

TUBERCULOSIS IN ORTHOPAEDICS

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Final year PG

Orthopaedics

- TB HIP

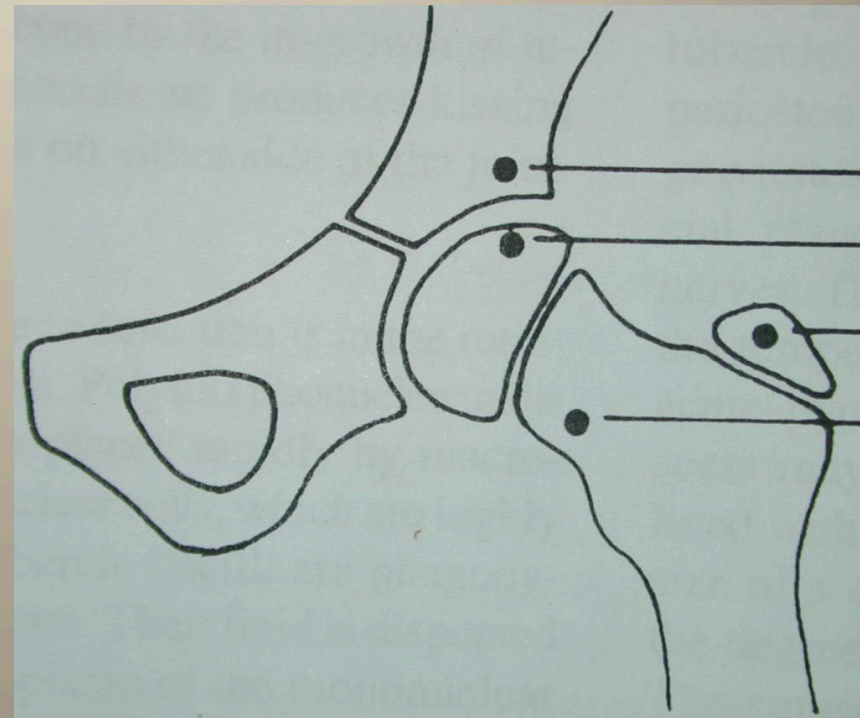
- TB OF SPINE

BONE & JOINT TUBERCULOSIS

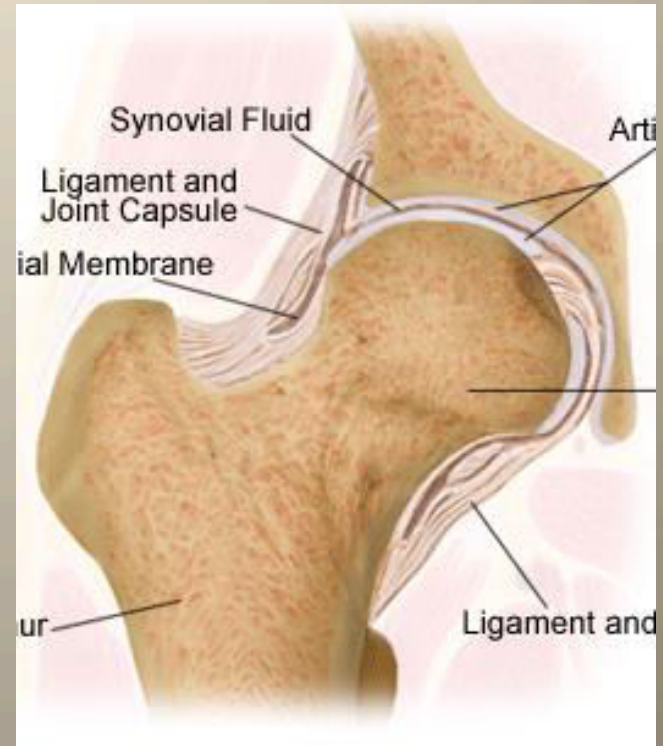
- Tuberculosis can affect any bone in the body from cervical spine to foot bones.
- It can also affect the synovial sheath of the tendons (tenosynovitis)
- The incidence of skeletal tuberculosis is 1 – 4%.
- Skeletal tuberculosis is always secondary to a primary focus elsewhere in the body and occurs by heamatogenous spread or by direct extension.

