TUBERCULOSIS IN ORTHOPAEDICS

Dr. Rohit
Final year PG
Orthopaedics
• TB HIP

• TB OF SPINE
BONE & JOINT TUBERCULOSIS

• Tuberculosis can affect any bone in the body from cervical spine to foot bones.

• It can also affect the synovial sheath of the tendons (tenosynovitis)

• The incidence of skeletal tuberculosis is 1 – 4%.

• Skeletal tuberculosis is always secondary to a primary focus elsewhere in the body and occurs by hematogenous spread or by direct extension.
TB HIP

- 15% of skeletal tuberculosis.

- The initial focus may start in the:
  1. Acetabular roof
  2. Greater trochanter
  3. Femoral epiphysis
  4. Synovial membrane
• In the hip joint, head and neck are intracapsular so a bony lesion invades the joint early.

• May become so extensive that pathological dislocation of joint may occur.
Pathogenesis

Primary focus
  ↓
heamatogenous spread / by direct extension
  ↓
Joint
  ↓
Synovial membrane
  ↓
Tuberculous synovitis
  ↓
Synovial effusion
  ↓
Articular cartilage damage
  ↓
Subchondral bone erosion
STAGES OF TB HIP
STAGE I

• Stage of synovitis.

• There is effusion into the joint which demands the hip to be in a position of maximum capacity i.e. flexion, abduction and external rotation.

• Stage of apparent lengthening.
STAGE II

- Stage of arthritis.

- Articular cartilage is damaged.

- Leads to spasm of powerful muscles around the hip.

- Flexors and Adductors are the stronger muscles.

- Thus the hip goes into flexion, adduction and internal rotation.

- Stage of apparent shortening.
STAGE III

• Stage of **erosion**.

• Cartilage gets destroyed.

• Head and acetabulum gets eroded.

• Pathological subluxation or dislocation occurs.

• Hip is in flexion, adduction and internal rotation.

• **True shortening** of the limb.
Clinical picture

**General features**
- Common in first 3 decades of life.
- Fever
- Loss of appetite
- Loss of weight
- Mono articular involvement

**Specific features**
- Pain (insidious onset)
- Local raise of temperature
- Limitation of movements
- Night cries
- Muscle wasting
- Regional lymph node involvement
X-RAY FINDINGS

• Soft tissue swelling
• Localised osteoporosis
• Haziness of articular margins
• Decreased joint space
• In advanced cases;
  Collapse of the bone,
  Sub luxation/dislocation of joint.
PROGNOSIS

• Depends upon the stage of the disease.

• Early disease (synovitis & early arthritis) may heal leaving a normal / near normal hip.

• Advanced arthritis results in fibrous ankylosis.
Treatment
Rest

• Pts. are advised to sleep on a firm bed.

• In active stage of the disease, the joints are given rest in the functional position.
Traction

• To correct the deformity.

• To maintain the limb in the functional position.

• To hold the inflammed joint surfaces apart.
ATT

• ATT should be given for at least a minimum of 1 year and preferably 18 months in some cases.

• Intensive phase; 5-6 months
  Isoniazid (5mg/kg)
  Rifampicin (10mg/kg)
  Fluoroquinolones

• Continuation phase; 9-10 months
  Isoniazid (5mg/kg)
  Pyrazinamide (25mg/kg)

• Prophylactic phase; 3-4 months
  Isoniazid (5mg/kg)
  Ethambutol (15mg/kg)
OPERATIVE TREATMENT

• It depends upon the stage of the disease & extent of joint damage.
• In stage of Synovitis;
  Synovectomy & Arthrotomy.

• Stage of Early arthritis;
  Synovectomy & Debridement of loose bodies and granulation tissue.
In stage of Advanced arthritis

- Arthrodesis
- Girdle stone excission

- Arthroplasty usually done after 6 months after the start of the ATT.
Healing of disease

• It can be identified;
• **Clinically** by disappearance of local symptoms like pain, warmth, spasm and constitutional symptoms.
• **Radiologically** by remineralisation, restoration of bony outlines and articular margins.
• **ESR** will come down.
TB SPINE
INTRODUCTION

• Most common form of skeletal TB.

