJD of right ankle following fracture

Charcot's Arthropathy

- Neuroarthropathy
- Causes:
- 1-DM
- 2-Syphilis
- 3-alcoholism
- 4-renal dialysis
- 5-spinal cord injury

Charcot's Arthropathy

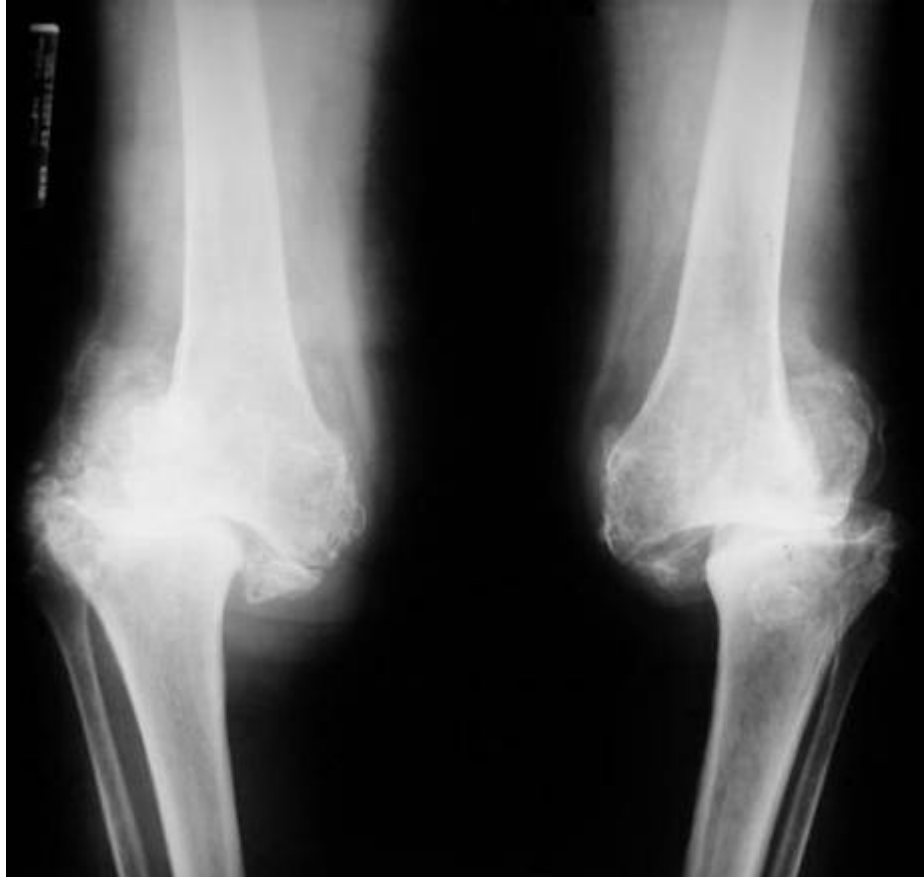
General

- ▣ **Disturbance in sensation leads to multiple microfractures**
- ▣ **Pain sensation intact from muscles and soft tissue**
- ▣ **Causes**
 - ▣ **Shoulders – syring, spinal tumor**
 - ▣ **Hips – tertiary syphilis, diabetes**
 - ▣ **Feet – diabetes**

Charcot's Arthropathy

Findings

- ▣ **X-ray findings**
 - ▣ **Fragmentation**
 - ▣ **Soft tissue swelling**
 - ▣ **Destruction of joint**
 - ▣ **Sclerosis**
 - ▣ **Osteophytosis**



Charcot's Knees-Diabetes

Infectious Arthritis

- **More common in adults**
 - Usually from local trauma-surgery or accident
 - Children get osteomyelitis
- **Destruction of articular cartilage & cortex**
- **Tends to affect one joint (DDx from gout)**
 - Fingers from human bites
 - Feet from diabetes