TB HIP

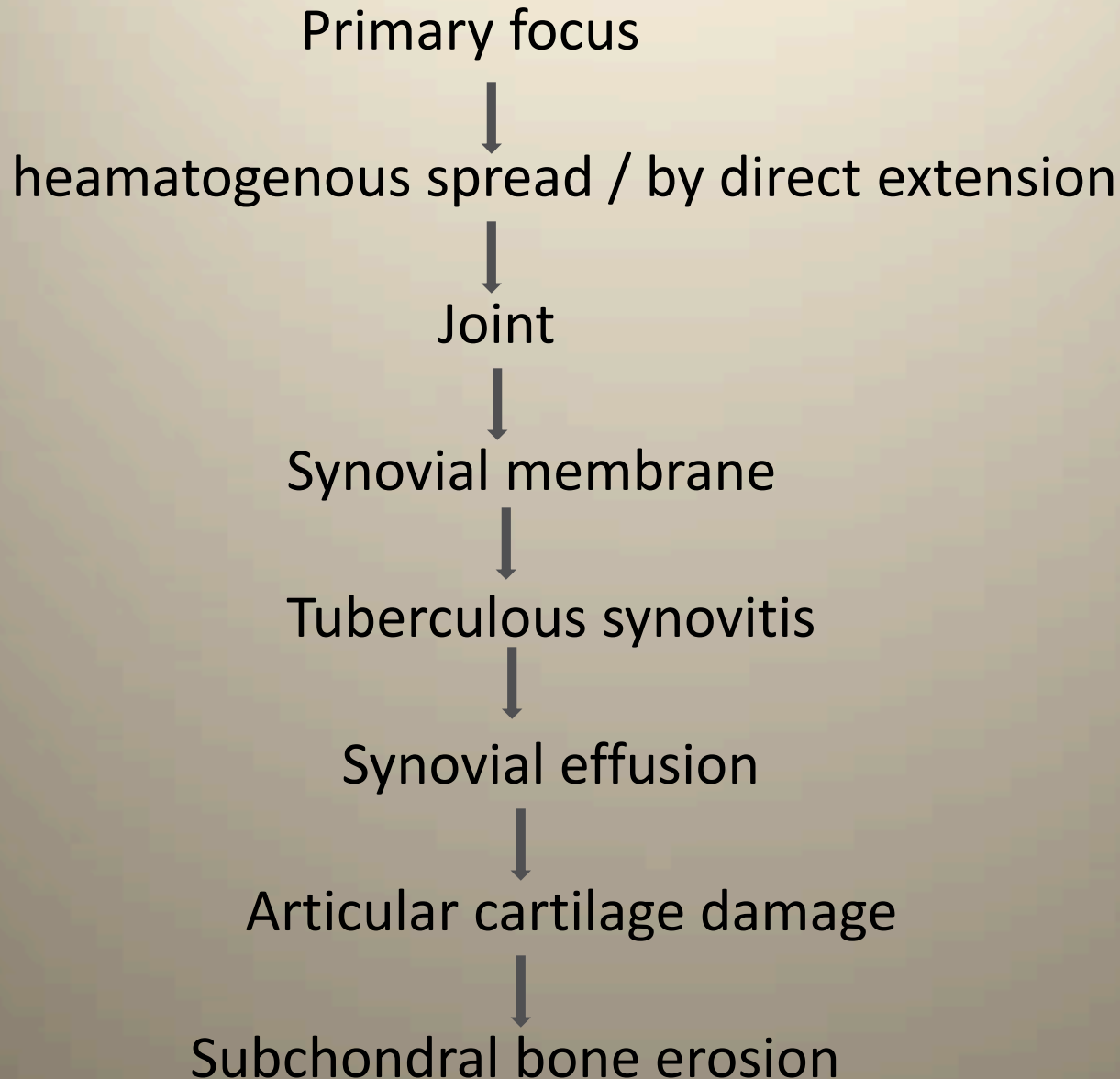
- 15% of skeletal tuberculosis.
- The initial focus may start in the;
 1. Acetabular roof
 2. Greater trochanter
 3. Femoral epiphysis
 4. Synovial membrane



- 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.



