Case discussion on TB hip

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History

- Age - First 3 decades – can occur at any age
- Sex - Males > females
- Usually monoarticular
- Systemic symptoms – fever, evening rise of temperature, cough, loss of weight, loss of apatite, night sweats

Presenting symptoms - early disease

- Pain
  - insidious onset
  - groin pain
  - referred to medial thigh and knee
  - night cries
- Limping - painful
- Fullness around hip – cold abscess

Presenting symptoms - late disease

- Limb length inequality
- Deformity
- Stiffness
- Pathological dislocation
- Cold abscess or Sinus

PAST HISTORY

- History of pulmonary tuberculosis – treated/ untreated
- Contact with tuberculosis
- BCG vaccination
- Family history of tuberculosis

GENERAL EXAMINATION

- Build and Nourishment
- Anemia
- Lymphadenopathy
- Chest signs of tuberculosis
- Hepatosplenomegaly

Gait

- Antalgic gait
- Stiff hip
- Trendelenberg gait

Inspection

- Muscle wasting in gluteal region and thigh
- Limb length inequality
- Cold abscess / discharging sinus
  - Perianal
  - Gluteal
  - Trochanteric
  - Inguinal
  - Femoral areas

Palpation

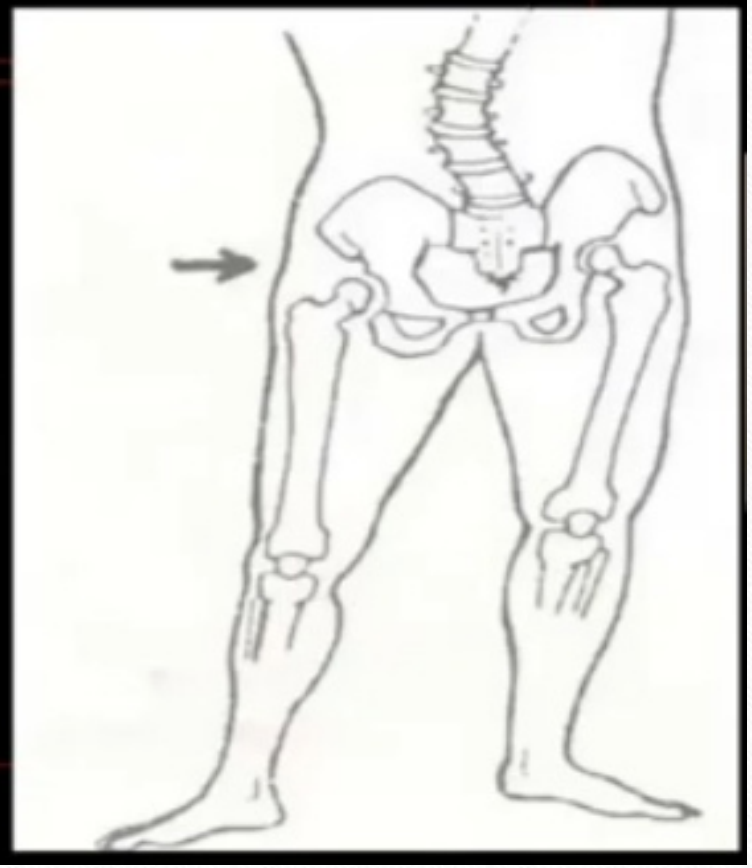
- Local rise of temperature
- Tenderness at femoral triangle
- Muscle spasm
- Trochanteric thrust tenderness
- Globular mass in gluteal region – dislocated hip

Deformities

Stage of synovitis	Stage of early arthritis	Stage of advanced arthritis	Stage of destruction/ dislocation
Flexed, abducted, externally rotated (FABER)	Flexion, adduction, internal rotation (FADIR)	Fixed flexion, adduction and internal rotation deformity	Frank posterosuperior dislocation Wandering acetabulum

