

TUBERCULOSIS OF HIP AND KNEE JOINT

TUBERCULOSIS OF HIP JOINT

- Occurrence-15% of all osteo articular tuber culosis
- Next common after spinal TB

AETIO PATHOGENESIS

- Most common cause *Mycobacterium tuberculosis*
- Always secondary to some focus in lungs, lymph nodes
- Mode of spread is either haematogenous or by direct extension from a neighbouring focus .

PATHOLOGY

- Tubercular infection produces similar response as it produces in the lungs i.e. chronic granulomatous inflammation with caseation necrosis.

- Always starts in Bone and initial focus is in

- i) Acetabular roof

- ii) Greater trochanter

- iii) Femoral epiphysis

- iv) Rarely synovial membrane

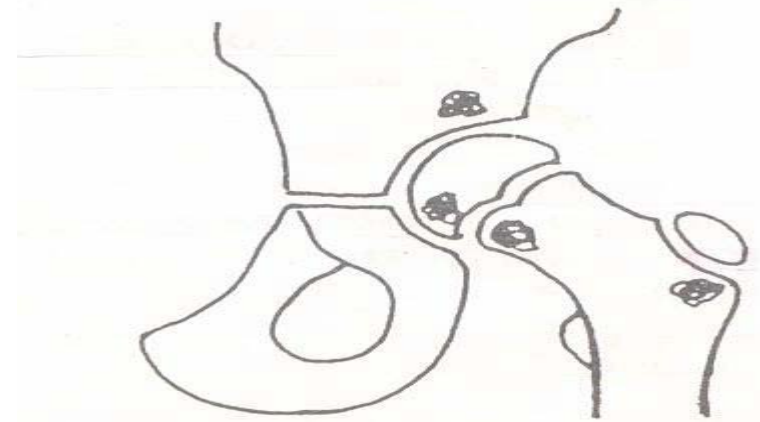


Fig-25.11 T.B. hip - Common sites

- In hip joint head and neck are intracapsular so a bony lesion invades the joint early
- Destruction spread to acetabulum
- May become so extensive that pathological dislocation of joint occurs

NATURAL HISTORY

- Joint involvement usually a low grade synovitis with thickening of synovial membrane
- Unlike Pyogenic arthritis, it causes of slow destruction of articular cartilage.
- The inflammed synovium surrounding the cartilage is called pannus
- Eventually the cartilage is completely destroyed and joint is distended with pus.
- Joint capsule and ligaments become lax and subluxated
- Pus and debris burst out of the joint capsule to form cold abscess – chronic discharging sinus.

CLINICAL FEATURE

- Insidious onset, runs a chronic course
- Most patients are children
- May have constitutional symptoms before symptoms pertaining to hip joint appear
- First symptom is stiffness of the hip and it produces a limp.
- Pain may be absent in early stages.
- Complains of night cries called starting pain – rubbing of two diseased surfaces when the movement occurs due to muscle relaxation during sleep.