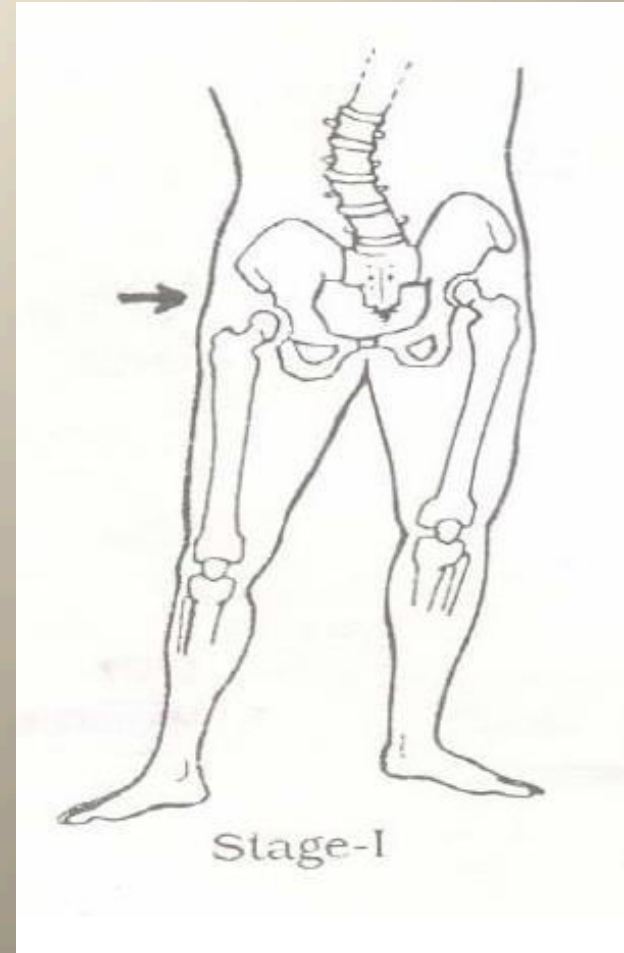
Pathogenesis



STAGES OF TB HIP

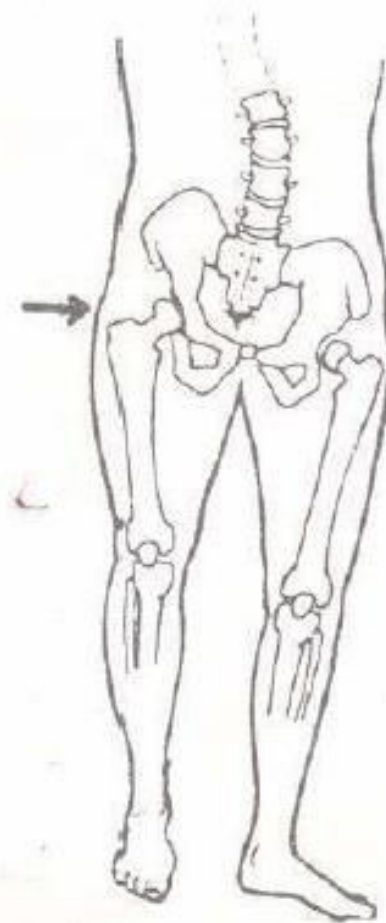
STAGE I

- 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

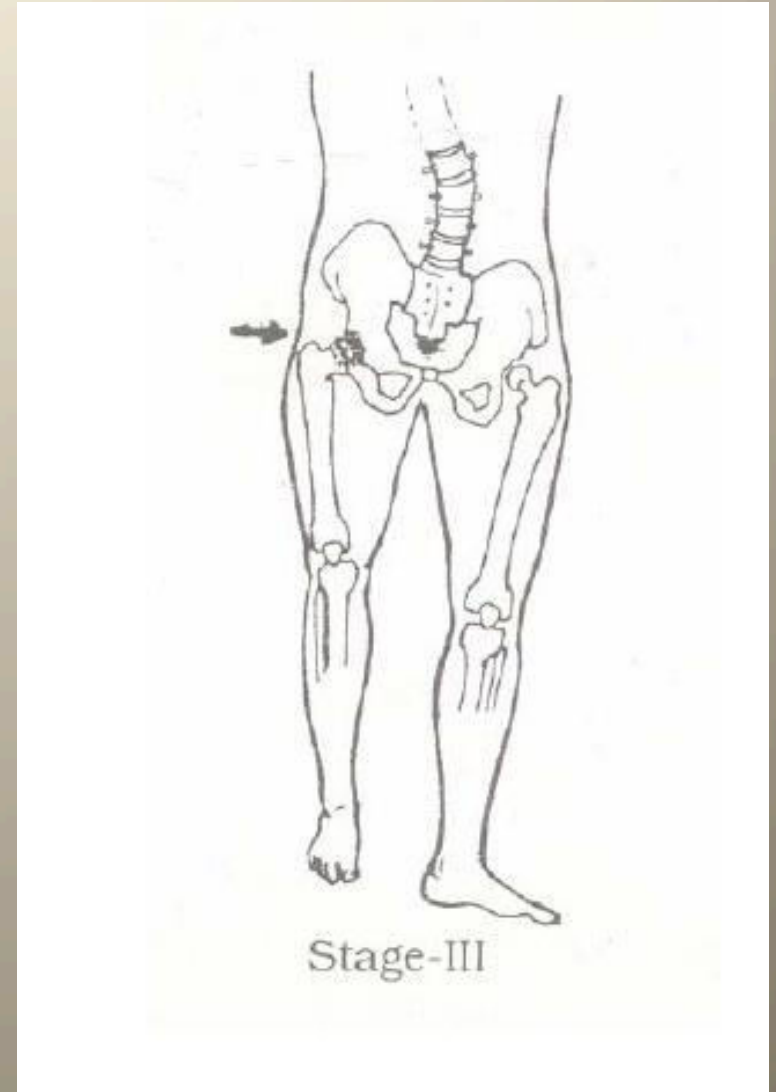
- Stage of **arthritis**.
- Articular cartilage is damaged.
- Leads to spasm of powerful muscles around the hip.
- Flexors and Adductors are the stronger muscles.
- Thus the hip goes into flexion, adduction and internal rotation.
- Stage of **apparent shortening**.



