TUBERCULOSIS OF HIP AND KNEE JOINT

TUBERCULOSIS OF HIP JOINT

Occurrence-15% of all osteo articular tuber culosis

Next common after spinal TB

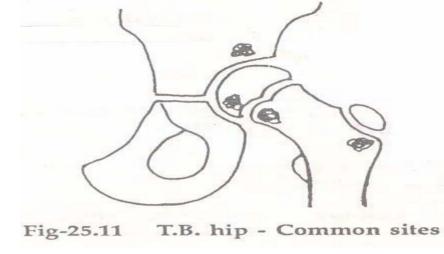
AETIO PATHOGENESIS

- 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



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

NATURAL HISTORY

- Joint involvment 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
- Eventully 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

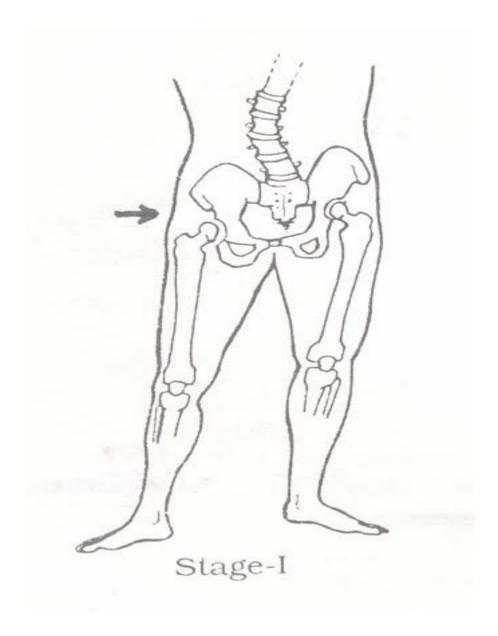
• Stage I

rotation.

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

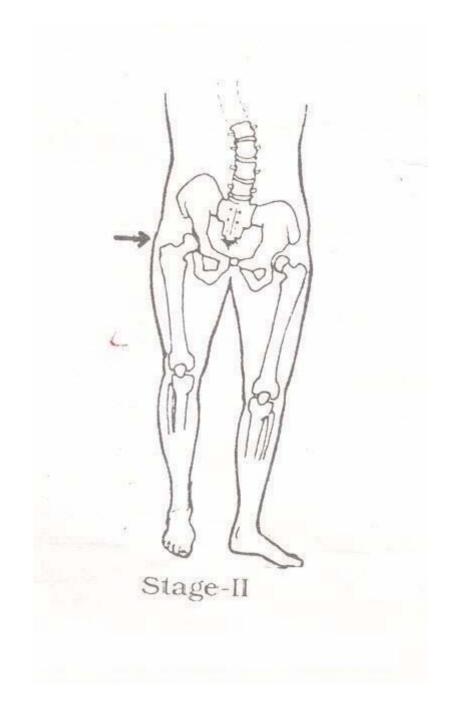
Stage of apparent lengthening ------→



Stage II:

Stage of arthritis

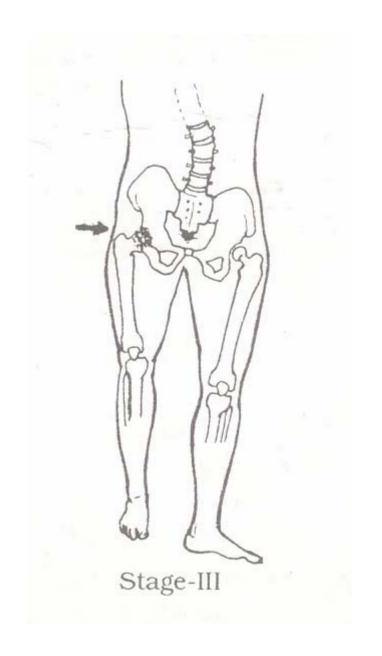
- -Articular cartilage is involved
- Leads to spasm of powerful
 muscle around the hip
- -Flexors and adductors are stronger muscle
- -Hip takes attitudes of flexion adduction and internal rotation
- Stage of apparent ----→ shortening



Stage 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 -----



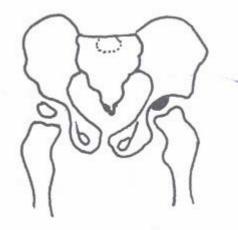
EXAMINATION

- lameness the first sign
- Flexion deformity at the hip, child stands with compensatory lumber 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 abscss and examination of pus for AFB
- Histopathlogical examination of granulation tissue obtained from biopsy.
- RADIOLOGY may show haziness of the bones around the joint earliest sign
- Lytic lesions

