



# **Infection in Bone and Joint**

# Infection in bone



## Osteomyelitis

- acute (subacute)
- chronic
  
- specific (eg TB)
- non specific (most common)

# Acute haematogenous OM



- mostly children
- boys > girls
- history of trauma

# **Acute Osteomyelitis**

## **Source Of Infection**



- infected umbilical cord in infants
- boils, tonsillitis, skin abrasions
- in adults UTI, arterial lines

# Acute Osteomyelitis

## Organism



- Gram +ve
  - staphylococcus aureus
  - strep pyogen
  - strep pneumonie
- Gram -ve
  - haemophilus influenzae (50% < 4 y)
  - e .coli
  - pseudomonas auroginosa,
  - proteus mirabilis

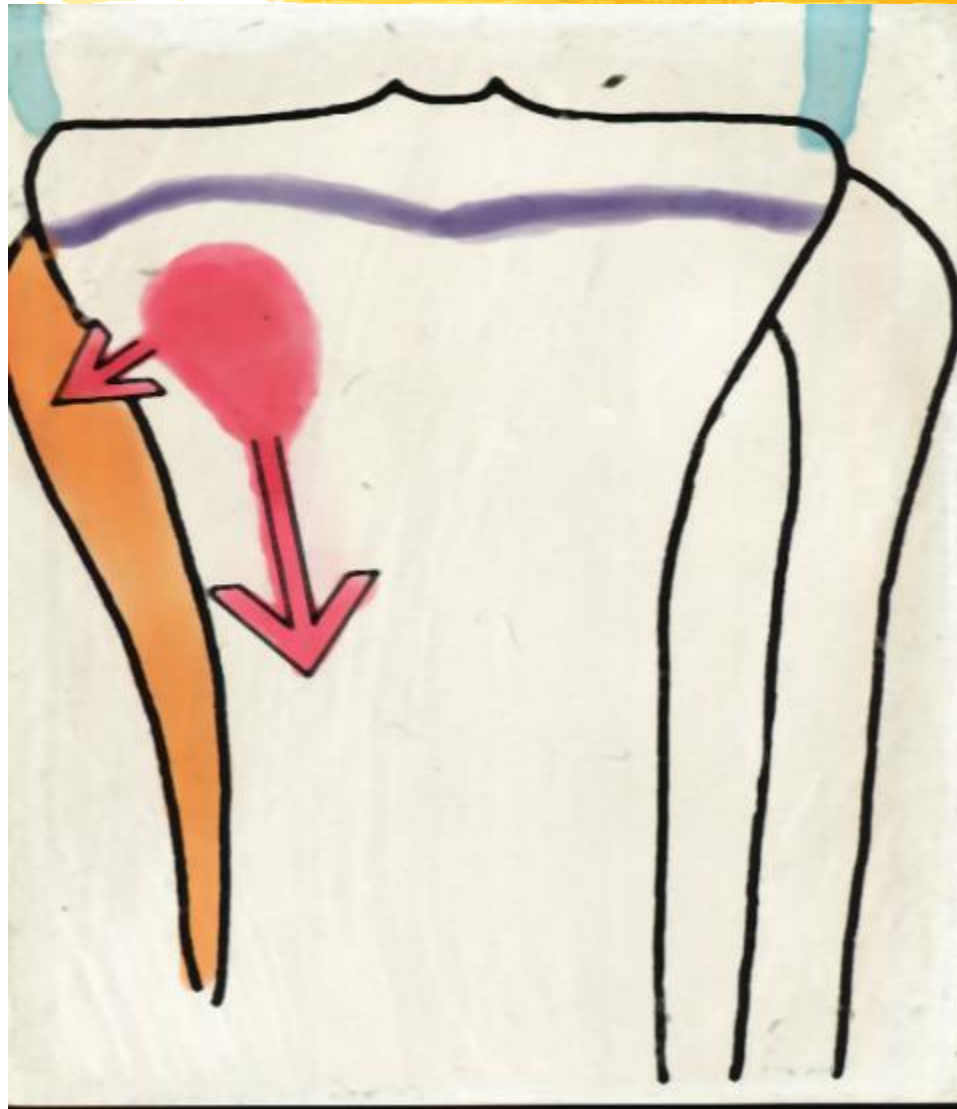
# Acute Osteomyelitis

## Pathology

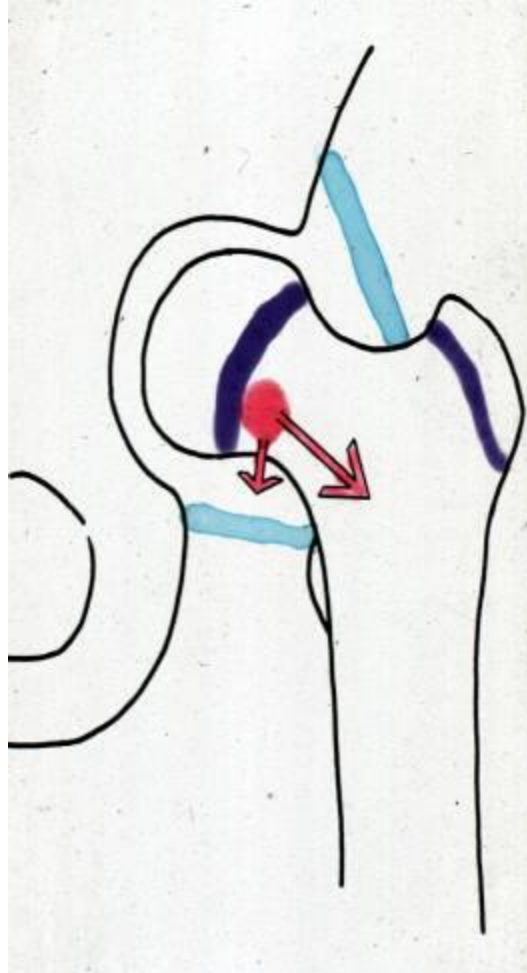


- starts at metaphysis
- ?trauma
- vascular stasis
- acute inflammation
- suppuration
- necrosis
- new bone formation
- resolution