• Accounts for 50% of all cases of skeletal TB.

• Neurological complications are the most crippling complications of spinal TB.
REGIONAL DISTRIBUTION

- Cervical (12%)
- **Dorsal (42%)**
- Lumbar (26%)
- Sacral (3%)
Patterns of Vertebral Involvement

Four patterns:

- Paradiscal (common)
- Central
- Anterior
- Appendical
PATHOGENESIS

Para discal involvement
Collapse of vertebrae & Cord compression
Clinical features

- Back pain
- Stiff spine
- Deformity
- Cold abscess
- Neuro deficit
- Constitutional symptoms
• Knuckle:
  Prominence of one spinous process

• Angular Kyphus:
  Prominence of two or more spinous processes due to destruction of two or more bodies.

• Gibbus:
  Diffuse kyphosis due to involvement of more number of vertebrae.
COLD ABSCESS

• Pus produced at the site of pathology may stay at the same vertebral level or

• May track down the paths of least resistance along the fascial planes of vessels or nerves and present as a cold abscess in different regions far away from the site of pathology.
• Cervical and upper dorsal abscess;

retropharyngeal abscess
posterior mediastinal mass
• FROM D4 - D 10 LESIONS;

Present on either side of vertebral body contained in a thick walled sac leading to a bird’s nest abscess
• BELOW D 11 LESIONS

Tracks down along the **psoas sheath** & even may present as a groin swelling.
- Reduced disc space
- Blurred paradiscal margins
- Destruction of bodies
- Increased Prevertebral soft tissue shadow
- Decreased Lordosis
TUBERCULOUS SPINE WITH PARAPLEGIA

- Incidence: 10 – 30%
- Dorsal spine most common
- Motor functions affected before / greater than sensory.
PATHOLOGY OF TUBERCULOUS PARAPLEGIA

- Inflammatory Edema:
  Vascular stasis, Toxins.

- Extradural Mass:
  Tuberculous osteitis of VB & Abscess.

- Bony disorders:
  Sequestra, Internal Gibbus

- Infarction of Spinal Cord:
  Endarteritis, Periarteritis or thrombosis

- Changes in Spinal Cord:
  Thinning (Atrophy), Myelomalacia.
SEDDON’S CLASSIFICATION OF TUBERCULOUS PARAPLEGIA

• GROUP A (EARLY ONSET PARAPLEGIA)

• GROUP B (LATE ONSET PARAPLEGIA)
TREATMENT
MIDDLE PATH REGIME

Rationale

“All spine TB cases do not require surgery and only those who do not respond to conservative measures should be operated”
MIDDLE PATH REGIME

- Treatment is on non-operative lines with AKT, rest & spinal braces

1. **Rest:** in hard bed or plaster of Paris bed (in children)

2. **Drugs:**
   
   **INTENSIVE PHASE:**
   INH (5mg/Kg) + Rifampicin (10mg/Kg) + ETB (15mg/Kg) + PZA (25mg/Kg) for 6 months

   **CONTINUATION PHASE:**
   INH (5mg/Kg) + Rifampicin (10mg/Kg) for next 12 months.
supportive therapy-
  multivitamins,
  hematinics if necessary &
  high protein diet.

3. Radiographs & ESR: at 3-6 months interval

4. Gradual mobilisation:
  with the help of spinal braces
Indications of surgery:

1. No progressive recovery after a fair trial of conservative t/t (3-4 wks)
2. Neurological complication develops during conservative treatment
3. Worsening of Neuro-deficit during t/t
4. Pressure effects (deglutition/respiratory)
5. Advanced cases of neurological involvement (sphincter disturbances, flaccid paralysis, or severe flexor spasms)
OPERATIVE PROCEDURES

• Anterior decompression

• Antero-Lateral decompression

• Posterior decompression
THANK YOU