Stage-II

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

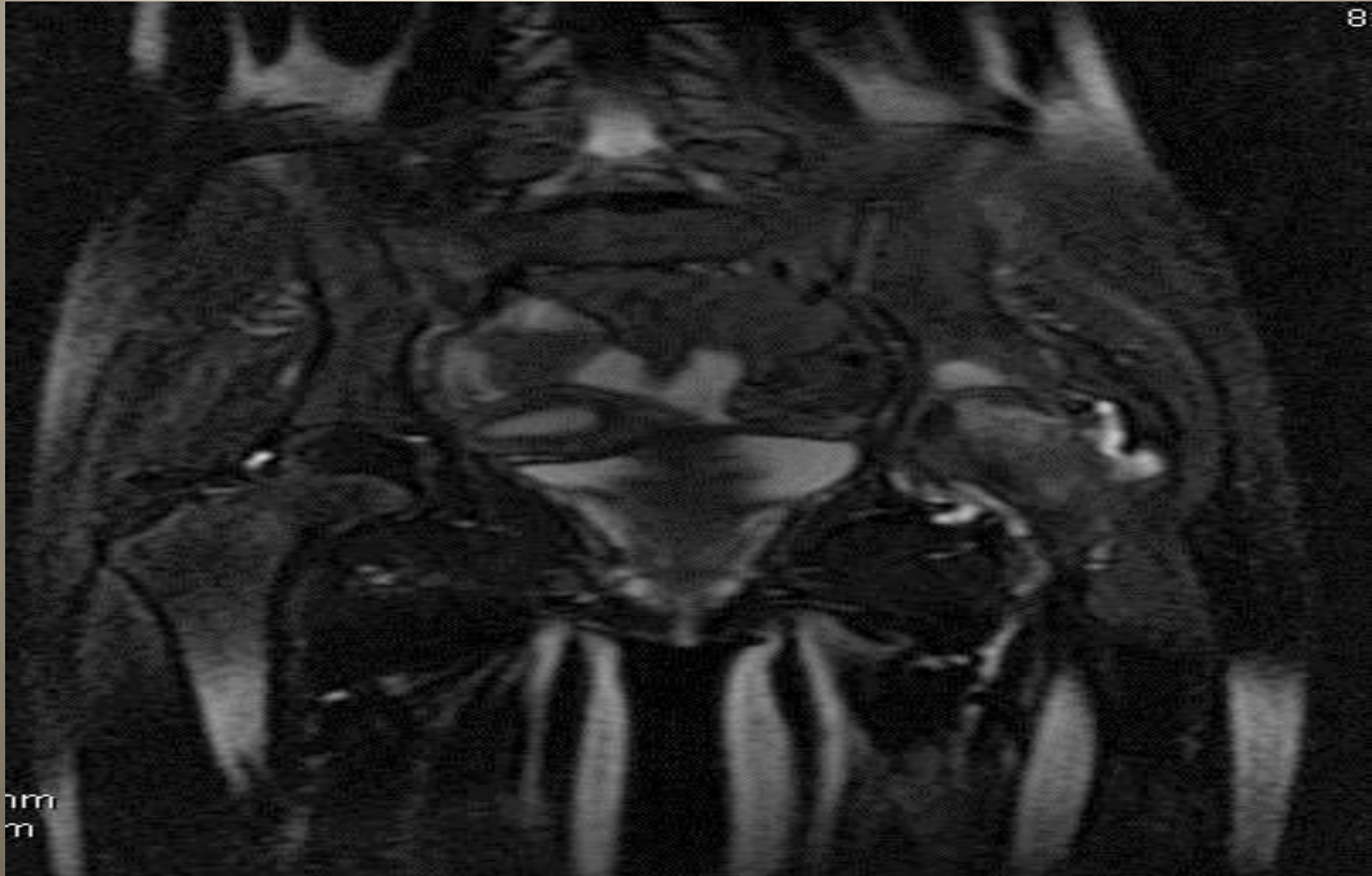
X-RAY FINDINGS

- Soft tissue swelling
- Localised osteoporosis
- Haziness of articular margins
- Decreased joint space
- In advanced cases;

Collapse of the bone,
Sub luxation/dislocation
of joint.



MRI



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.

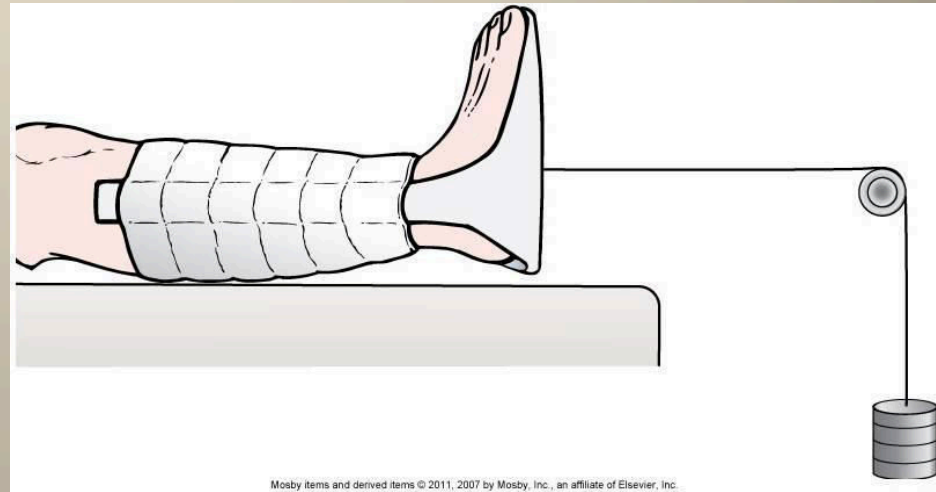
Treatment

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)
 - Flouroquinolones
- **Continuation phase; 9-10 months**
 - Isoniazid (5mg/kg)
 - Pyrazinamide (25mg/kg)
- **Prophylactic phase; 3-4months**
 - 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