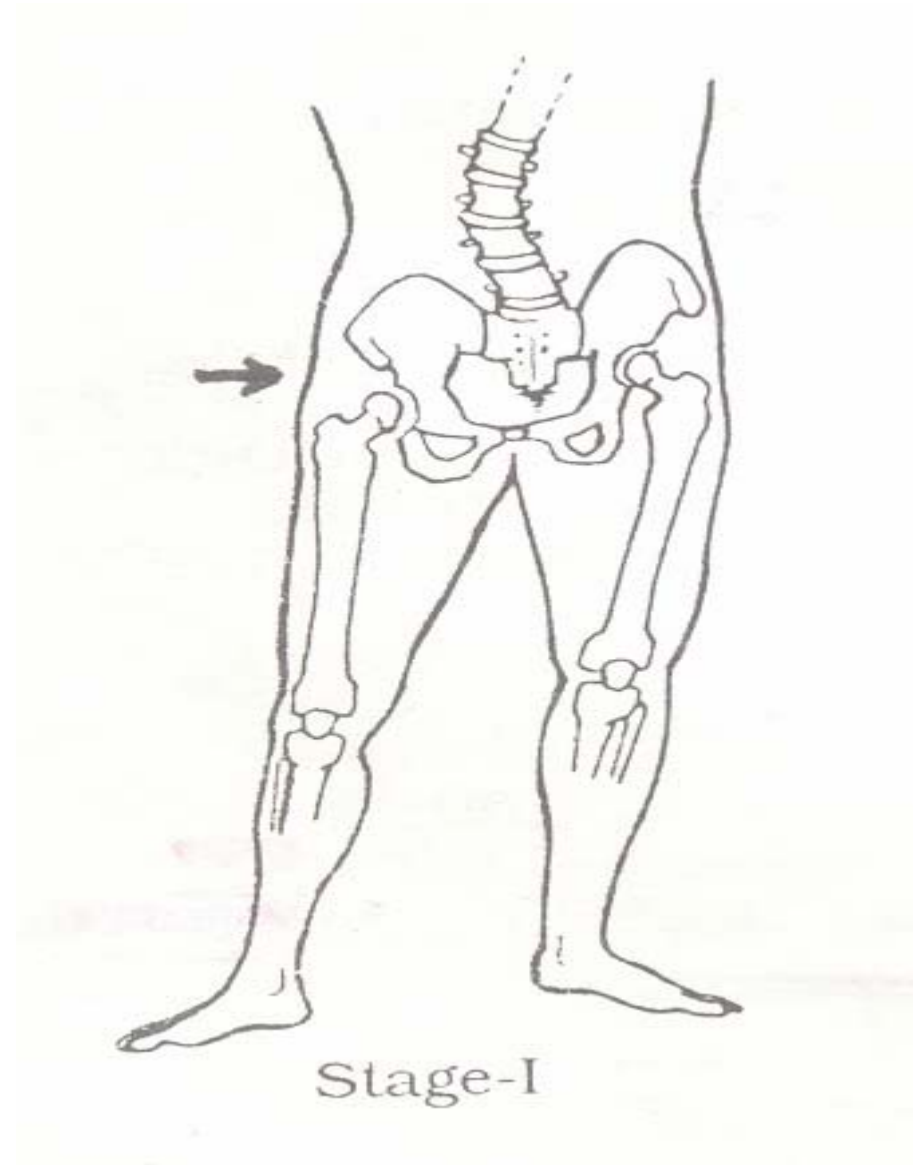
STAGES OF TB HIP JOINT

- 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.

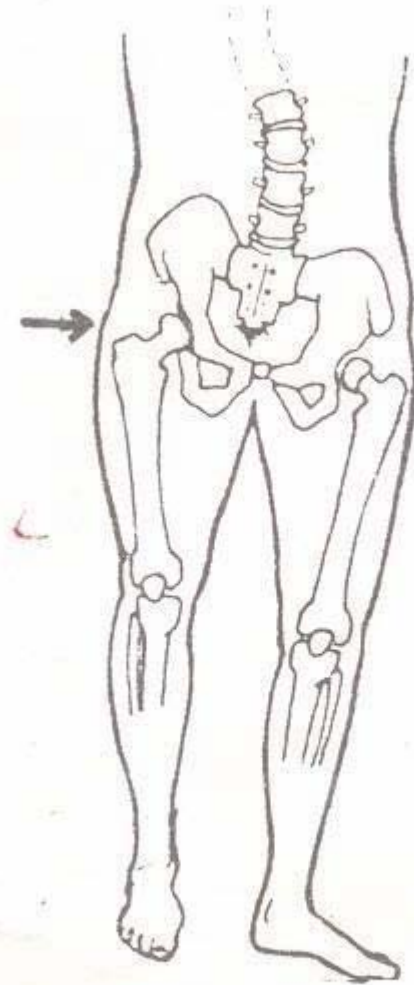
- **Stage of apparent lengthening ----->**



Stage II:

Stage of arthritis

- Articular cartilage is involved
- Leads to spasm of powerful muscle around the hip
- Flexors and adductors are stronger muscle
- Hip takes attitudes of flexion adduction and internal rotation
- **Stage of apparent shortening** ----→

