MSK infections

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Outline

- Septic arthritis
- Reactive synovitis
- Acute Osteomyelitis
- Chronic traumatic

Case 1

- 6 year-old boy with inability to walk since yesterday + right hip pain

- Differential diagnosis ?
- History ?
- Examination?
- Investigation ?

Differential diagnosis

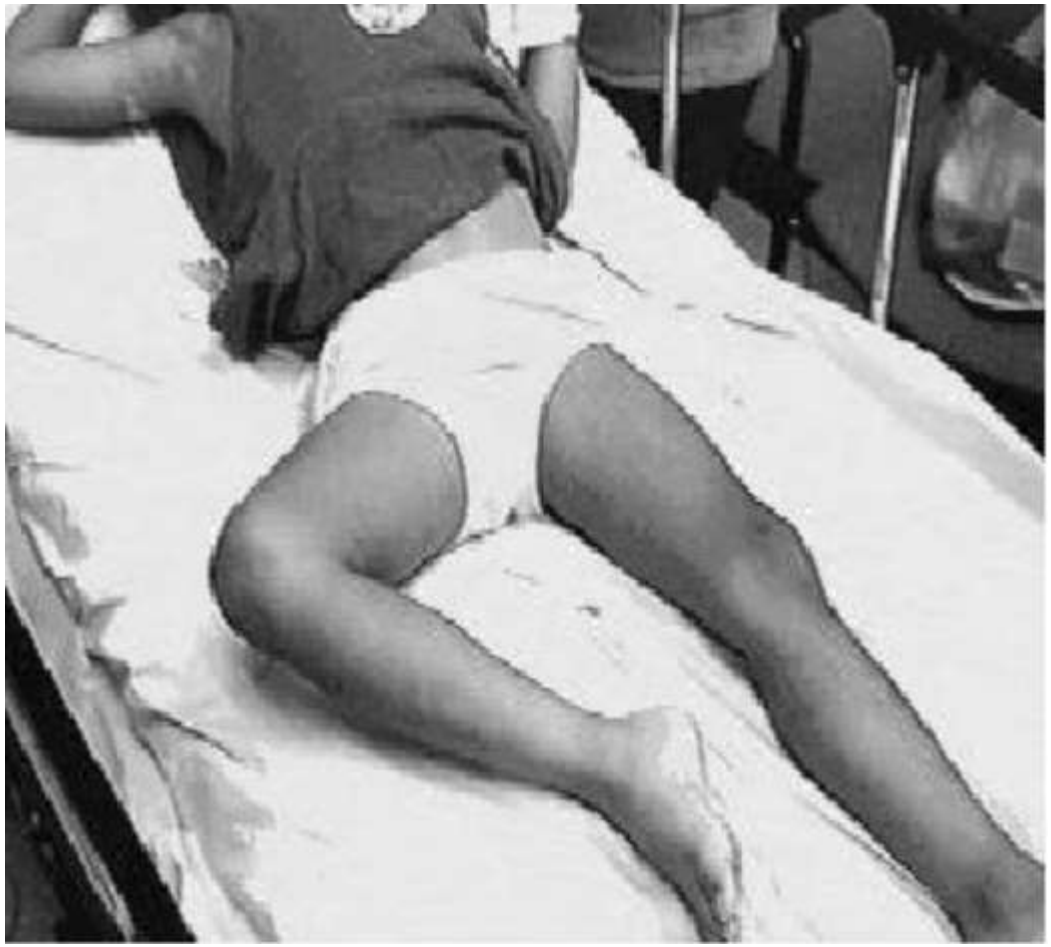
- Septic arthritis
- Reactive synovitis
- Osteomyelitis
- Trauma

History

- Developmental , vaccination , PMHx
- Trauma ?
- Onset?
- Fever
- Activity
- Skin changes
- Recent illness
- Treatment so far

