# HIP DISLOCATIONS

# AND FRACTURES OF THE ACETABULUM

# POSTERIOR DISLOCATION.

- High energy trauma
- low energy trauma for prosthetic dislocation.
- Posterior dislocations compromise 70-80% of all hip dislocations and 90% of all sports related dislocations.

- **Mechanisms of hip injury**
- Backward directed force along the line of femur in a flexed hip e.g. dash board injury.

- Femur more adducted at the time of impact - pure dislocation
- Femur slightly abducted - fracture dislocation results.

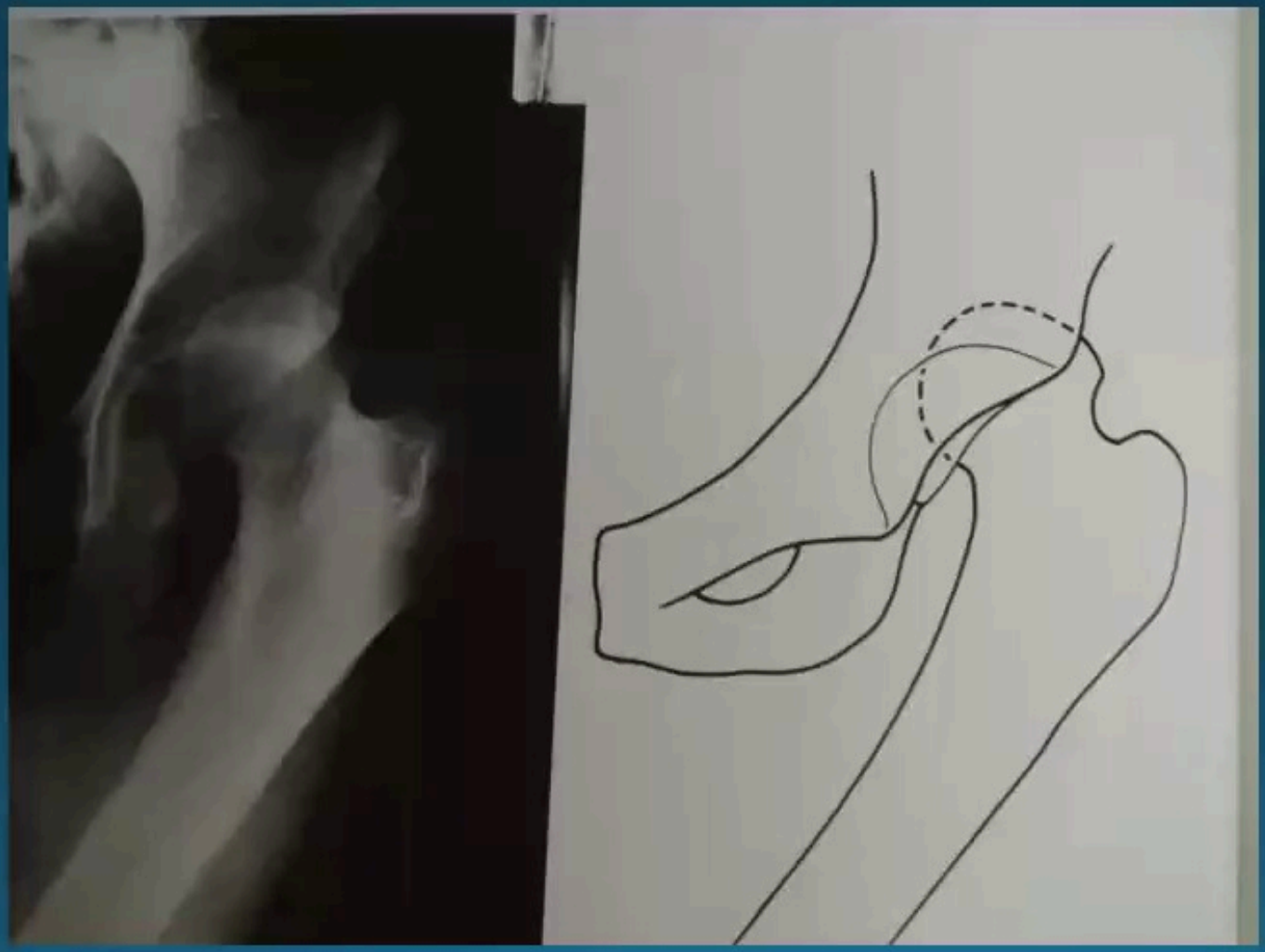
# CAUSES

- Road traffic accidents - 80-90%
- Fall from height
- Sports-Rugby, American football.