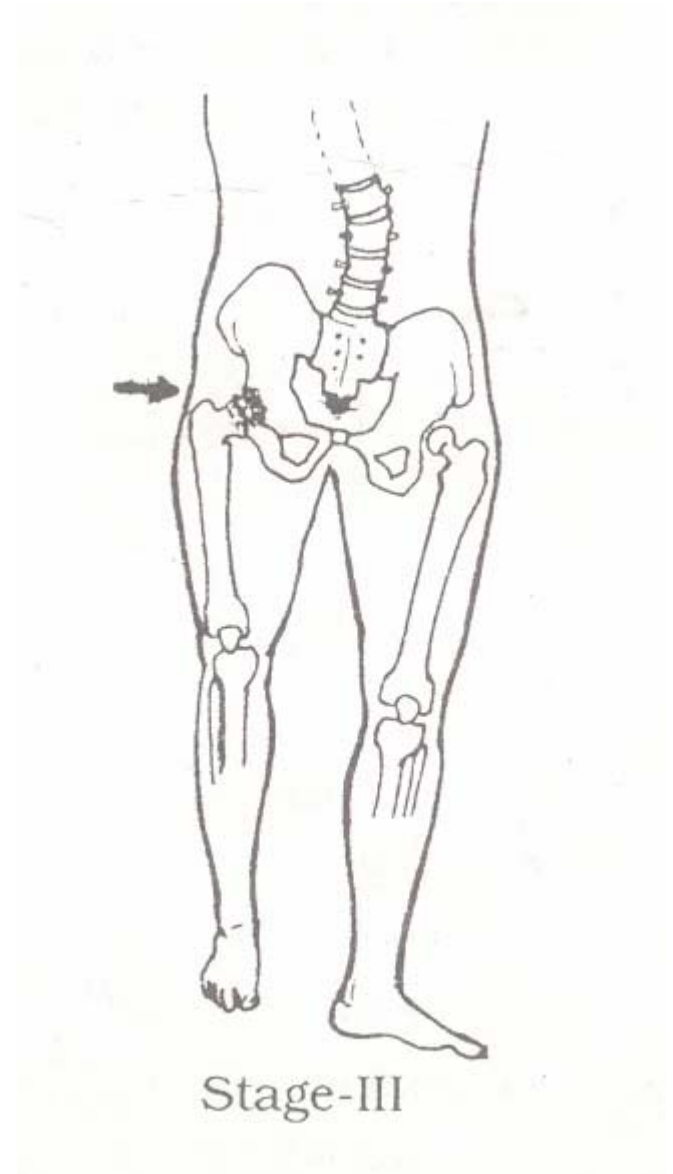


Stage-II

Stage III

Stage of erosion

- Cartilage is destroyed
- Head & acetabulum is eroded
- Pathological dislocation or subluxation of the hip occurs
- Stage of flexion, adduction & internal rotation.
- **True shortening of the limbs ----->**



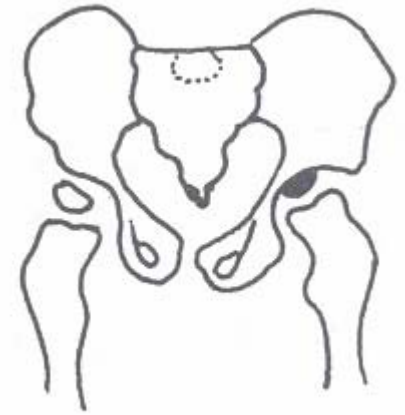
EXAMINATION

- lameness – the first sign
- Flexion deformity at the hip, child stands with compensatory lumbar lordosis
- Hip is kept stiff while walking and forward backward movement at the lumbar spine is used for propulsion
 - Called stiff hip gait
- Muscle wasting
- Swelling due to cold abscess
- Discharging sinuses
- Flexion deformity

INVESTIGATION

- HgM – it may show lymphocytic leucocytosis, high ESR
- Mx test – useful in children
- Serum ELISA – for detecting anti mycobacterial anti bodies
- Synovial fluid aspiration
- Aspiration of cold abscess and examination of pus for AFB
- Histopathological examination of granulation tissue obtained from biopsy.
- RADIOLOGY – may show haziness of the bones around the joint – earliest sign
- Lytic lesions