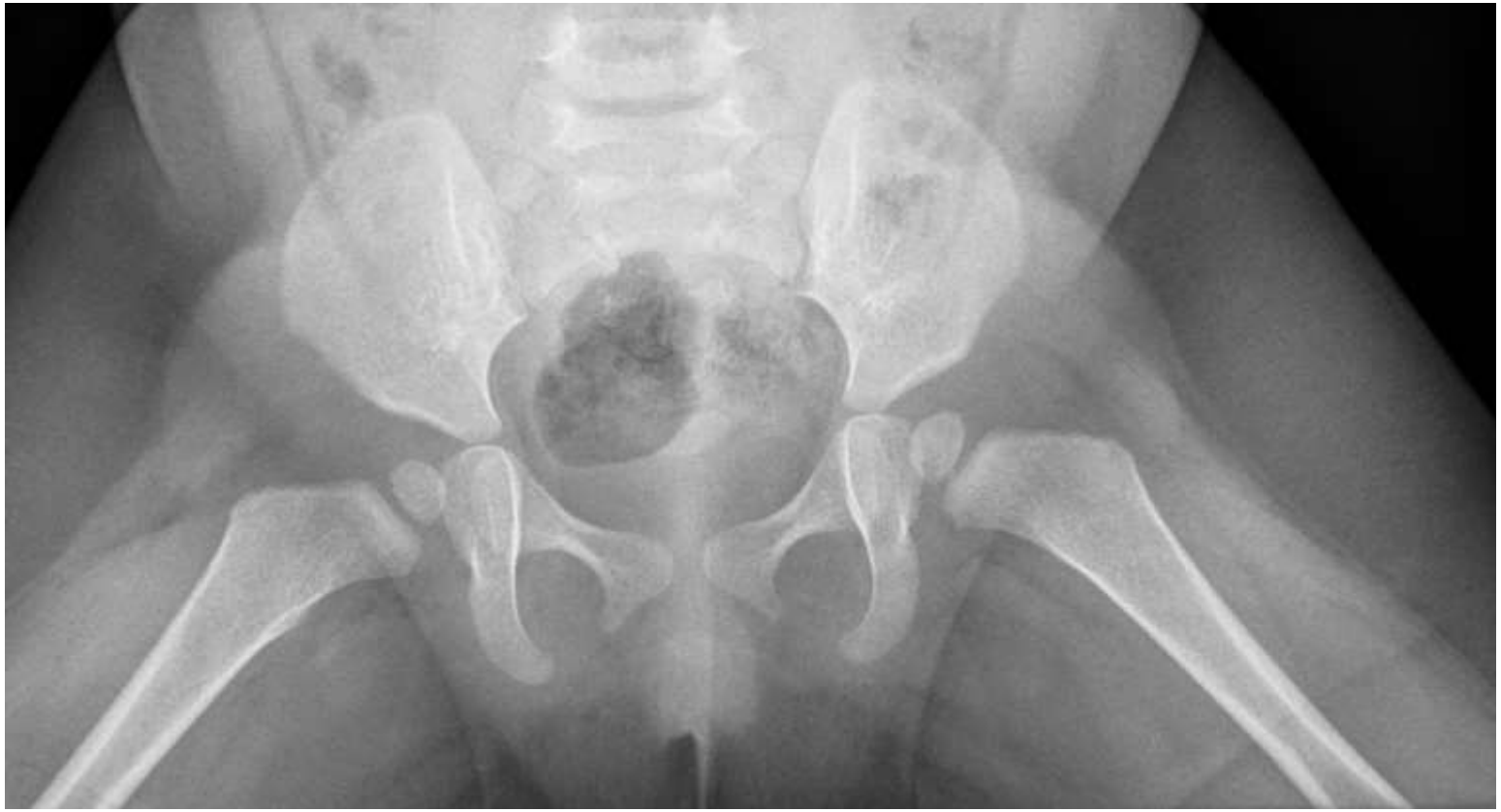
Examination

- Vital signs
- General
- Gait
- Look
- Feel
- move



Investigation

- WBC = 18000
- ESR= 60
- CRP=150
- Xray



Kocher Criteria

Kocher Criteria	No (0 points)	Yes (1 point)
Non-Weight Bearing	☐	☐
Temp > 38.5° C (101.3° F)	☐	☐
ESR > 40 mm/hr	☐	☐
WBC >12,000 cells/mm^3	☐	☐

When all 4/4 positive around 99% probability of septic arthritis

Investigations

MRI OR Ultrasound

- Effusion
- Synovitis

Aspiration

- Quickest way to confirm diagnosis
- More than 50000 WBC /ml or 90% Neutrophil count > suggest infection
- Positive gram stain > very specific
- Send in blood culture bottle

Treatment

- Urgent drainage

- Antibiotics
  - IV antibiotics
  - 6 weeks
  - Oral ?

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Oral versus Intravenous Antibiotics for Bone and Joint Infection

Authors: Ho-Kwong Li, M.R.C.P., Ines Rombach, D.Phil., Rhea Zambellas, M.Sc., A. Sarah Walker, Ph.D., Martin A. McNally, F.R.C.S.(Orth.), Bridget L. Atkins, F.R.C.P., Benjamin A. Lipsky, M.D., +52 , for the OVIVA Trial Collaborators* Author Info & Affiliations

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Monitoring

- Clinical picture
- CRP , inflammatory markers

Septic arthritis

- Causes – Bacteria → staph aureus
- Spread→ hematogenous spread , direct inoculation
- Could spread from osteomyelitis in joints with intracapsular metaphysis (not the knee joint)
- Orthopaedic emergency → pus causes damage to articular cartilage in few hours
- Aspiration →looking for bacterial growth , high WBC , gram stain
- Treatment → emergent drainage + IV ? antibiotics for 6 weeks

Reactive synovitis

- Transient synovitis
- Unknown aetiology➔ viral?
- Diagnosis by exclusion
- Normal inflammatory markers
- NSAID & close observation

Case 2

- 10 year old boy with left knee pain of 2 days
- Fever
- Inability to bear weight

- DDX?
- Assessment?
- Investigation?