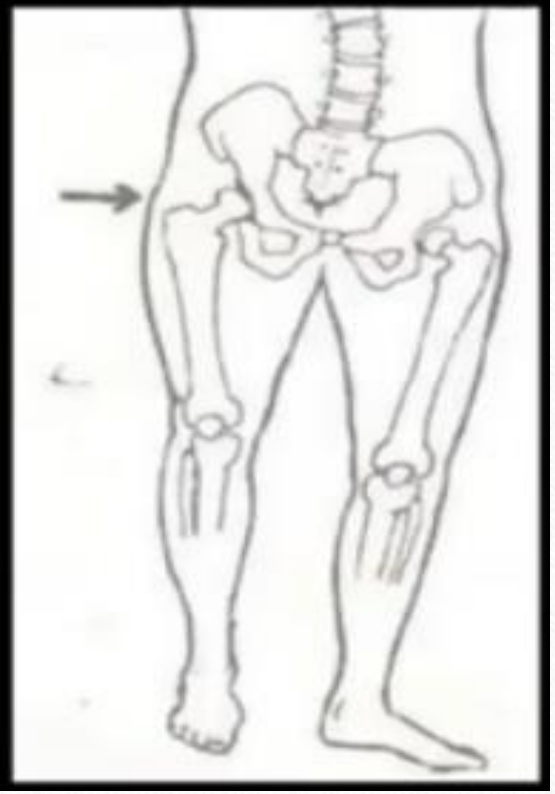
Stage of synovitis

- Effusion in the joint
- Limb - flexed, abducted, and externally rotated
- Apparent **lengthening** of the extremity.
- Restriction of terminal range of movements



Stage of Early arthritis

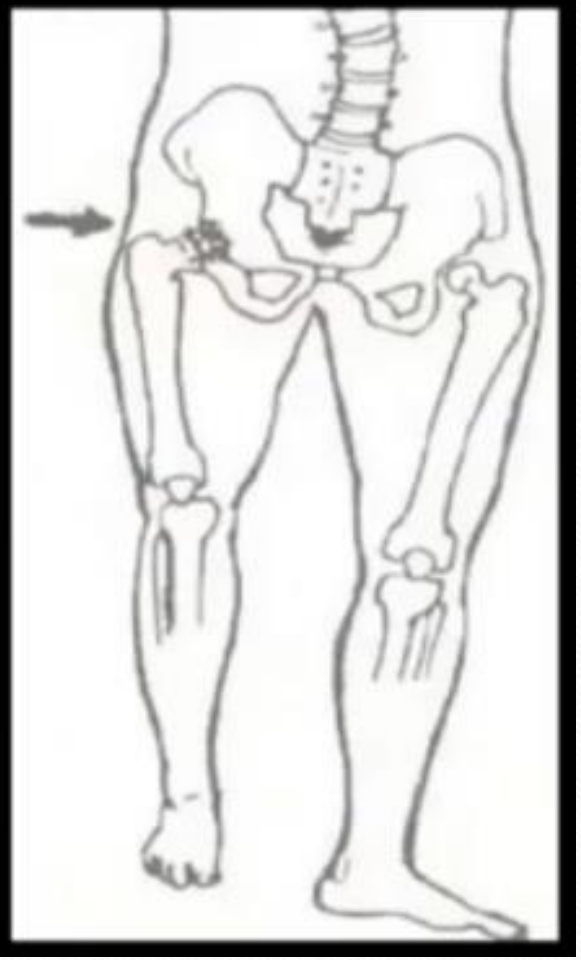
- Progressive destruction of the joint.
- Active stage - muscle spasm
- Limb - Flexion, adduction & IR
- ROM global painful restriction
- **Apparent** limb shortening.