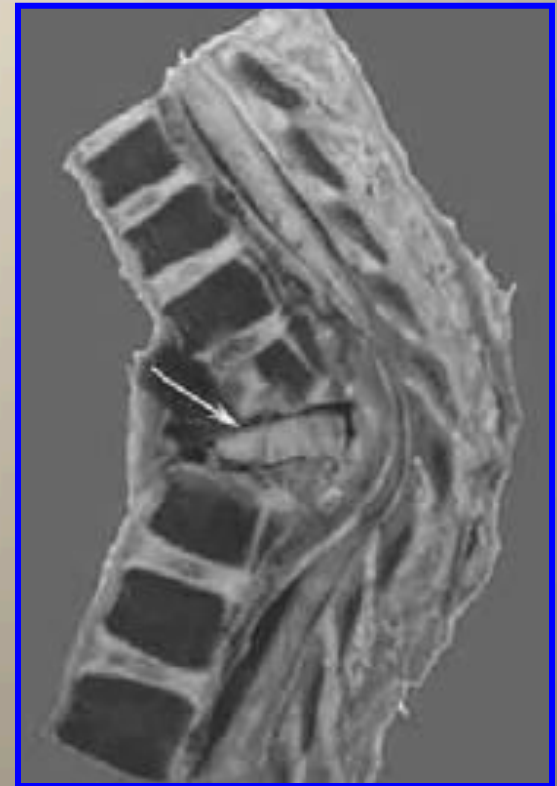
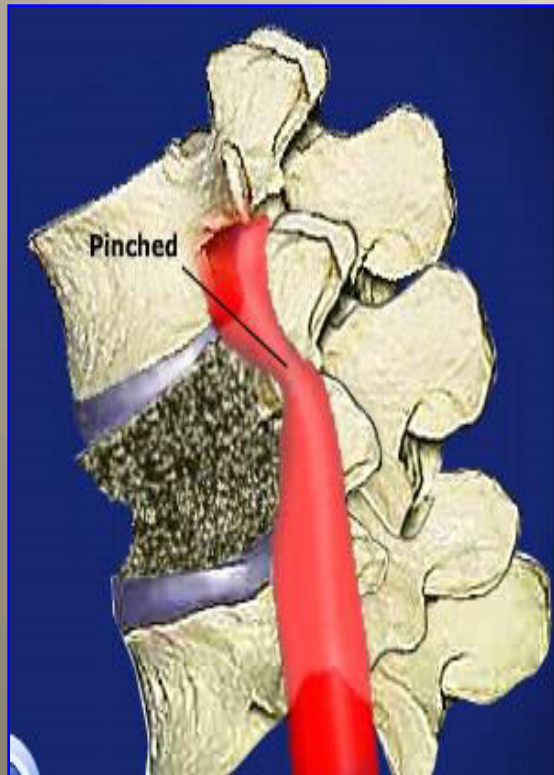
- Arthrodesis
- Girdle stone excission