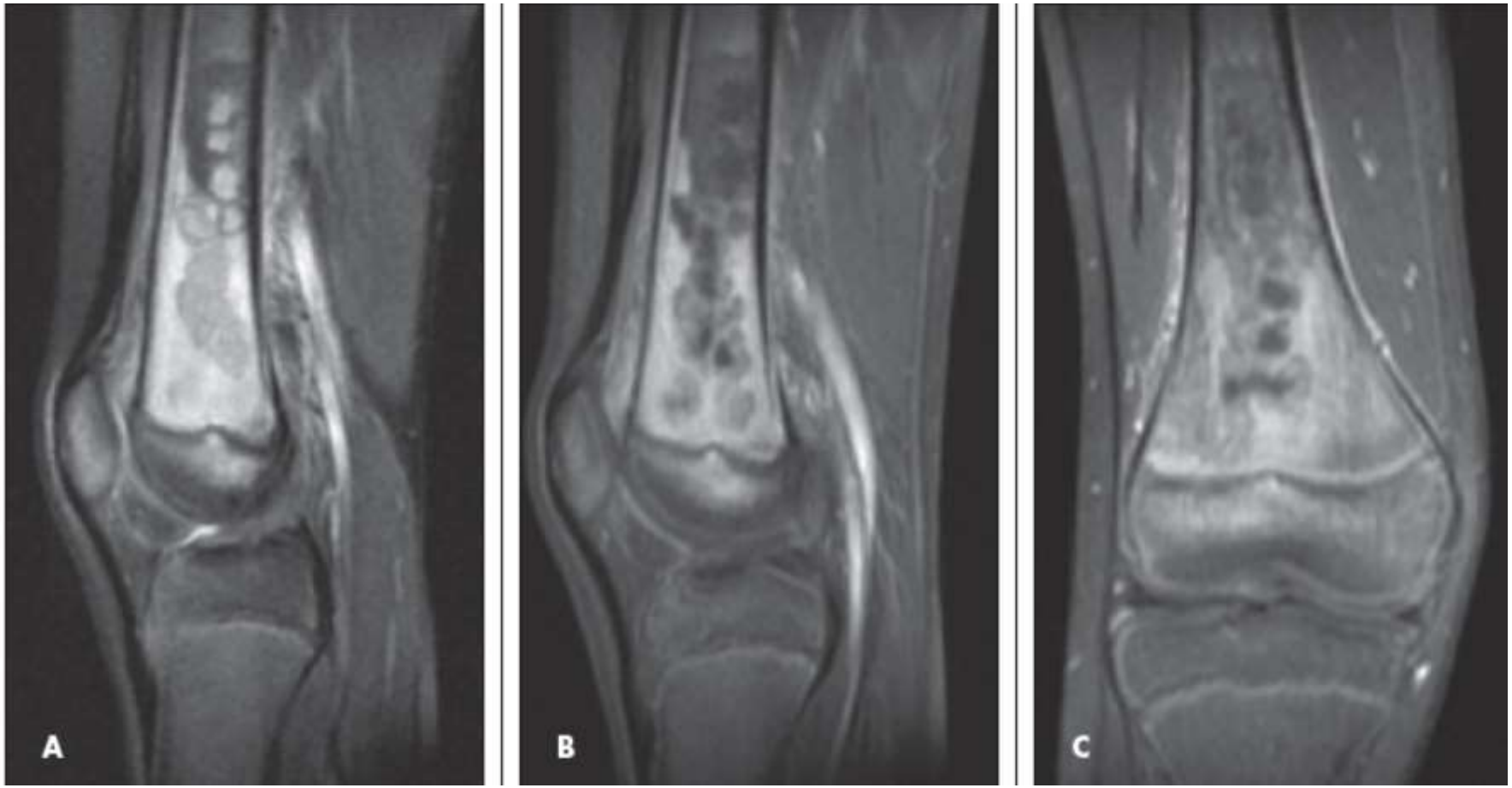
Examination

- No joint effusion
- Tenderness + hotness ➔ distal femur

Investigation

- CRP 70
- WBC 16
- ESR 120
- Blood culture= pending
- Radiographs Xrays unremarkable