Stage of Advanced arthritis

- Destruction of articular cartilage
- Fibrous ankylosis

- Flexion, adduction & IR
- True shortening
- ROM hip - grossly restricted, only a jog of movement



Movements

Stage of synovitits	Stage of early arthritis	Stage of advanced arthritis	Stage of destruction/ dislocation
Terminal restriction of movements	Restriction of movements in all planes	Gross restriction of movements in all planes	If fibrosis- only jog of movement (fibrous ankylosis) If dislocated – increased rotations

Measurements

Stage of synovitis	Stage of early arthritis	Stage of advanced arthritis	Stage of destruction/ dislocation
Apparent lengthening	Apparent shortening	True shortening < 3cms	True shortening > 3 cms

- Gross muscle wasting on circumferential measurements

Special tests

- Trendelenberg test – usually negative
- Telescopy – if dislocated

INVESTIGATIONS

- Blood investigations – Hb, TC , DC, ESR, CRP
- Xray of pelvis showing both hips
- Ultrasound
- CT scan
- MRI
- Synovial fluid studies
- Synovial biopsy
    - AFB staining
    - PCR, RTPCR
    - Culture and sensitivity

Xray

- **Stage of synovitis** –do not show any findings/soft tissue swelling.

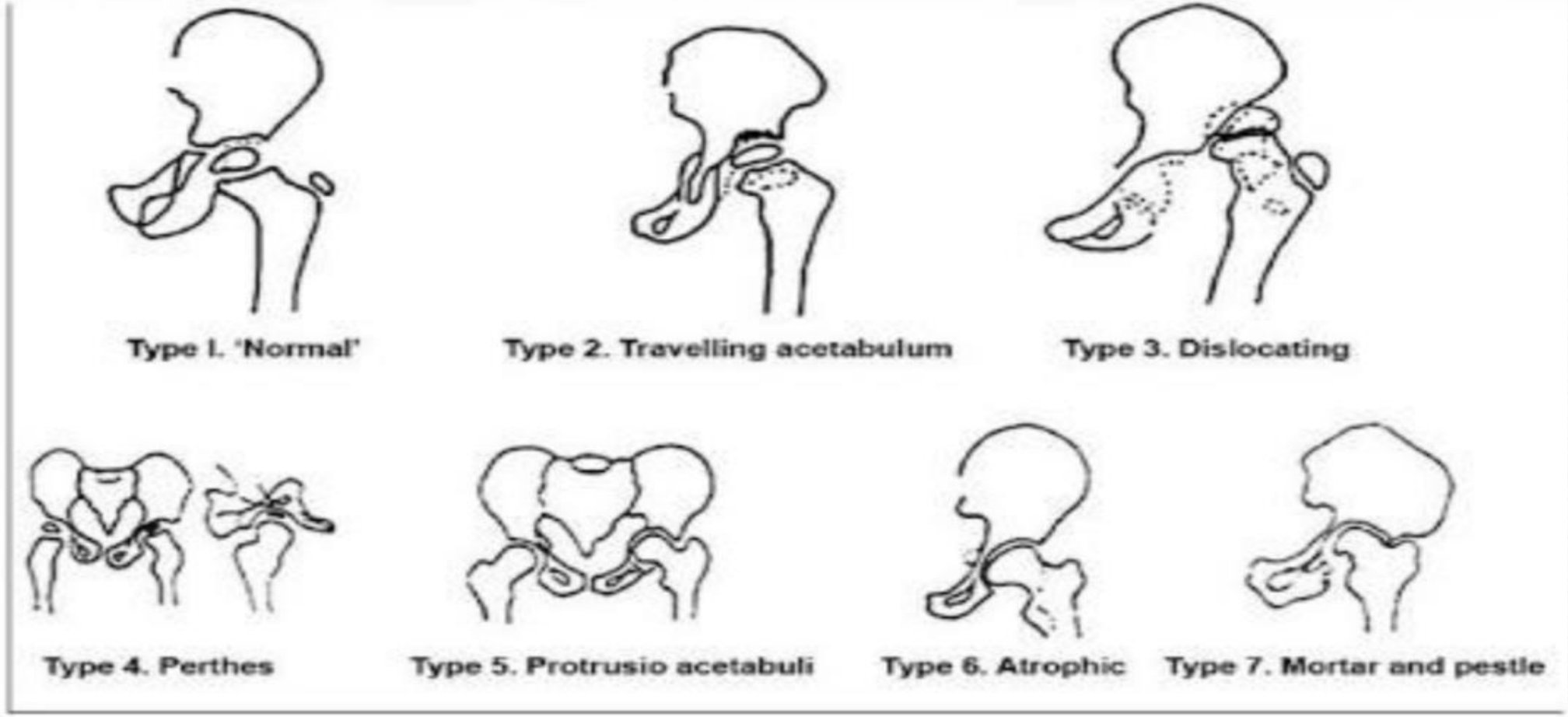
- **Stage of early arthritis-**
  - juxta articular osteoporosis,
  - Hazy and irregular joint margins.