Infectious Arthritis

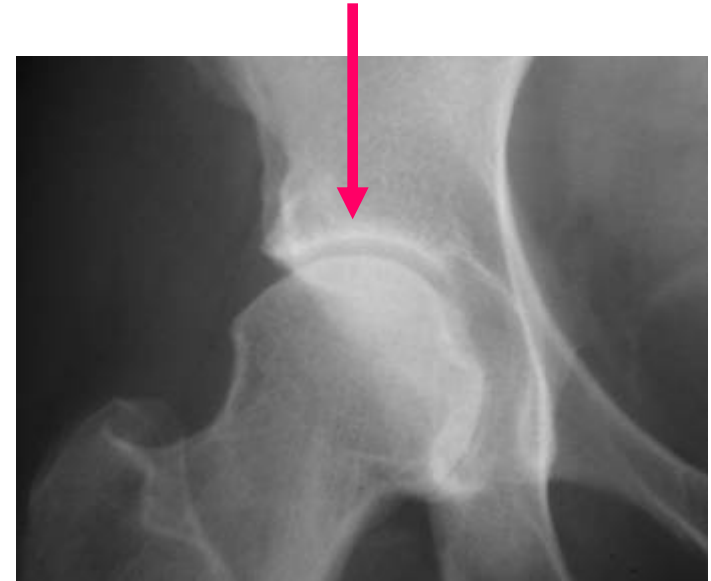
Causes

- ▣ **Usually staph - “early” destruction of articular cortex**
 - ▣ **Rapid course (unlike most arthritides)**
- ▣ **TB spreads via bloodstream from lung**
 - ▣ **More protracted course**
 - ▣ **In children, spine most common; in adults, knee**
 - ▣ **Severe osteoporosis**
- ▣ **Healing with ankylosis common in both**



**Septic arthritis of hip with
pathologic fracture**

Acetabular white line



Normal hip

Erosive Arthritis

Types

- ▣ **Rheumatoid arthritis**
- ▣ **Gout**
- ▣ **Hemophilia**
- ▣ **Erosive osteoarthritis**
- ▣ **Rheumatoid variants**
 - ▣ **Psoriatic arthritis**
 - ▣ **Reiter's**
 - ▣ **Ankylosing spondylitis**
 - ▣ **Inflammatory bowel disease**

Gout

General

- ❑ **Long latent period between onset of symptoms and bone changes**
- ❑ **Asymmetric and monoarticular**
- ❑ **More common in males**
- ❑ **Most common at 1st MT-P joint**
- ❑ **Tophi rarely calcify**
- ❑ **Olecranon bursitis is common**

Gout

Findings

- ▣ **Juxta-articular erosions**
 - ▣ **Sharply margined with sclerotic rims**
 - ▣ **Overhanging edges (rat-bites)**
- ▣ **No joint space narrowing until later**
- ▣ **Little or no osteoporosis**
- ▣ **Soft tissue swelling**
- ▣ **Tophi not calcified**



Gout

Rheumatoid artheritis

- RADIOLOGICAL SIGN :

1-generalized osteopenia

2-swelling of the soft tissue around

3-articular erosion

4- sometime the joint ligment may undergo softening
or complete cut

Rheumatoid Arthritis

General

- **Bilaterally symmetrical**
 - **Earliest change: MCP, PIP, ulnar styloid**
- **Radiocarpal jt most commonly narrowed**
- **Periarticular demineralization**
- **Begins MCP jts of 1st and 2nd fingers**
- **Large joints usually no erosions**

Rheumatoid Arthritis

General

- **Can lead to 2° DJD**
 - **Marked narrowing of joint space with intact articular cortex, think of RA**
 - **Little or no sclerosis**
 - **Especially, hips and knees**
 -



RA of Hips – Marked narrowing, little sclerosis



**RA usually
involves 5th
MT-P joint
first**

RA of Foot

Psoriatic Arthritis

- ❑ **Almost always accompanies skin disease, especially nail changes**
- ❑ **Involves DIP joints of hands > feet**
 - ❑ **Cup-in-pencil deformity**
- ❑ **Resorption of terminal phalanges**
- ❑ **No osteoporosis**



Psoriasis of hands

Reiter's Syndrome

- ▣ **Urethritis, arthritis (50%) & conjunctivitis**
- ▣ **Periostitis at sites of tendinous insertion**
 - ▣ **Whiskering**
 - ▣ **Like DISH, ankylosing spondylitis**
- ▣ **Affects feet more than hands .**
- ▣ **Resembles RA**
 - ▣ **Reiter's also has osteoporosis**



Reiter's Syndrome

Ankylosing Spondylitis

- **HLA-B27 positive**
- **B/L SI arthritis**
 -
- **Squaring of vertebral bodies**
- **Bamboo-spine from continuous syndesmophytes**
- **Peripheral large joint erosive arthritis**