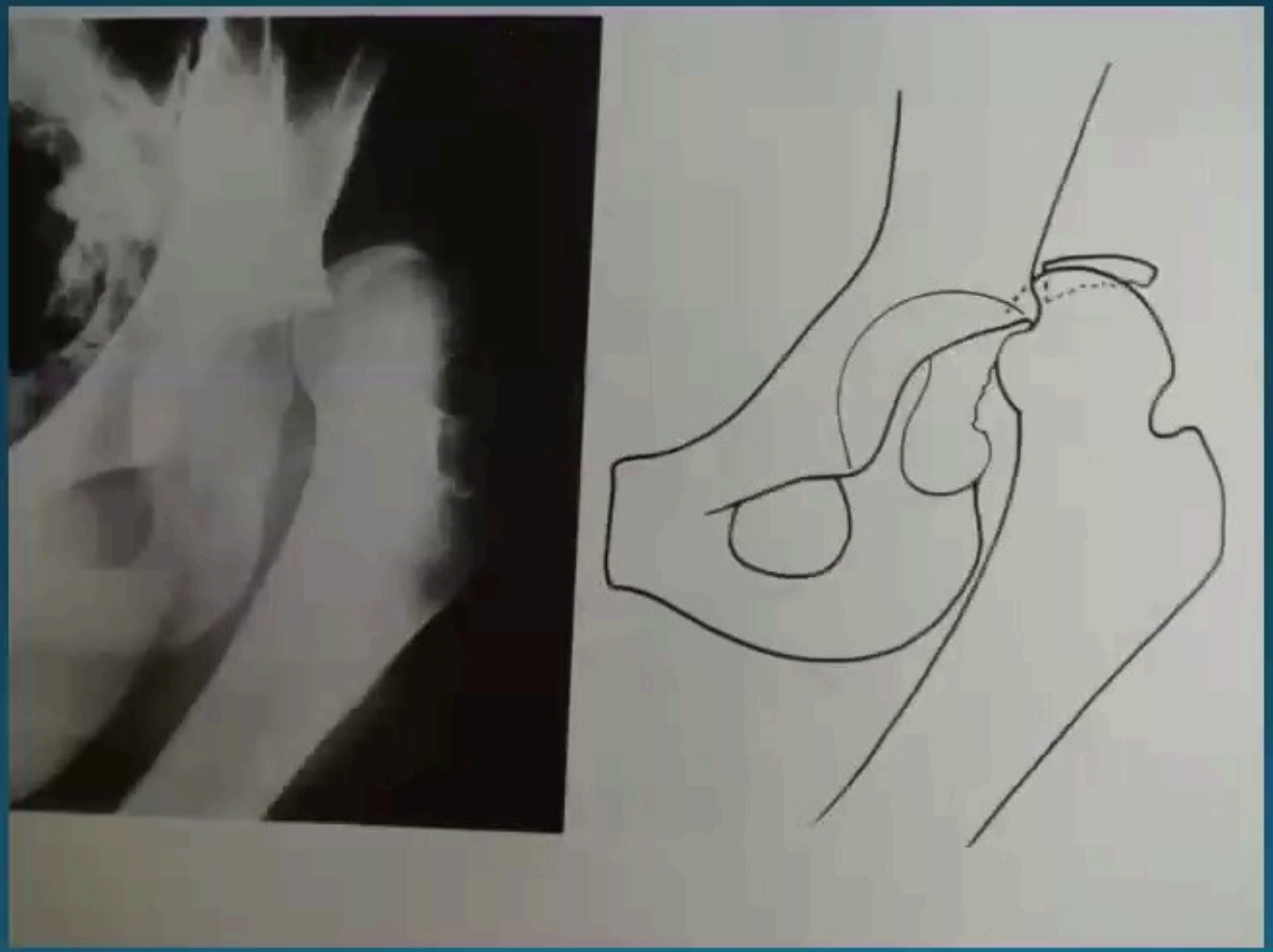
## CLASSIFICATION

- Thompson - Epstein (radiological).
- Type I-With or without minor acetabular fracture
- Type II-With large single fracture of posterior acetabular rim
- Type III-With comminution of rim of acetabulum, with or without major fragments.
- Type IV-With fracture of acetabular floor
- Type V-With fracture of femoral head.