Phemister triad

- **Stage of advanced arthritis-**

  Juxta articular osteoporosis
  Narrowing of joint space
  Destruction of femoral head and acetabulum

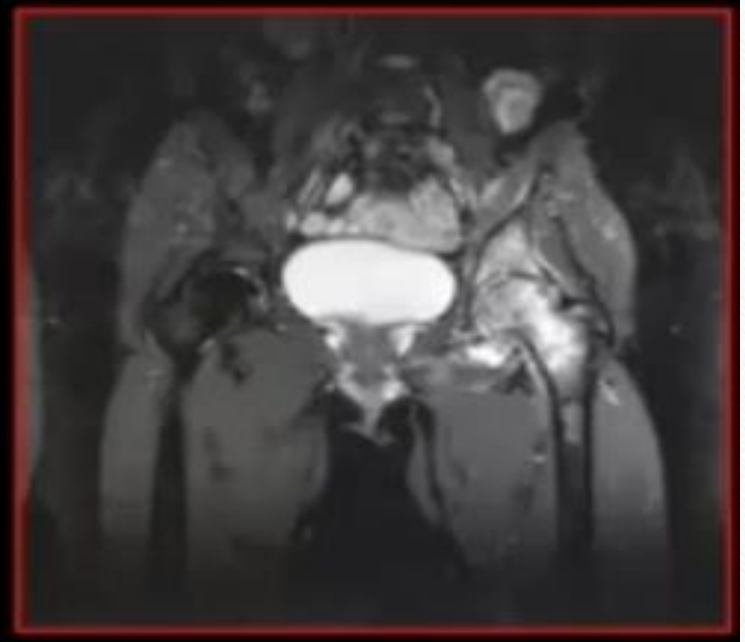
Shanmugasundaram's classification of TB hip