Next step???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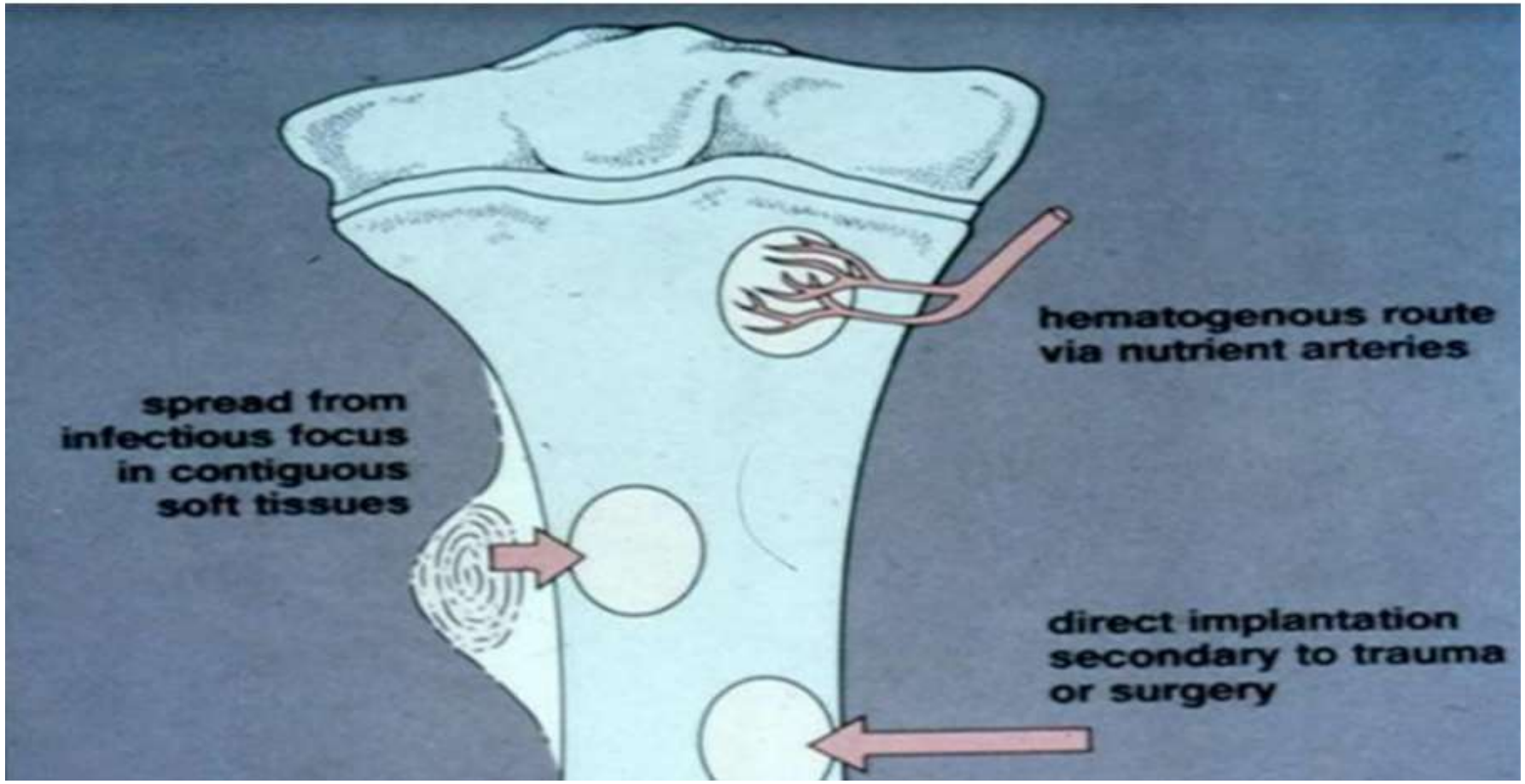
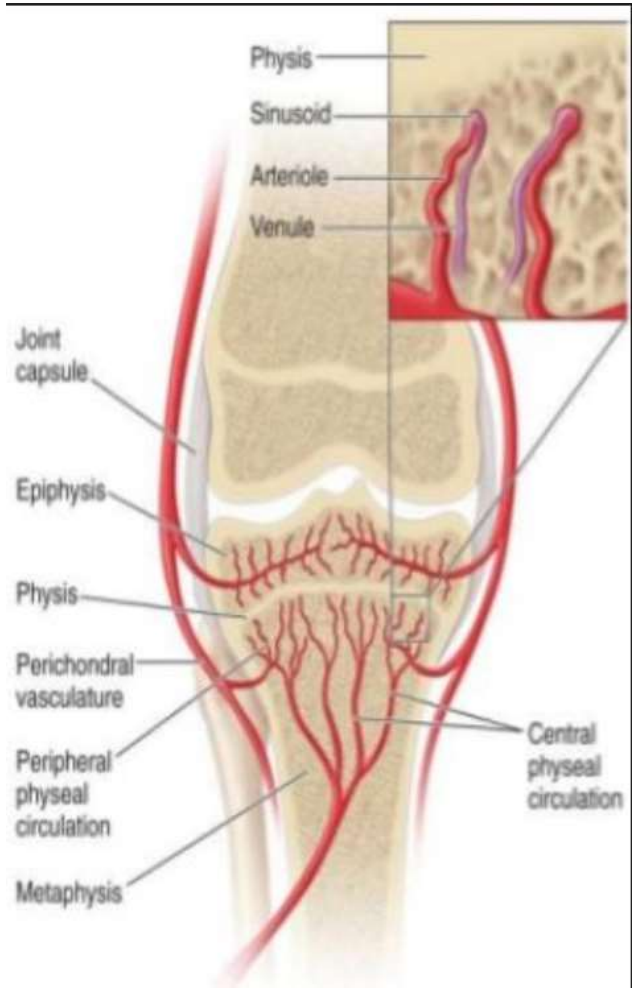
B
C