- Reduction of joint space due to destruction of cartilage
- Other changes in advanced disease are
 - i) Perthes type – femoral head is sclerotic



Type 4 Perthes

- Dislocating type

Subluxation or dislocation of femoral head occurs because of capsular laxity and synovial hypertrophy



Type 3 Dislocating

- Wandering Acetabulum

Protrusio Acetabuli



Type 5 Protrusio-acetabuli

- Mortar & pestle type

Due to erosion of subchondral bone



Type 7 Mortar and pestle

- Atrophic type

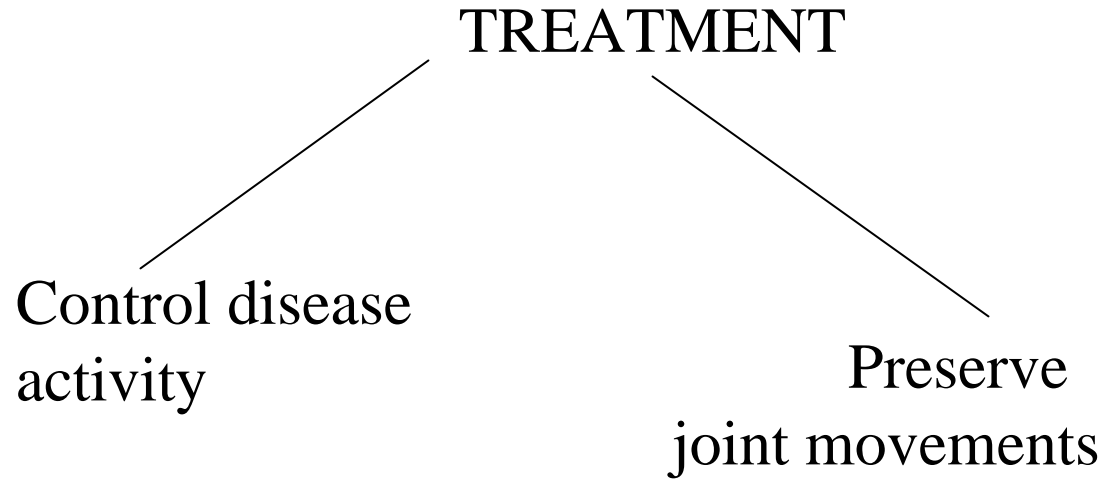
Femoral head is irregular & joint space is narrow



Type 6 Atrophic

DIFFERENTIAL DIAGNOSIS

- Monoarthritis of hip – subacute low grade monoarthritis due to low grade septic infection.
- Inguinal lymphadenopathy and psoas abscess – may present with flexion deformity.
- Congenital dislocation of hip – painless limp
- Congenital coxavara – painless limp
- Perthe's disease
- Osteoarthritis in older individual