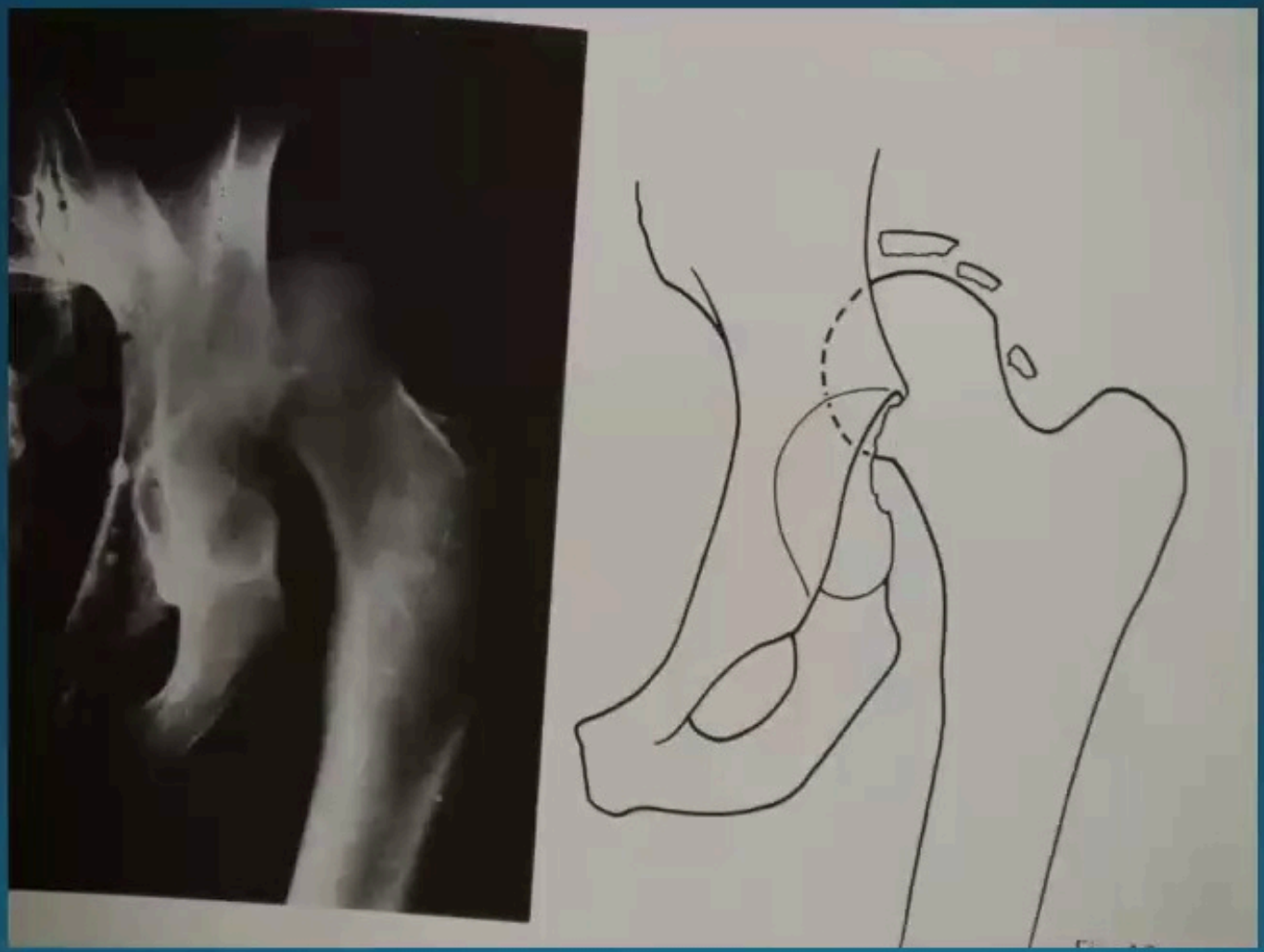
# Type I



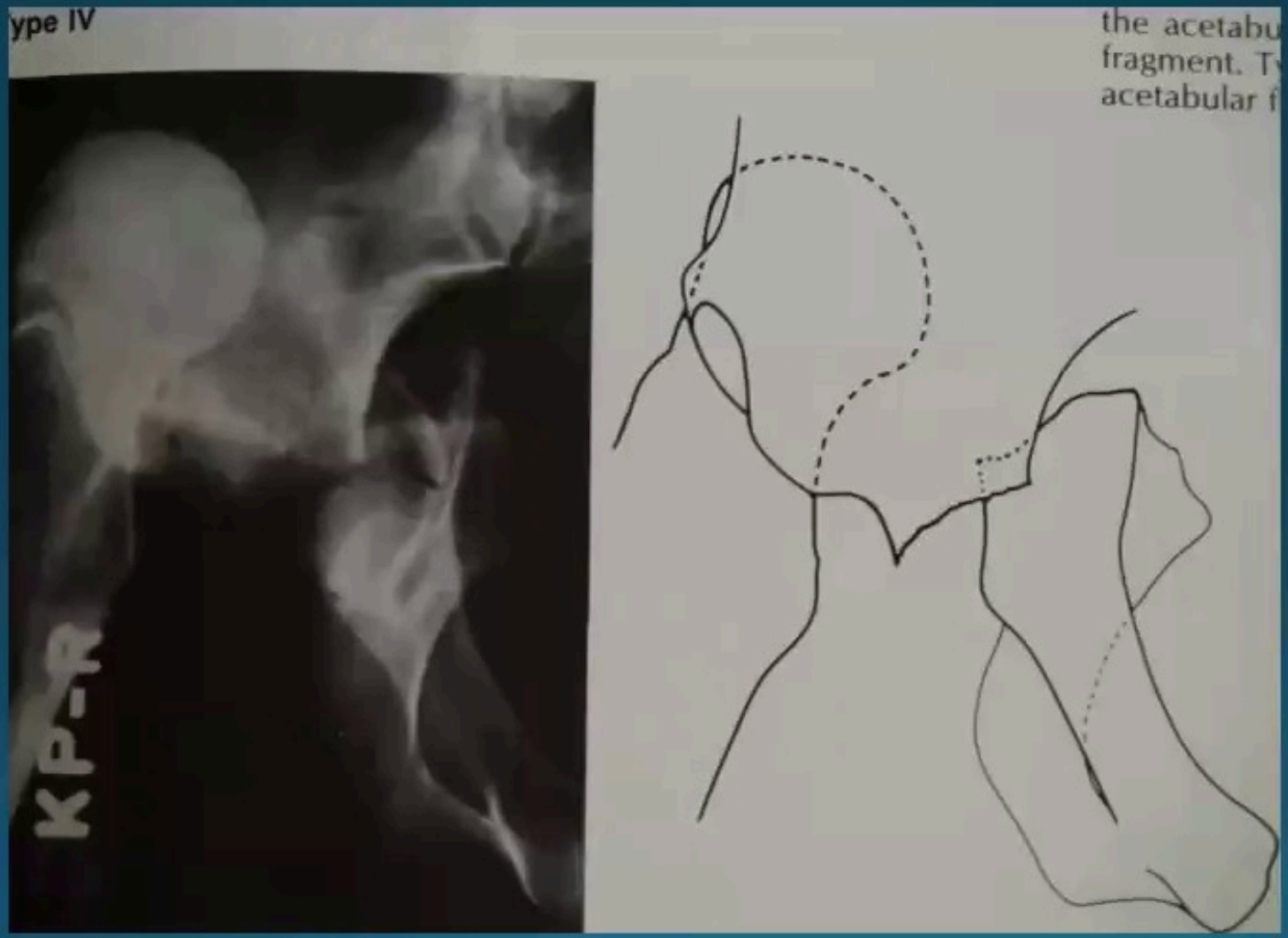
# Type II



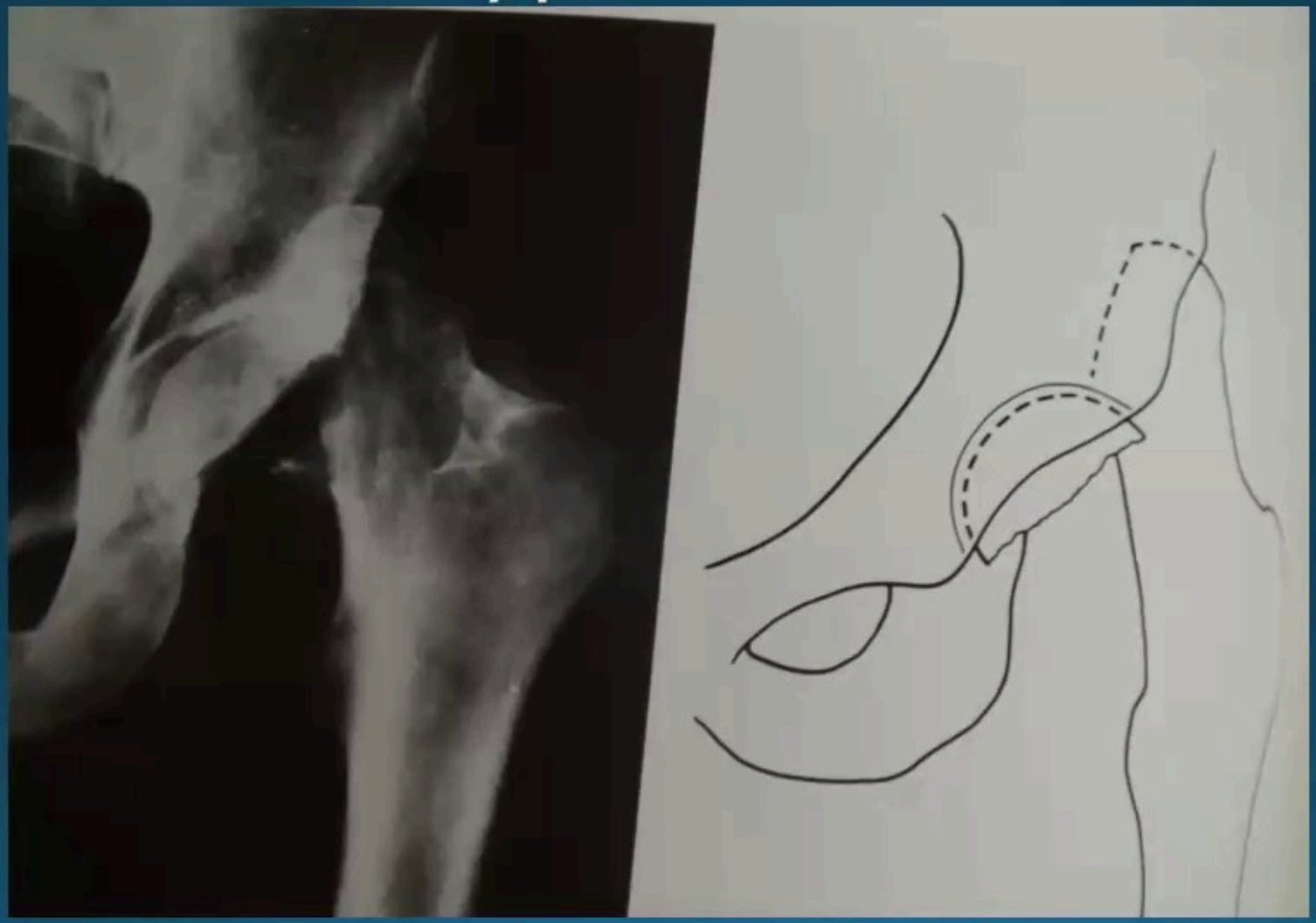
# Type III



# Type IV



# Type V



# Sciatic Nerve Injury

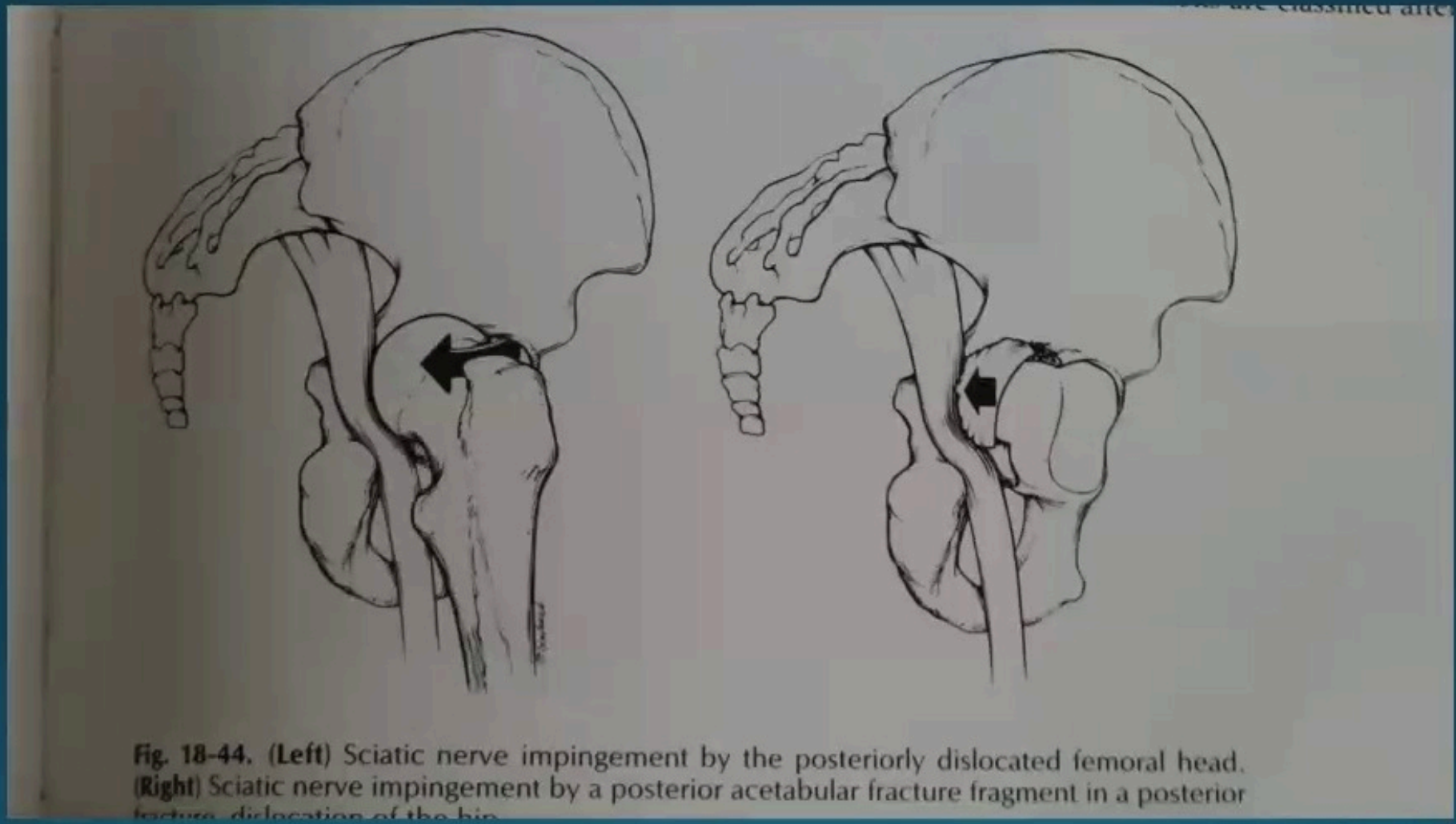


**Fig. 18-44.** (**Left**) Sciatic nerve impingement by the posteriorly dislocated femoral head. (**Right**) Sciatic nerve impingement by a posterior acetabular fracture fragment in a posterior

## CLINICAL FEATURES.

H/o injury resulting in hip pain and inability to bear weight.

ABC of trauma as posterior dislocation may be associated with other injuries.

Limb shortened

- Slight flexion of hip
- Internal rotation
- Adduction
- Femoral head may be felt in the gluteal region
- Reduced hip motion
- ± Signs of sciatic nerve injury

# INVESTIGATIONS

## Imaging

Plain radiography –

pelvis - AP view

Affected hip - lateral view

Affected hip - oblique views (45°)

- CT scan - clear definition of acetabular fractures.
- Loose fragment in joint preventing reduction or congruency.