Sources


hematogenous route
via nutrient arteries
spread from
infectious focus
in contiguous
soft tissues
direct implantation
secondary to trauma
or surgery

Acute Heamatogenous osteomyelitis



Management

- IV antibiotics
  - to cover gram positive
  - 6 weeks
- Surgical debridement indications ➔
  - Abscess
  - No response to IV antibiotic treatment

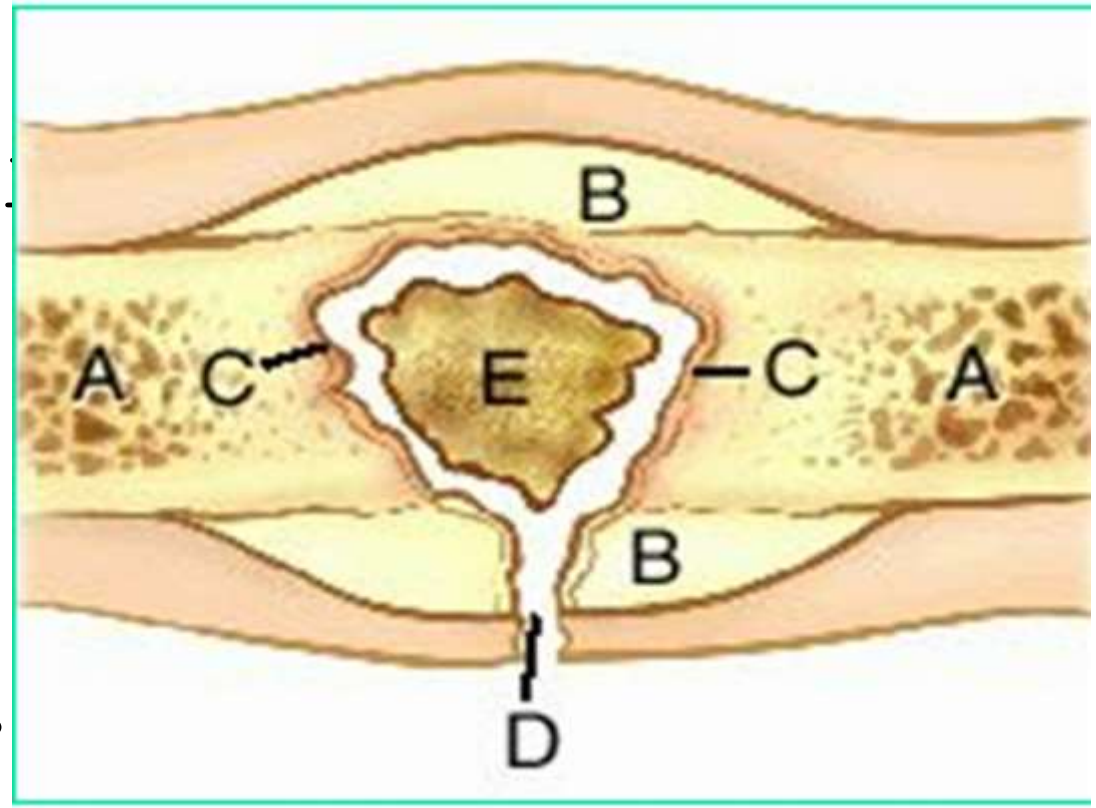
Acute osteomyelitis

- Common in children
- Metaphysis ➔ sluggish blood flow
- Clinical presentation
- Xray usually negative early on
- MRI is the best early diagnostic modality
- Staph aureus
- 6 weeks of IV antibiotics
- Surgical debridement – if no improvement or abscess
- Can spread to joint