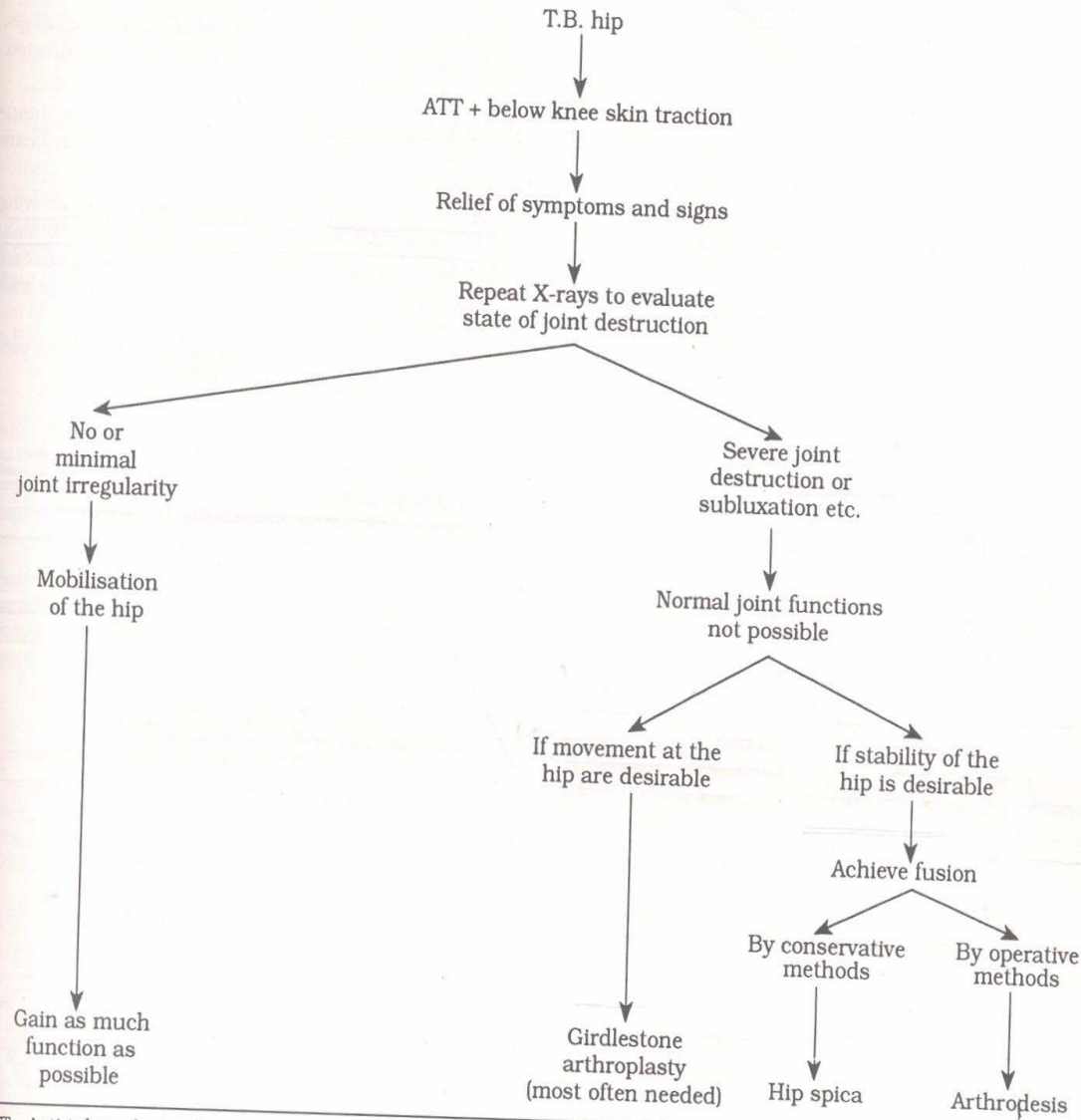


- If left untreated, healing may take place by fibrosis – leads to fibrous ankylosis of hip
- Early Stage (I & II) – Conservative Treatment with antituberculosis chemotherapy treatment
- Late II and III – because of significant limitation of joint functions treatment is conservative as well as operative.
- Care of hip – hip is put to rest by immobilisation using below knee skin traction

OPERATIVE TREATMENT

- Joint debridement – Joint is opened through posterior approach : pus, necrotic tissue inflammed synovium and dead cartilage are removed, washed thoroughly with saline.
- Girdle stone arthroplasty – hit joint is exposed – head & neck are excised – it is possible to regain reasonable movement by this procedure
- Arthrodesis in selected cases where stiff hip in a functional position is more suitable to the patients day to day activity, it is produced surgically.
- Total hip replacement – in some patients, it is useful operation

Fig-25.18: Treatment plan for T.B. hip



TT - Anti-tubercular treatment

TUBERCULOSIS OF KNEE

- Superficial joint, early diagnosis is possible

PATHOLOGY

- It produces the same response as it produces in the lungs- i.e. chronic granulomatous inflammation with caseation necrosis
- May begin in adjoining bones, usually in femoral or tibial condyles or more rarely in patella.
- More commonly the disease begins in the synovium

NATURAL HISTORY

- Same as in tuberculosis of hip joint – long standing distension of joint and destruction of ligaments produces subluxation of tibia.
- Tibia flexes, slips backwards and rotates externally on the femoral condyles.(triple subluxation).