MRI

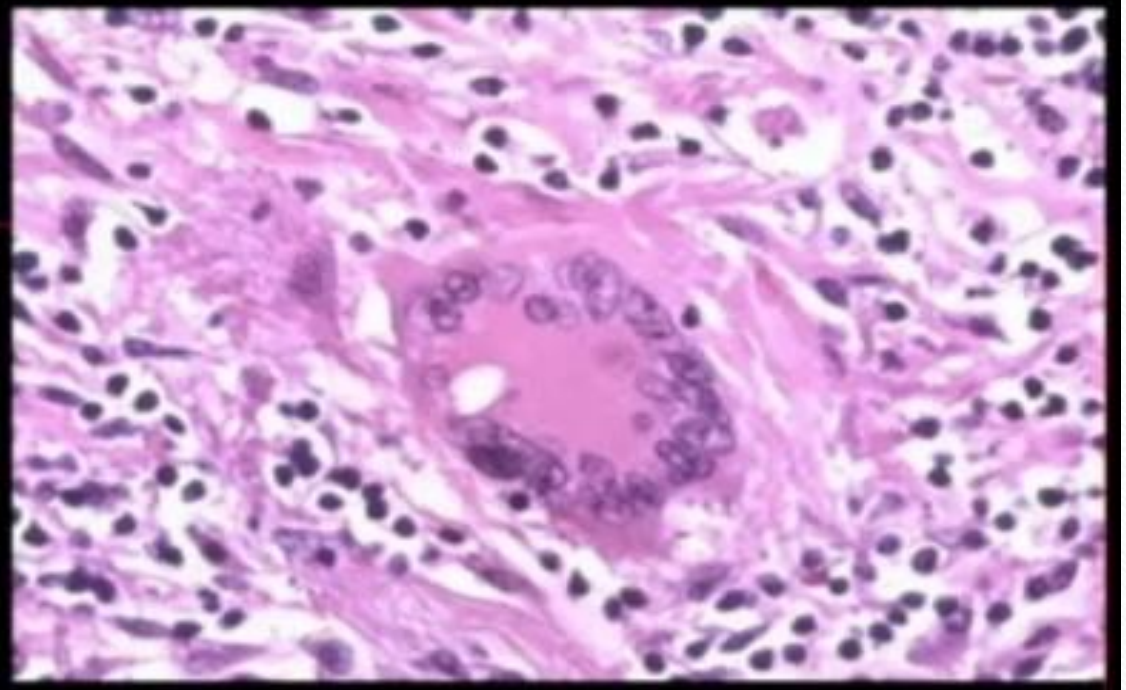
- Not specific for TB of hip.

- Early stages show
  - Synovial effusion
  - Varying degree of bone edema
  - Areas of bone destruction
  - Abscess formation



TISSUE BIOPSY

- Histopathology
- AFB staining
- BACTEC
- PCR and RT PCR
- Culture and sensitivity.



- Arthroscopic synovial biopsy
- Open synovial biopsy

Differential diagnosis

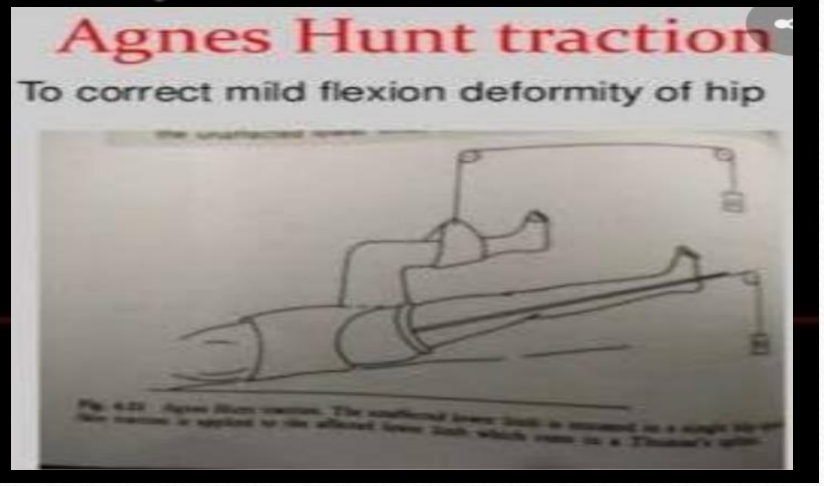
1. subacute septic arthritis
2. Transient stnovitis
3. Perthes disease
4. AVN of femoral head
5. Juvenile rheumatoid arthritis
6. traumatic central dislocation of hip

TREATMENT

- ATT
- TRACTION
- GRADUAL MOBILIZATION
- SURGICAL TREATMENT

TRACTION

- Bilateral lower limb traction - in Abd deformity
- Relieves the muscle spasm
- Prevents or corrects deformity
- Maintains the joint space
- Keeps joint surfaces apart



SYNOVITIS STAGE

- Diagnosis
  - USG
  - Synovial effusion - cytology, AFB smear & PCR
  - Biopsy - If necessary

- Treatment - Conservative
  - ATT
  - Traction, rest followed by mobilisation
  - Surgical intervention rarely required