# Acute Osteomyelitis



# Acute Osteomyelitis



# **Acute Osteomyelitis**

## **Clinical Features**



- severe pain
- reluctant to move
- fever
- malaise
- toxemia

# Acute Osteomyelitis

## Infant



- failure to thrive
- drowsy
- irritable
- metaphyseal tenderness
- decrease ROM
- commonest around the knee

# Acute Osteomyelitis

## Adult



- commonly thoracolumbar spine
- fever
- backache
- history of UTI or urological procedure
- old ,diabetic ,immunocompromised

# Acute Osteomyelitis

## Diagnosis



- History and clinical examination
- CRP, ESR, B.C.
- X-ray (normal in the first (10-14) days)
- Ultrasound
- Bone Scan Tc 99, Gallium 67
- MRI
- Aspiration

# Acute Osteomyelitis



# **Acute Osteomyelitis**

## **Differential Diagnosis**



- cellulitis
- acute septic arthritis
- acute rheumatism
- sickle cell crisis
- Gaucher's disease

# Acute Osteomyelitis Treatment



- supportive treatment for pain and dehydration
- splintage
- antibiotics
- surgery

# **Acute Osteomyelitis Complications**



- septicemia
- metastatic infection
- septic arthritis
- altered bone growth
- chronic osteomyelitis

# **Subacute Osteomyelitis**

## **Clinical features**



- long history (weeks, months)
- pain, limp
- swelling occasionally
- local tenderness

# Subacute Osteomyelitis Pathology



Brodie's abscess

*a well defined cavity  
in cancellous bone*

# **Subacute Osteomyelitis**

## **Investigation**



- X ray
- Bone scan
- Biopsy(50%) grow organism



# **Subacute Osteomyelitis Treatment**



- antibiotics for 6 months
- surgery

# Other types of OM



- Sclerosing OM (non suppurative OM)
- Post-operative
  - early (within 3 months)
  - late

# Chronic Osteomyelitis



- May follow acute OM

- May start De Novo

following operation

following open #

# Chronic Osteomyelitis

## Organism



- usually mixed infection
- mostly staph. Aureus E. Coli . Strep Pyogen, Proteus

# Chronic Osteomyelitis

## Pathology



- cavities
- dead bone
- cloacae
- involucrum
- histological picture is one of chronic inflammation

# Chronic Osteomyelitis



# Chronic Osteomyelitis Sequestrum

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# Treatment

⌘ 1-antibiotics

⌘ 2-surgery; sequestrectomy, muscle flap, double lumen tube, ilazrov.



# Acute Septic Arthritis

## Route of Infection



- direct invasion
  - penetrating wound
  - intra articular inj
  - arthroscopy
- eruption of bone abscess
- haematogenous

# Acute Septic Arthritis

## Organism



- staphylococcus aureus
- haemophilus influenzae
- streptococcus pyogenes
- escherichiae coli

# Acute Septic Arthritis

## Pathology



- acute synovitis with purulent joint effusion
- articular cartilage attacked by bacterial toxin and cellular enzyme
- complete destruction of the articular cartilage.

# **Acute Septic Arthritis**

## **Sequelae**



- complete recovery
- partial loss of the articular cartilage
- fibrous or bony ankylosis

# **Acute Septic Arthritis Neonate**



Picture of Septicemia

- irritability
- resistant to movement

# Acute Septic Arthritis Child



Acute pain in single large joint

- reluctant to move the joint
- increase temp. and pulse
- increase tenderness

# Acute Septic Arthritis

## Adult



- often involve superficial joint (knee, ankle, wrist)
- investigation
  - BC, WBC, ESR, CRP ,blood culture
  - x ray
  - ultrasound
  - aspiration

# **Acute Septic Arthritis**

## **Differential Diagnosis**



- acute osteomyelitis
- trauma
- irritable joint
- hemophilia
- rheumatic fever
- gout
- Gaucher disease


# Acute Septic Arthritis Treatment



- general supportive measures
- antibiotics
- surgical drainage

# **Tuberculosis**

## **Bone And Joint**



- vertebral body
- large joints
- multiple lesions in 1/3 of patient

# **Tuberculosis**


## **Clinical Features**



- contact with TB
- pain, swelling, loss of weight
- joint swelling
- decrease ROM
- ankylosis
- deformity

# **Tuberculosis**

## **Pathology**



- primary complex ( in the lung or the gut)
- secondary spread
- tuberculous granuloma


# **Tuberculosis Spinal**



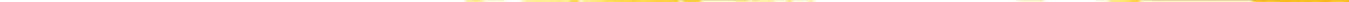
- little pain
- present with abscess or kyphosis

# **Tuberculosis**

## **Diagnosis**



- long history
- involvement of single joint
- marked thickening of the synovium
- marked muscle wasting
- periarticular osteoporosis
- +ve Mantoux test



- [illegible]

# **Tuberculosis**

## **differential diagnosis**



- transient synovitis
- monoarticular ra
- haemorrhagic arthritis
- pyogenic arthritis

# **Tuberculosis Treatment**



- **chemotherapy**
  - rifampicin**
  - isoniazid**                      **8 weeks**
  - ethambutol**
  - rifampicin and isoniazid 6-12 month**
- **rest and splintage**
- **operative drainage rarely necessary**