- 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

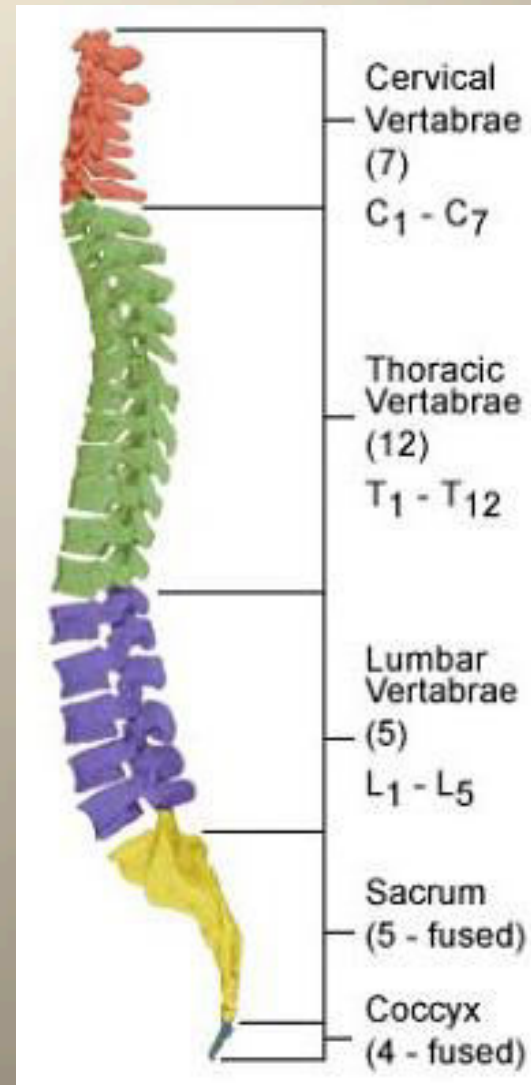


INTRODUCTION

- 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

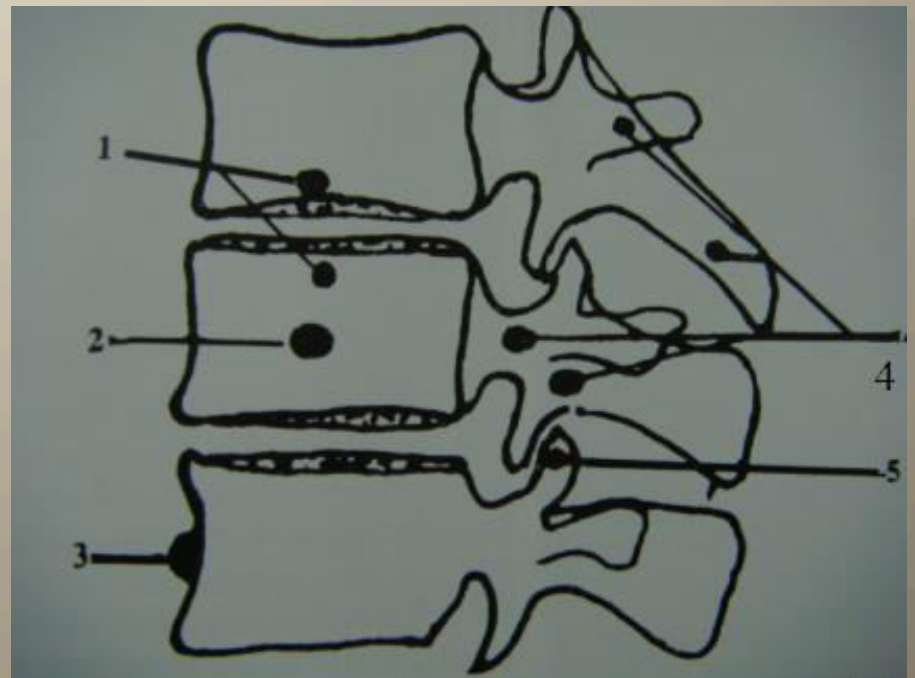
- ❑ Cervical (12%)
- ❑ Dorsal (42%)
- ❑ Lumbar (26%)
- ❑ Sacral (3%)



Patterns of Vertebral Involvement

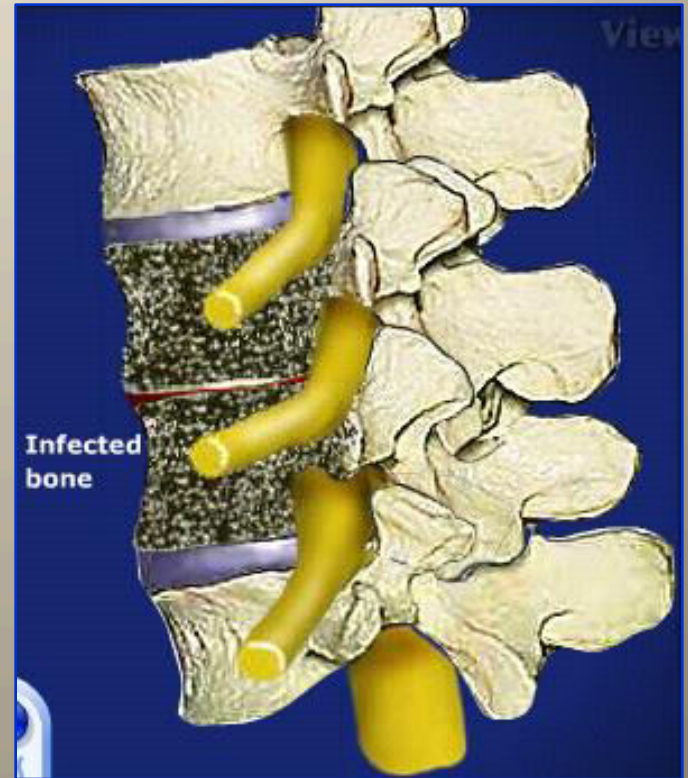
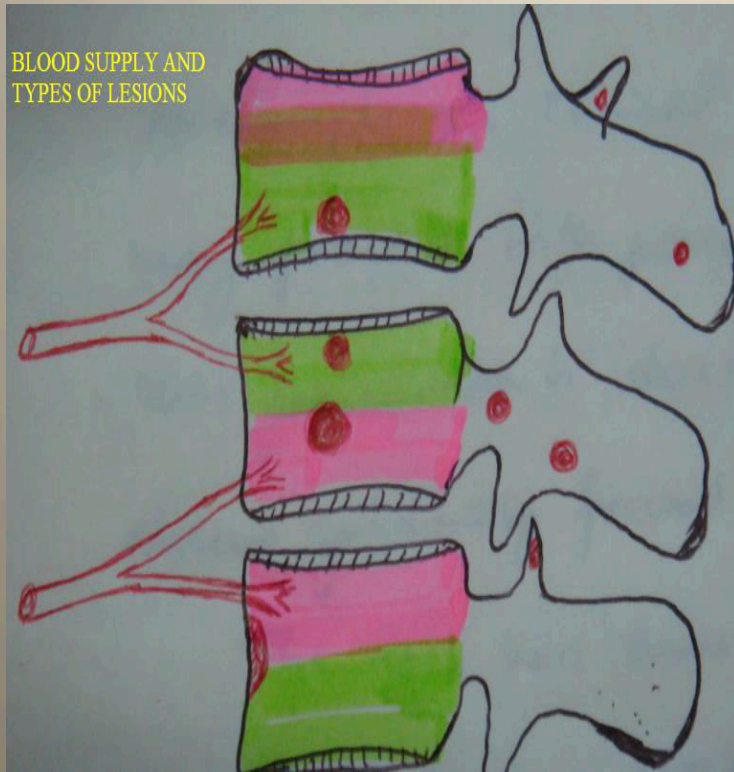
Four patterns :