EARLY ARTHRITIS

- ATT
- Traction

- Synovectomy + joint debridement

ADVANCED ARTHRITIS

- ATT
- Traction

- **Arthrolysis - to improve ROM**

- Useful only if limitation due to fibrous ankylosis
- Remove all pathological & fibrous tissue
- Sub total synovectomy
- Leave posterior capsule undisturbed to preserve blood supply
- Post op - Skeletal traction and ROM as soon as possible

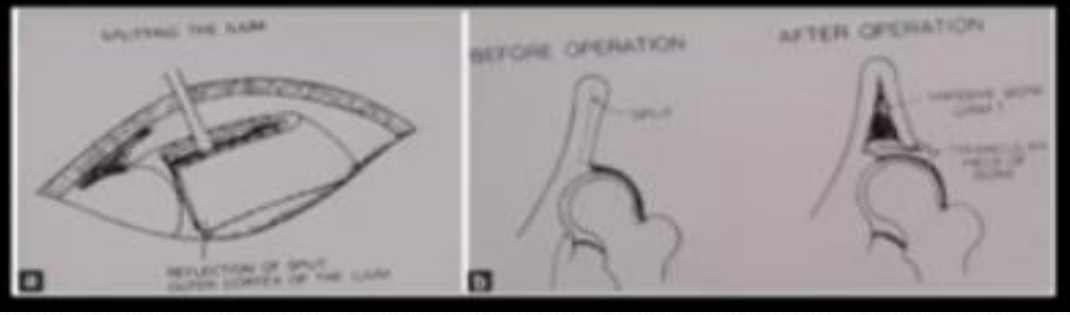
Advanced arthritis with subluxation / dislocation

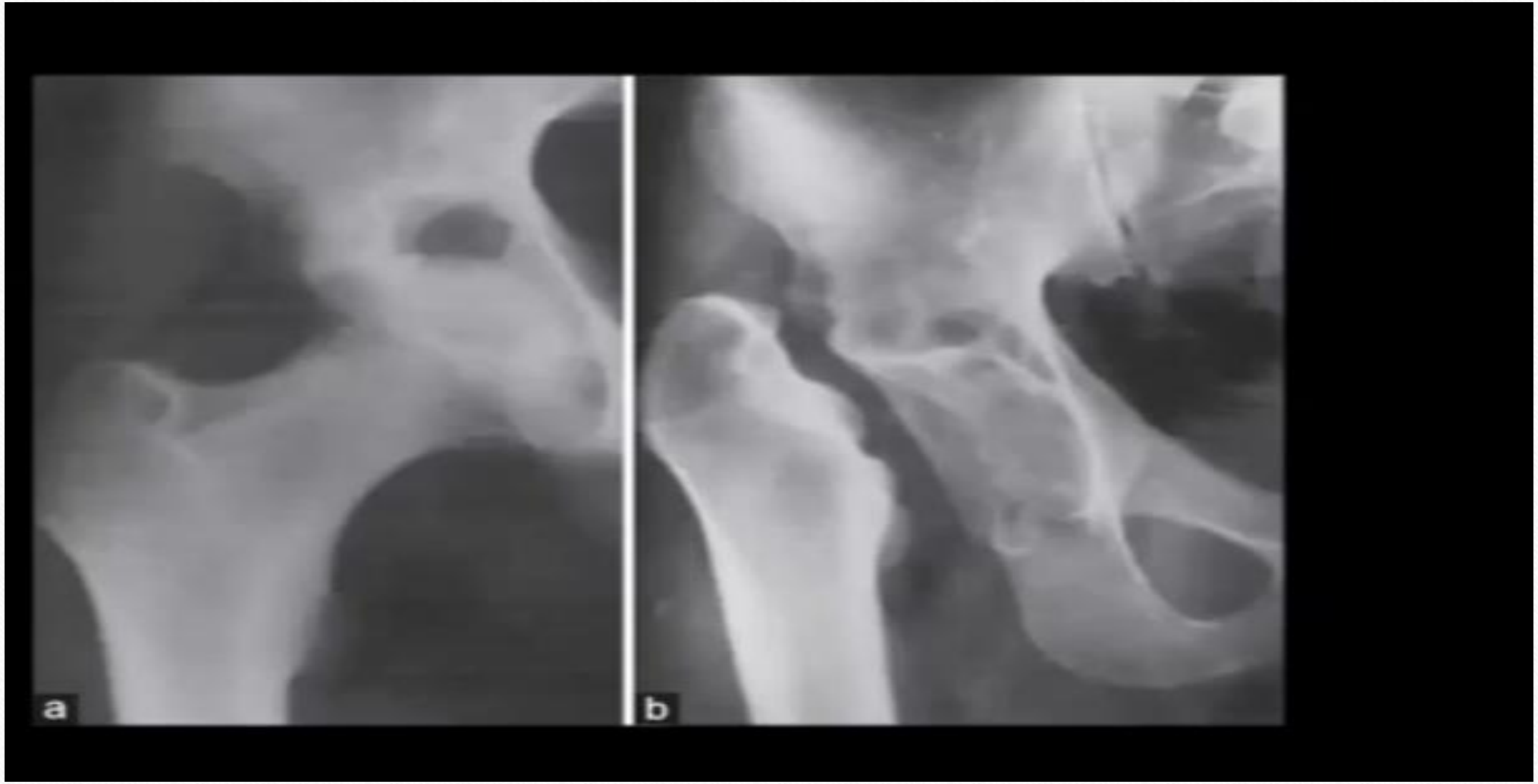
- Conservative traction regimen
- **Excision arthroplasty**
- **Arthrodesis**
- **Hip replacement**