Chronic Osteomyelitis

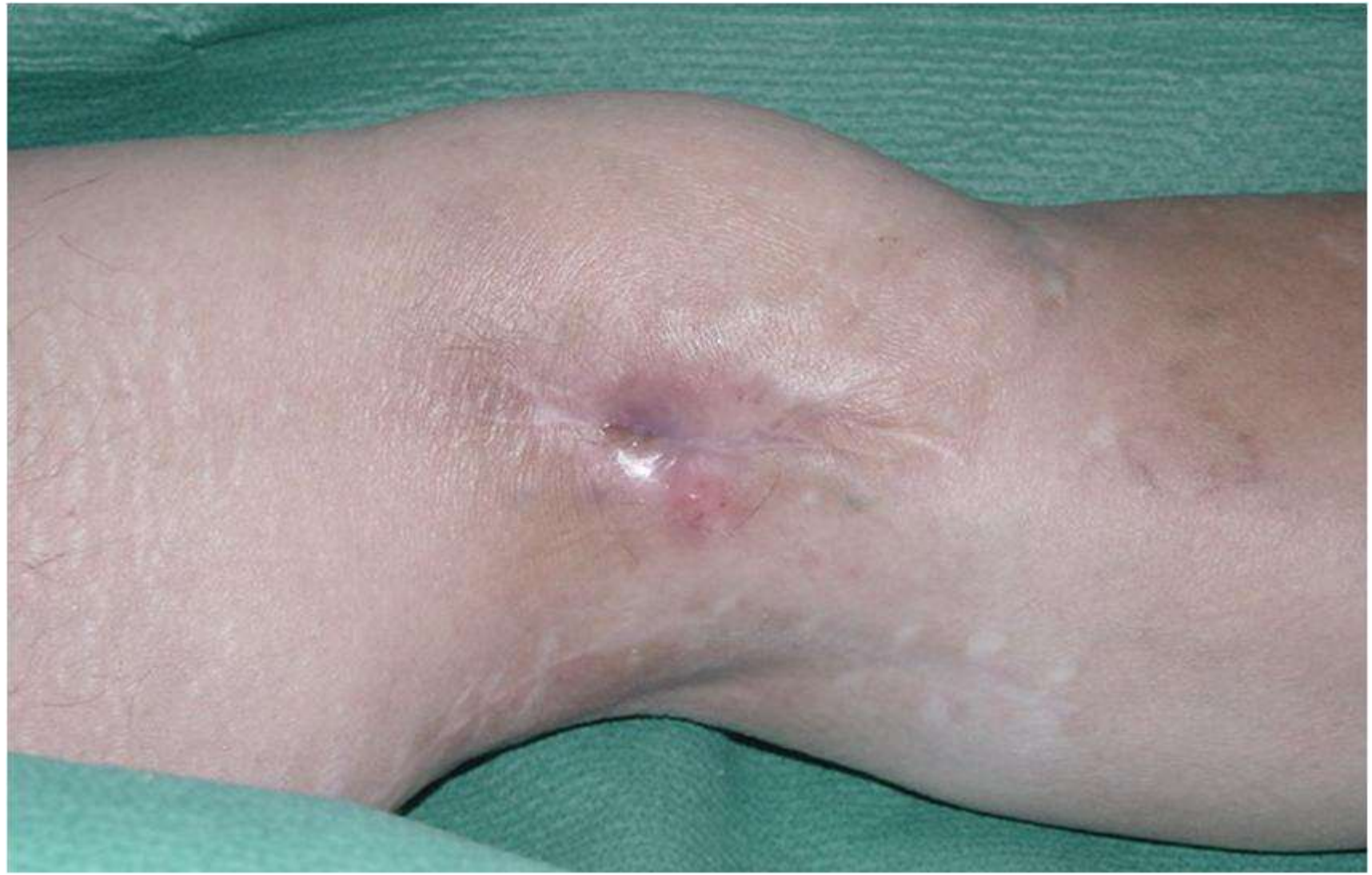
Chronic Osteomyeli

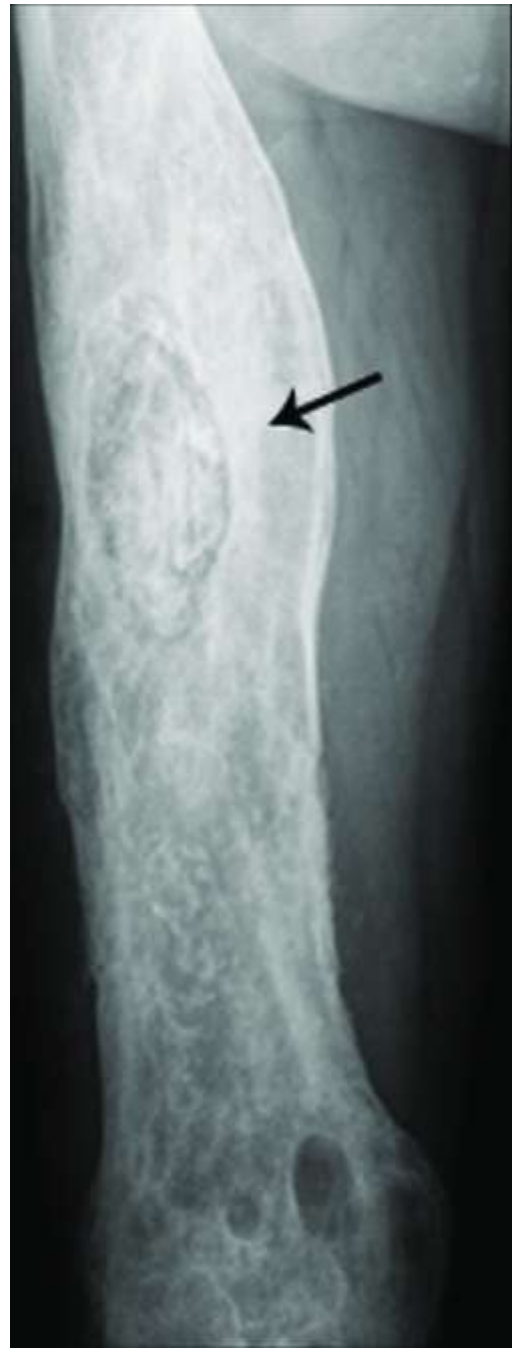
- **Bone necrosis**
- **Biofilm**
- Open fractures
- Post orthopaedic surgeries
- Inadequately treated acute osteomyelitis
- Poor vascularity or diabetes