- Paradiscal (common)
- Central
- Anterior
- Appendical

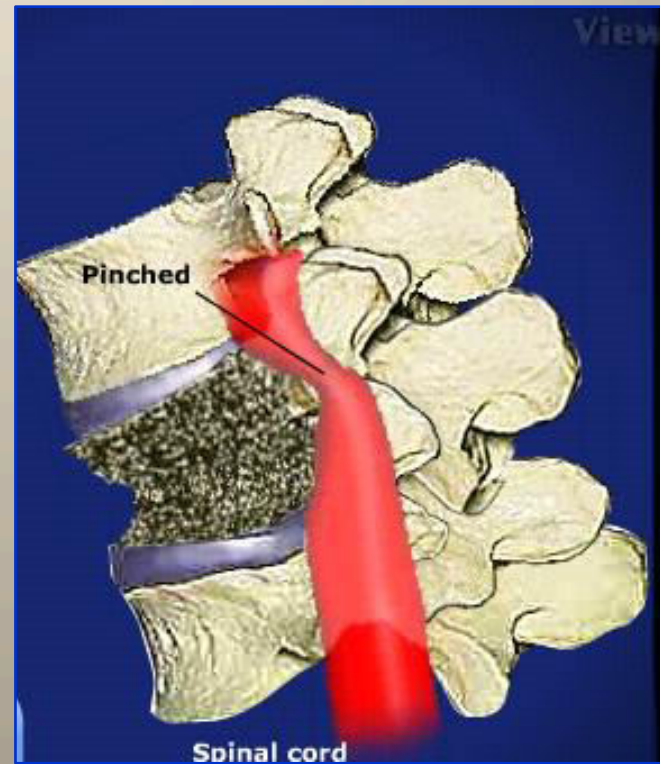
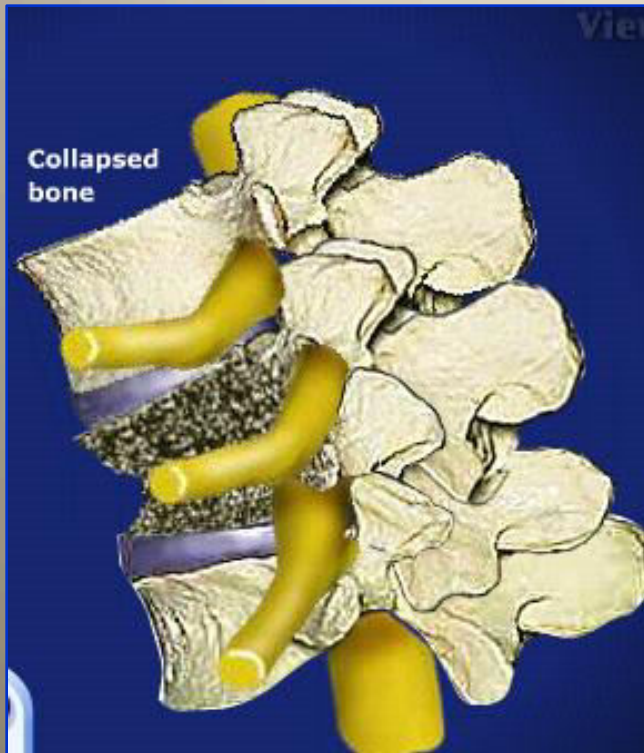


PATHOGENESIS

Para discal involvement



Collapse of vertebrae & Cord compression



Clinical features

- Back pain
- Stiff spine
- Deformity
- Cold abscess
- Neuro deficit
- Constitutional symptoms

DEFORMITY

- **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;