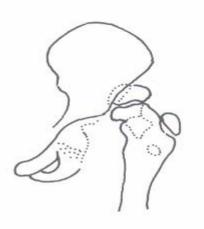
- Reduction of joint space due to destruction of cartilage
- Other changes in advanced disease are
- i) Perthes type –femoral head is sclerotic



Type 4 Perthes

Dislocating type

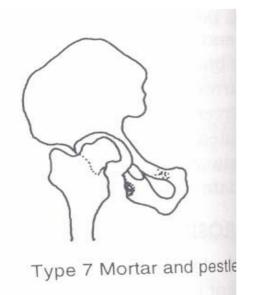
Subluxation or dislocation of femoral head occurs because of capsular laxity and synovial hyper trophy

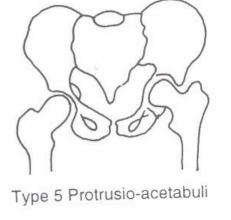


Type 3 Dislocating

Wandering Acetabulam Protrusio Acetabulli

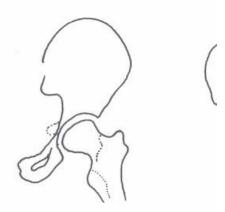
 Mortar & pestle type
 Due to erosion of sub chondral bone





• Atrophic type

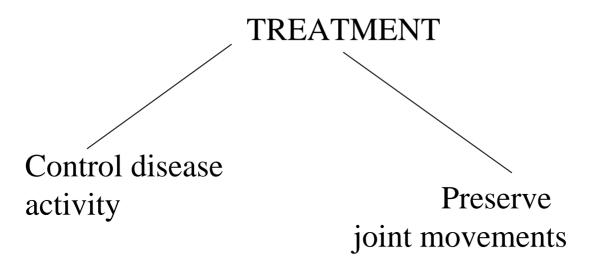
Femoral head is irregular & joint space is narrow



Type 6 Atrophic

DIFFRENTIAL DIAGNOSIS

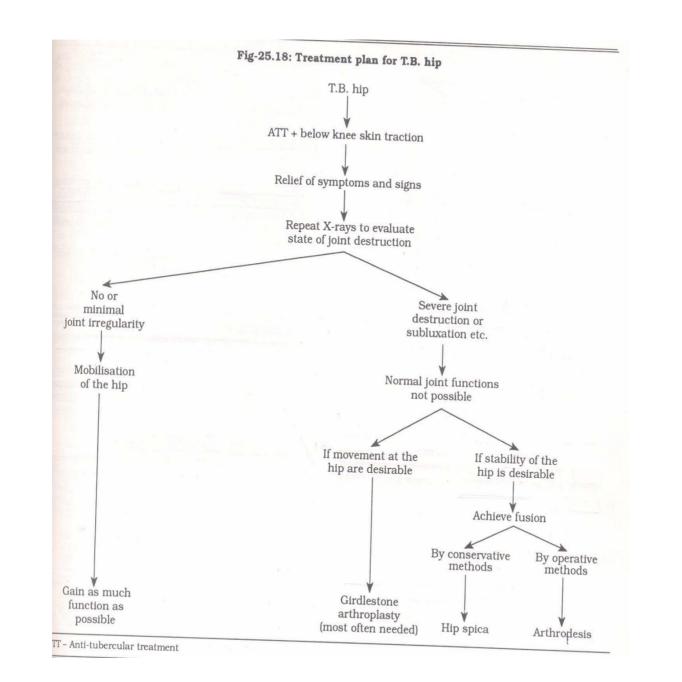
- Monoarthritis of hip subacute low grade monoarthritis due to low grade septic infection.
- Inguinal lymphadenopathy and psoas abscess may present with flexion deformity.
- Congenital dislocation of hip painless limp
- Congenital coxavara painless limp
- Perthe's disease
- Osteoarthritis in older individual



- If left untreated, healing may takes place by fibrosis leads to fibrous ankylosis of hip
- Early Stage (I & II) Conservative Treatment with antituberclosis chemo therapy 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