## Management

ABC of trauma

Analgesics

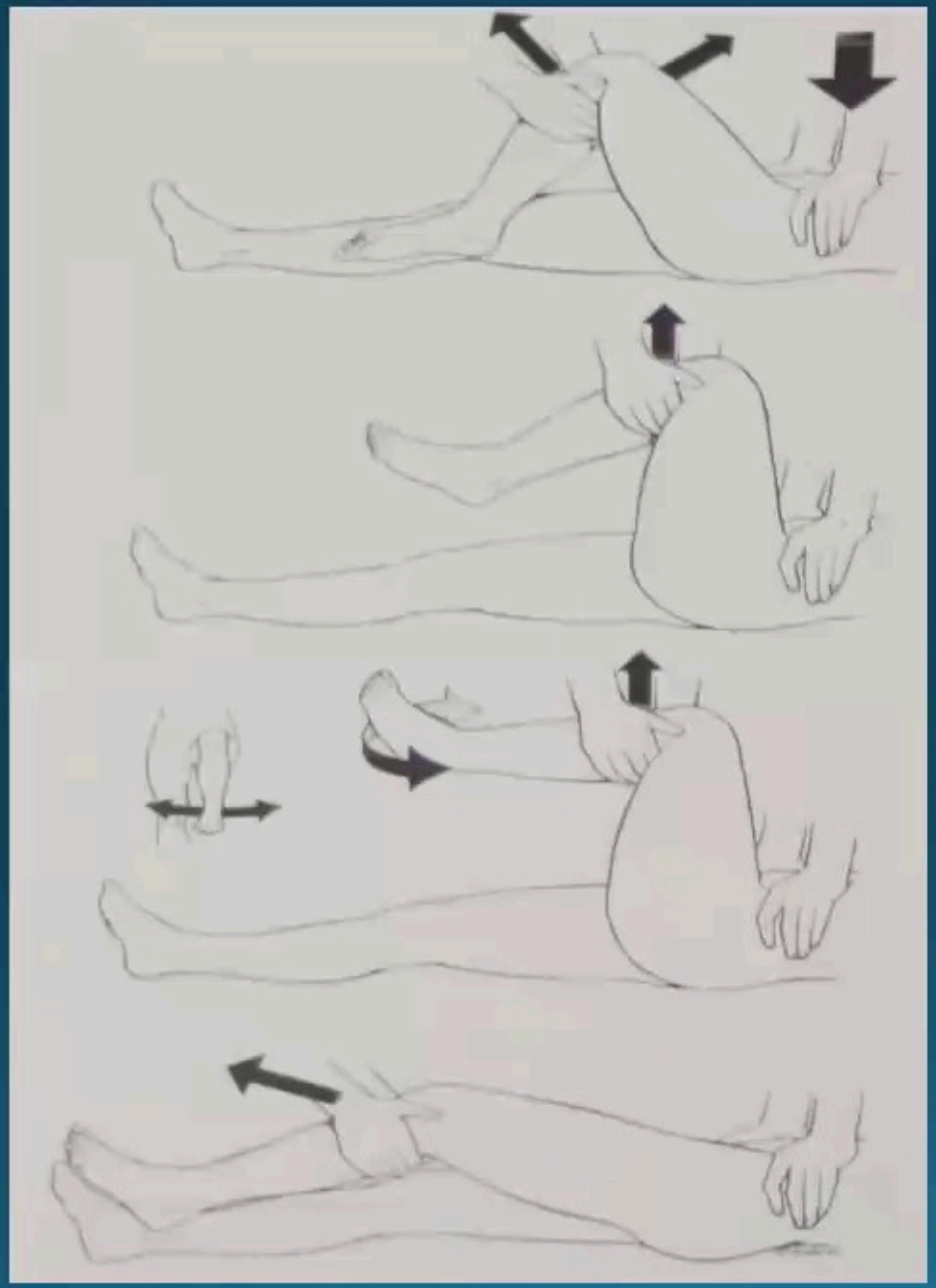
urgent reduction.

It is an orthopaedic emergency. Early reduction less than 6hours. Late reduction associated with more complications.