Ankylosing Spondylitis

Inflammatory Bowel Disease

- ▣ **Can occur with either Crohn's or UC**
 - ▣ **More common with UC**
- ▣ **Looks like AS in spine**
- ▣ **Asymmetric sacroiliitis**
 - ▣ **Like psoriasis, TB**
- ▣ **Peripheral joint STS without erosions**

Hemophilia

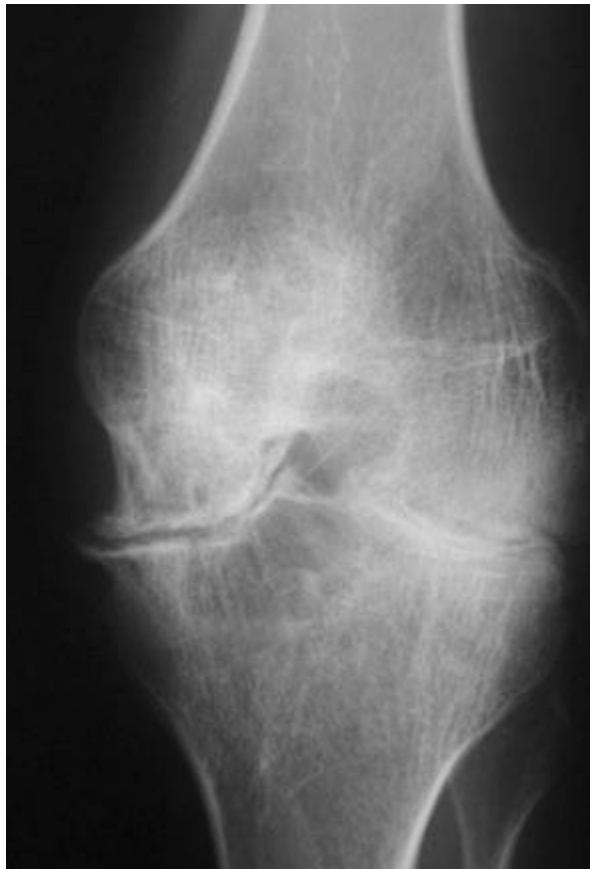
General

- ▣ **Usually seen in large joints**
- ▣ **Hemorrhage produces synovitis which leads to pannus**
 - ▣ **Incites hyperemic response**
 - ▣ **Bone resorption and remodeling**
 - ▣ **Especially in open epiphyses**
- ▣ **DDx: JRA**

Hemophilia

Findings

- ❑ **Overtgrowth of epiphyses**
- ❑ **Resorption of secondary trabeculae**
 - ❑ **Longitudinal striations**
- ❑ **Widening of interconylar notch of knee**
- ❑ **Joint effusion**
- ❑ **Hemosiderin deposit around joint**

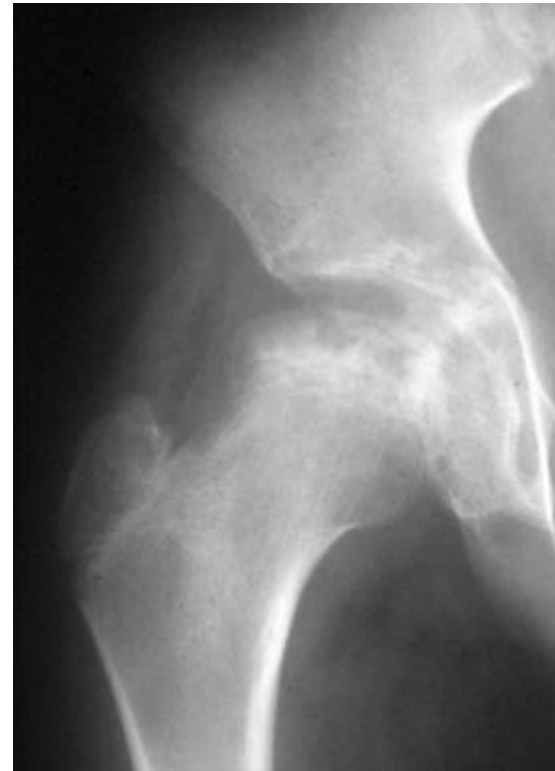


Hemophilic Arthropathy

Arthritis or Not



DJD



AVN

hyperparathyroidism

- Generalized decrease in bone density
- Subperiosteal bone resorption
- Soft tissue calcification
- Brown tumours



THANK YOU