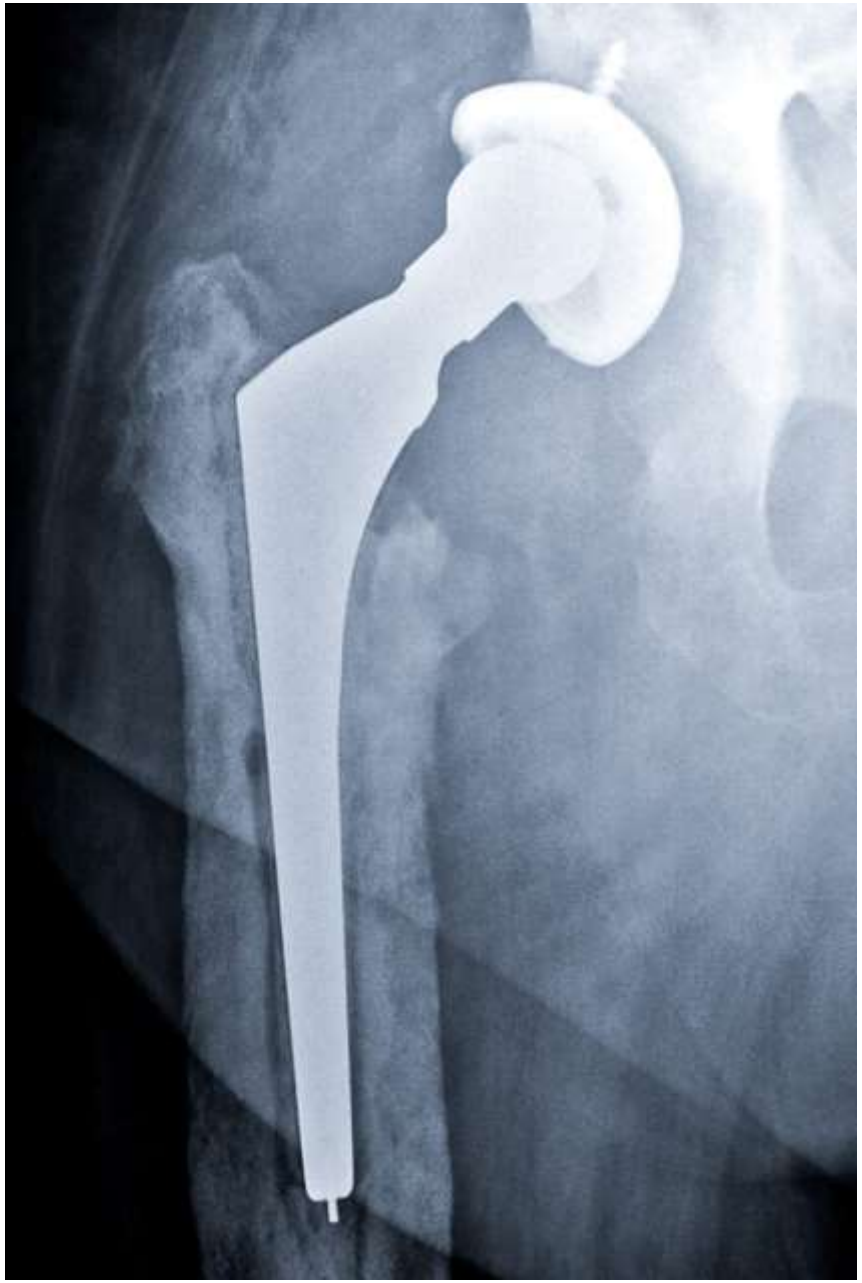


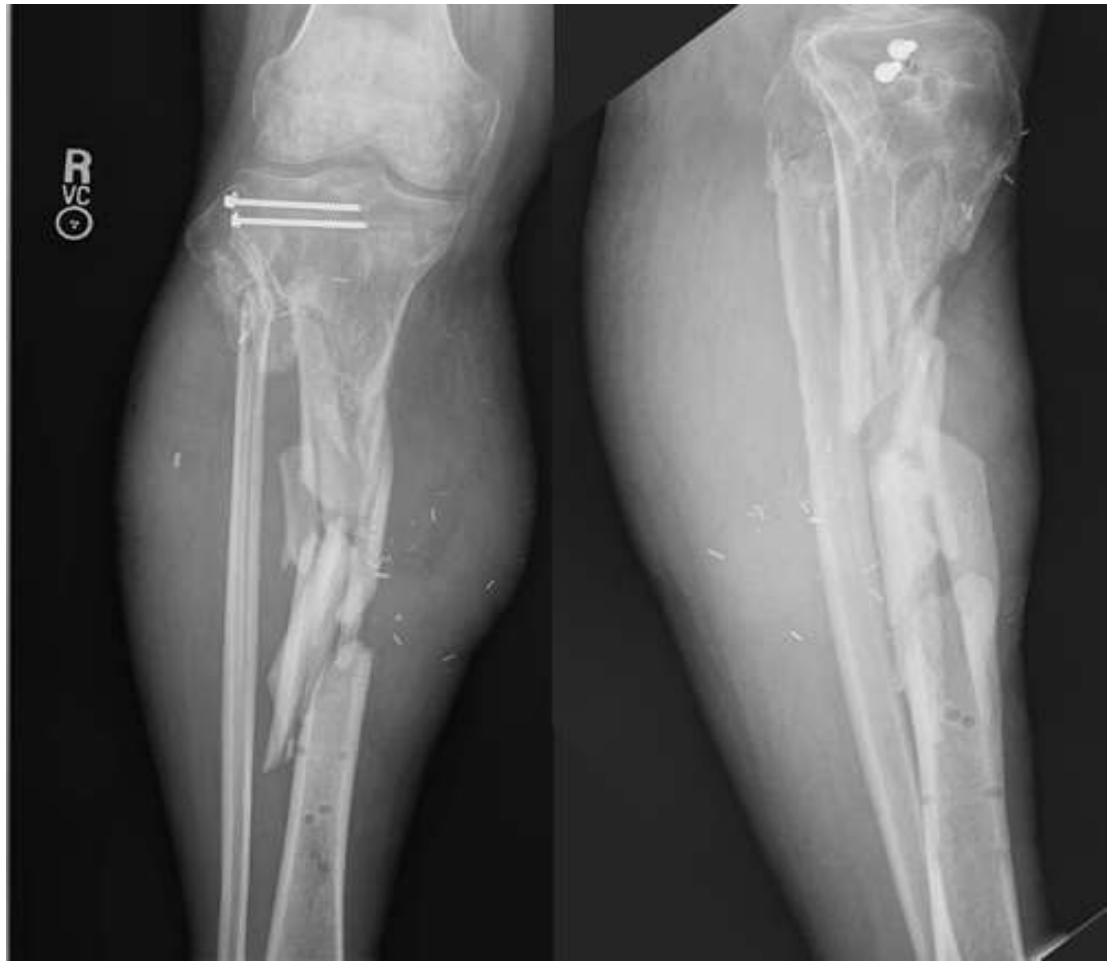
Presentation

- History of Previous Infection, Surgery, or Trauma
- Local Pain, Swelling, and Tenderness
- Persistent or Recurrent Sinus Tract
- Deformity or Non-Union





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VC

Causes

- Staph aures➔ most common
- Staph epidermedis ➔ with previous metal work
- Salmonella ➔ sickle cell patients but still stap aureus most common

Diagnosis

- Inflammatory markers ➔could be normal
- MRI
- CT
- Bone scan
- Bone biopsy➔ **gold standard**

Treatment

- Surgical debridement and reconstruction
  - Multiple surgeries usually needed
- Long term antibiotic treatment

Chronic osteomyelitis - Summary

- Bone necrosis is the hallmark
- Sequestrum / Involucrum
- Staph aureus
- Bone bx
- Always surgical disease
- Longterm antibiotics

Further reading

- TB osteomyelitis
- Subacute osteomyelitis- Brodie’s abscess
- Discitis – spinal infections