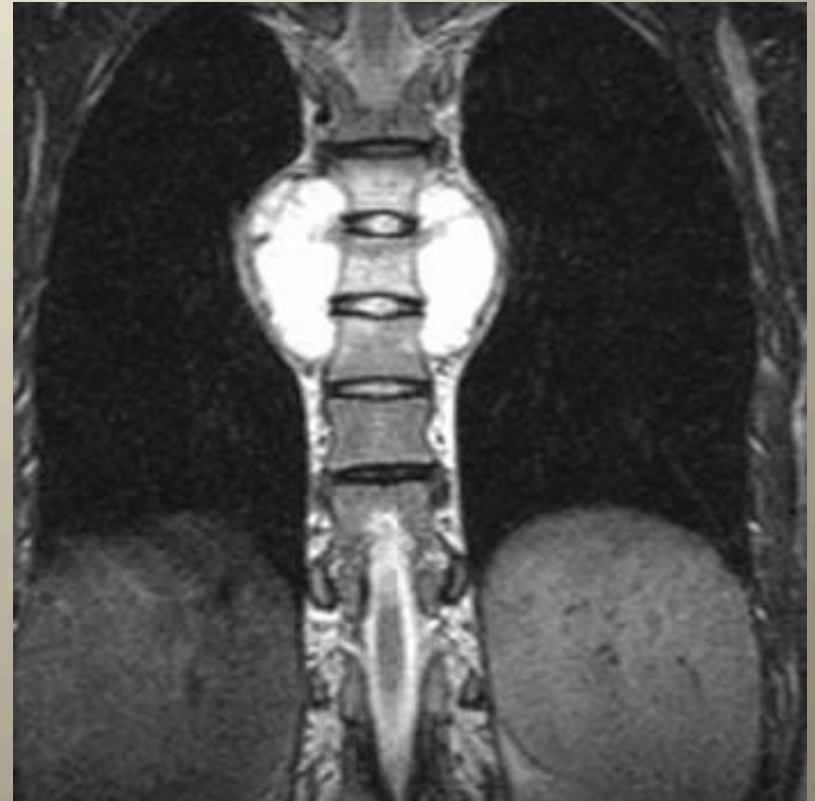
retropharyngeal abscess

posterior mediastinal mass



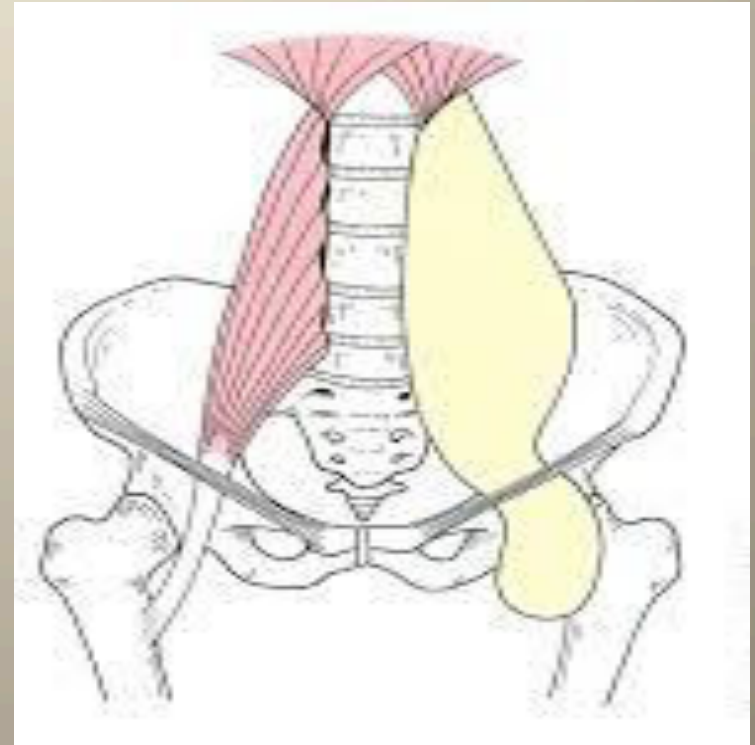
- FROM D4 - D 10
LESIONS;

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.



PLAIN RADIOGRAPH

- ❑ 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:

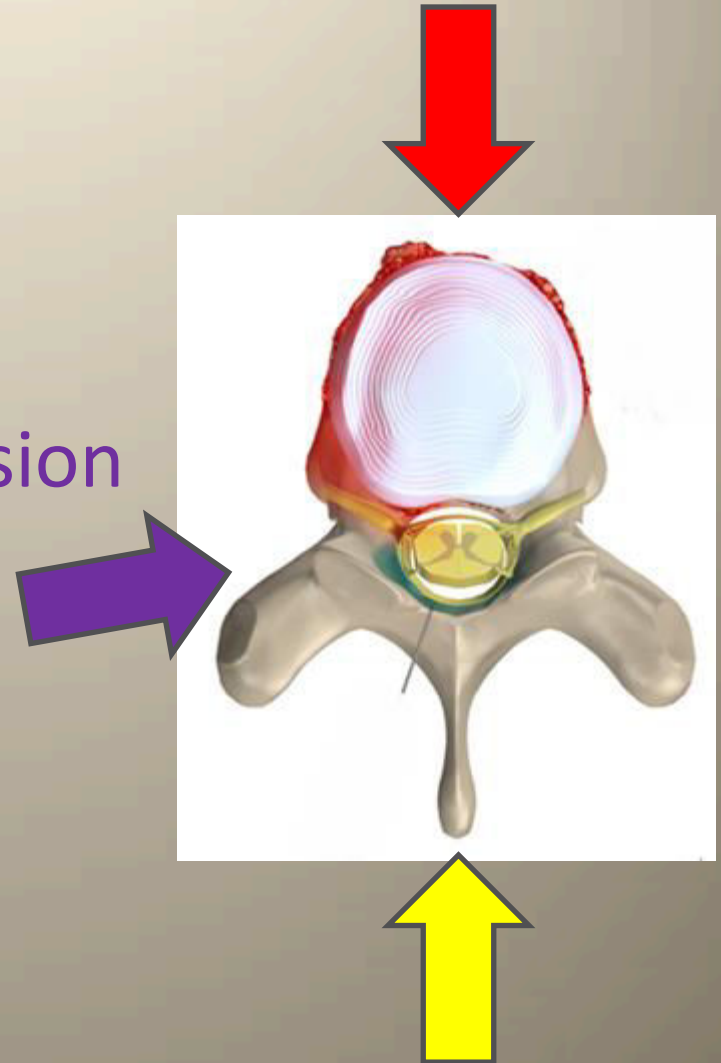
with the help of spinal braces

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