CLINICAL FEATURES

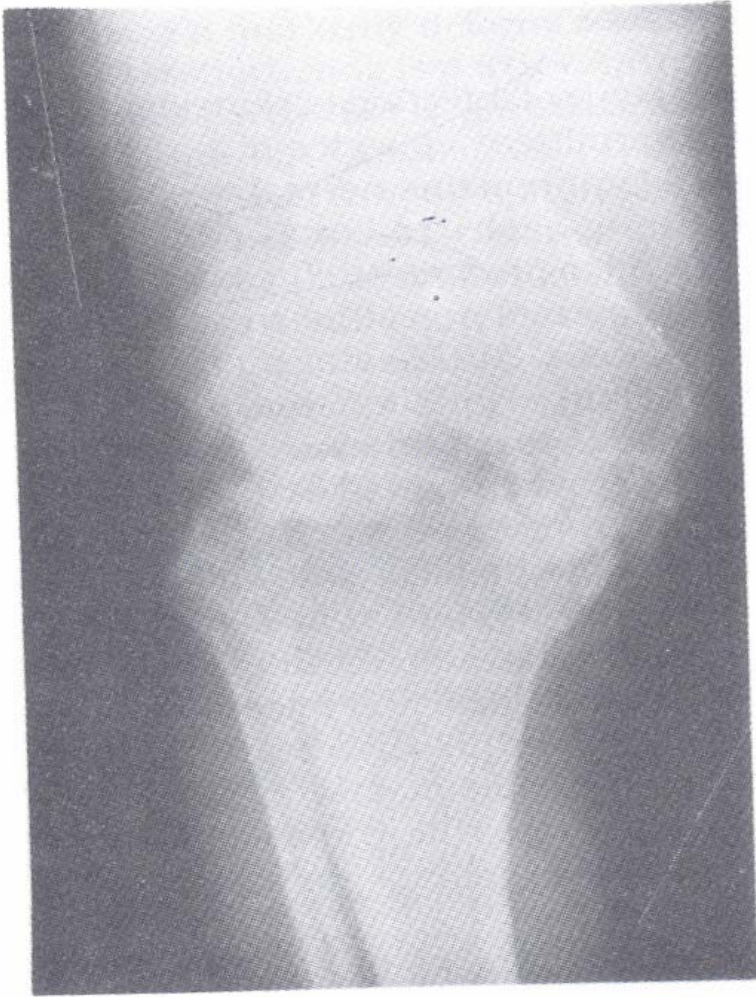
- The patient usually in the age group of 10 – 25 years
- Presents with insidious onset pain & swelling in the knee.
- Leads to stiffness of the knee, and the child starts limping

EXAMINATION

- Following findings may be present
 - Swelling – could be due to synovial effusion or synovial hypertrophy
 - Loss of para patellar hollows
 - Muscle atrophy
 - Cold abscess discharging sinuses
 - Deformity – early stages there is mild flexion deformity later triple displacement (flexion , posterior subluxation & external rotation occurs due to ligament laxity. Movements are limited.

INVESTIGATIONS

- Hgm Mx.
- Serum ELISA
- Synovial fluid aspiration
- Aspiration of cold abscess and examination of pus for AFB.
- Histopathological examination of granulation tissue obtained from biopsy.
- Radiology – X-ray is essentially normal in case of synovial tuberculosis.
 - Joint space may be widened
 - Diffuse osteoporosis of the bones around the joint
 - Lytic lesion around the joint
 - In advance stages triple subluxation with cavitary bone lesion may be present



AP View with advanced knee joint
T.B. showing the destruction of bones
Lateral subluxation & flexion deformity



Lateral view (same patient
showing flexion deformity)

DIFFERENTIAL DIAGNOSIS

- Sub acute pyogenic infection
- Monoarticular rheumatoid arthritis
- Chronic traumatic synovitis
- Rheumatic arthritis
- Haemophilic arthritis

TREATMENT

- Aim to achieve a painless mobile joint
- This is possible if patient has come early for treatment
- In later stages some amount of pains and stiffness persist inspite of treatment