TUBERCLOSIS 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

NATUAL 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

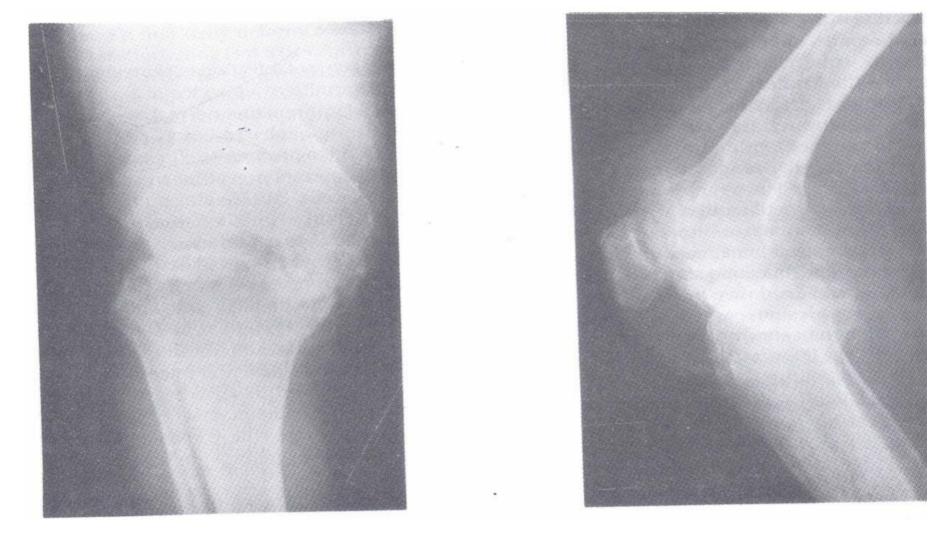
- The patient usually in the age group of 10 25 years
- Presents with insidious onset pain & swelling in the knee.
- Leads to stiffness of the knee, and the child starts limping

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 flextion deformity later triple displacement (flexion, posterier 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
 - Defuse osteoporosis of the bones around the joint
 - Lytic lesion around the joint
 - In advance stages triple subluxation with cavitory bone



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

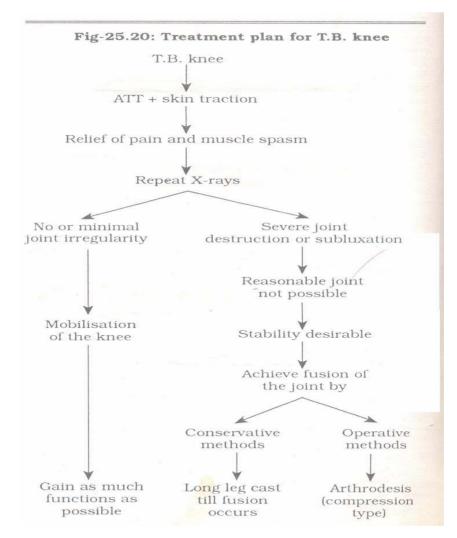
METHODS

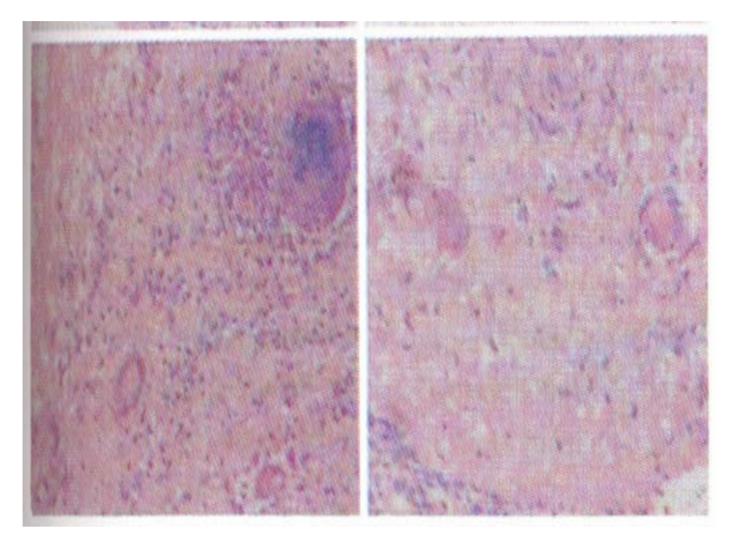
- Conservative treatment is begun in all cases & decision for surgery taken if this is indicated.
- Conservative treatment it includes antitubercular chemo therapy, general care, local care of the part effected.
- Care of the knee knee is rested by applying below knee skin traction or an above knee POP 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 tuberclosis.
- -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...