- Sandhu et al
  - ATT + traction - healing of disease in 98%
  - Un sound ankylosis - Upper femoral corrective osteotomy

EXCISION ARTHROPLASTY

- Provides a mobile, painless hip joint with control of infection and correction of deformity
- Safe in active or healed disease
- Shortening & instability unavoidable
- Post op : Traction for 3 months - minimises shortening & instability
- 90% of patients are able to squat and kneel and able to sit cross-legged.
- Instability
- Pelvic support osteotomy
- Tactoplasty




a
b

ARTHRODESIS

- Painless stable joint at the cost of loss of movements
- Inability to squatting, sitting cross-legged, and kneeling
- Not acceptable for many.
- Position of arthrodesis

- Examine spine, opposite hip and ipsilateral knee

flexion 20°to 30°
neutral to 5° abduction, neutral to 10° external rotation

HIP REPLACEMENT

- Acetabulum involved - No role for hemi replacement
- THA in healed Tb is an accepted procedure
  - Stage of advanced arthritis or sequalae
  - Usually after 1 year of healing
- THA in active infection - Controversial
  - Reactivation of Tb & implant loosening

THR in active tuberculosis

- THA in active infection may be a safe procedure with peri operative chemotherapy
- Key factors
  - Adequate surgical debridement
  - Perioperative ATT
    - 2 weeks pre op - 12 months post op (Wang et al)
    - 3months per op - 15 months post op (Sidhu et al)
- No difference in the reactivation or healing with cemented or cement less implants

STAGES	CLINICAL FINDINGS	RADIOLOGY	TREATMENT
Synovitis	FABER Apparent lengthening Terminal ROM restriction	Normal Haziness / rarefaction	ATT Traction : skin/ skeletal Rest & mobilisation
Early Arthritis	FADIR Apparent Shortening Muscle spasm- ROM painful	Osteopenia Bony erosions Joint space maintained	Above + Analgesics Synovectomy + joint debridment
Advanced arthritis	FADIR True shortening	Destruction of articular surface Reduction of joint space	Above + Arthrolysis
Advanced arthritis with subluxation / dislocation	FADIR Gross shortening	Gross reduction Wandering acetabulum	Conertvative traction regimen Excision arthroplasty Arthrodesis Hip replacement