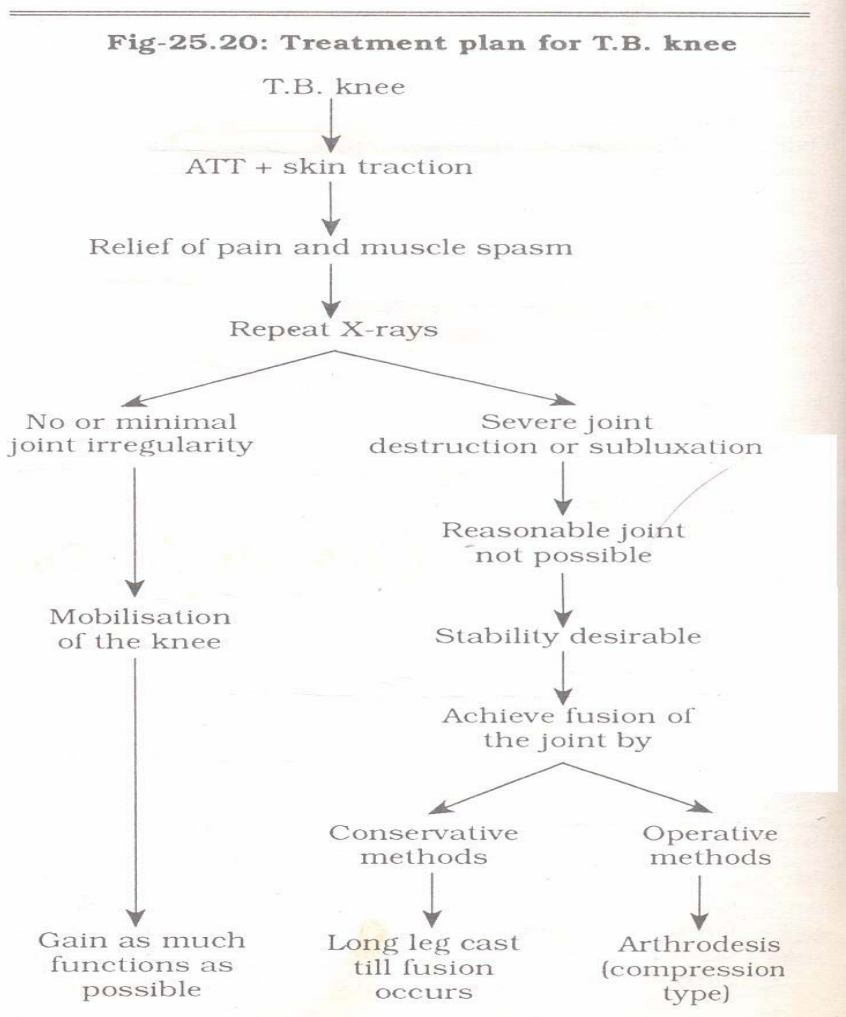
METHODS

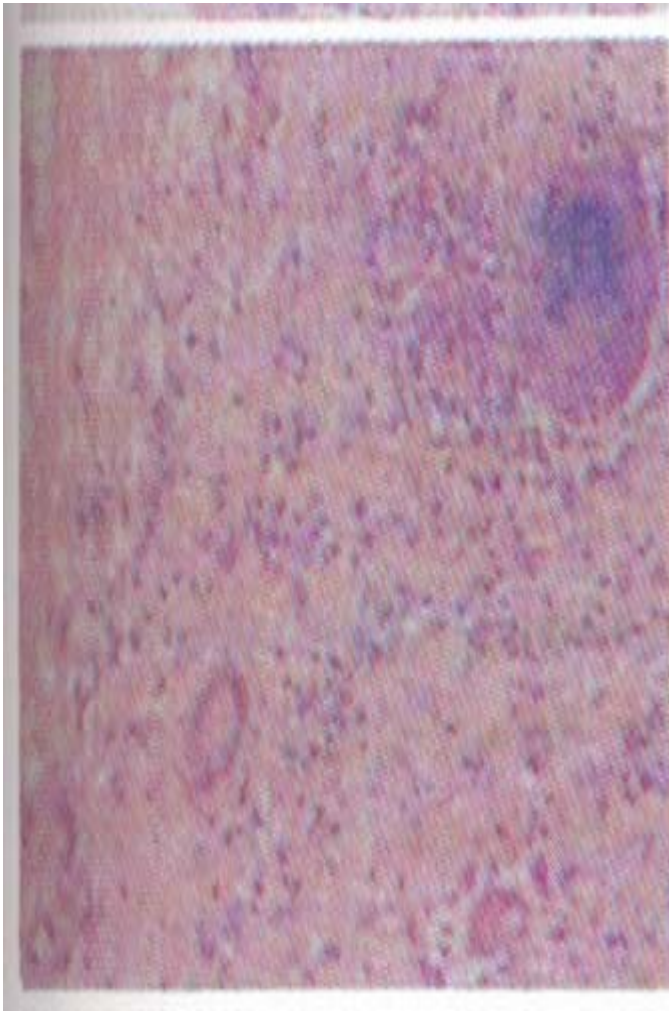
- Conservative treatment is begun in all cases & decision for surgery taken if this is indicated.
- Conservative treatment – it includes antitubercular chemo therapy, general care, local care of the part effected.
- Care of the knee – knee is rested by applying below knee skin traction or an above knee POP slab. This helps in healing process & also takes care of the associated muscle spasm which keeps the knee in a deformed position.

OPERATIVE TREATMENT

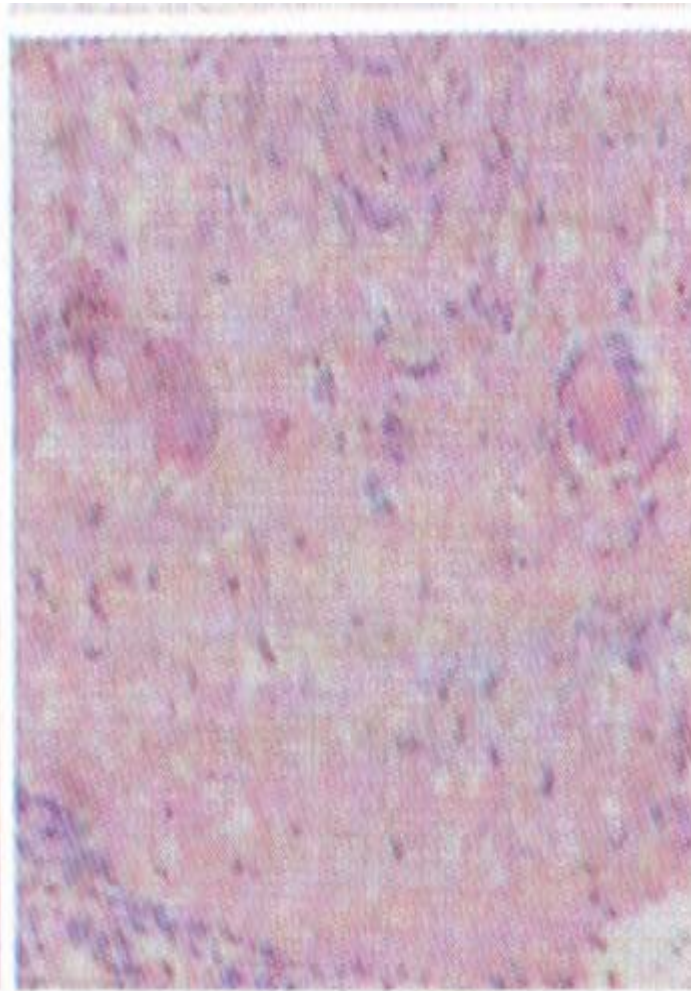
- The following operative procedure may be required in suitable cases
 - Synovectomy : it is required in cases of purely synovial tuberculosis.
 - Joint debridement : This may be required where the articular cartilage essentially preserved, pus is drained, synovial excised all the cavities curetted.

- Arthrodesis in advance stages with triple subluxation & cartilage destruction the knee is fixed in a functional position i.e. about 5 to 10 degrees of flexion.





Caseation necrosis,
Langhans giant cell



Caseation necrosis
Giant Cell & Lymphocytes

All the best..