# METHODS OF CLOSED REDUCTION

## Allis's maneuver

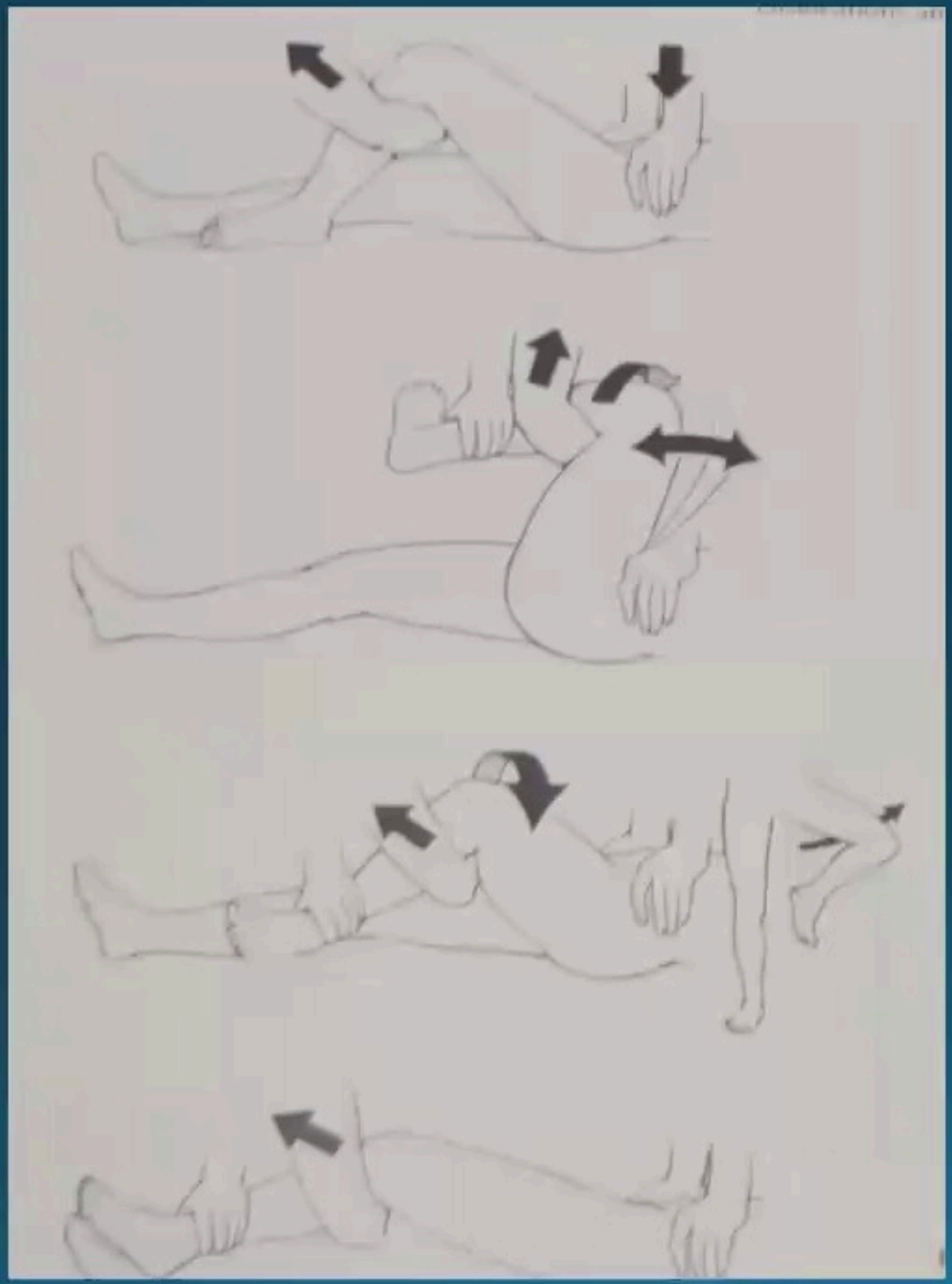
- Patient supine
- Pelvis stabilised by pressure on both ASIS assistant.
- Traction in direct line of deformity followed by gentle flexion of the hip to 900. The hip is rotated internally & externally with continued traction, until reduction is achieved.



# BIGELOW'S MANEUVER.

Patient supine with pelvis stabilised by pressure on ASIS by an assistant.

- Surgeon grasps affected limb at ankle with one hand, places the opposite forearm behind the knee and applies longitudinal traction in line of deformity.
- Hip flexed 90° or more relaxing Y ligament allowing surgeon to bring femoral head near posteroinferior rim of acetabulum. Then abduction and external rotation with extension while traction is maintained.



## CLASSICAL - WATSON - JONES METHOD

Limb brought to neutral position then longitudinal traction in line of femur.

# AFTER REDUCTION

Traction – skin/skeletal

Type 1 - Traction until pain free

(days to few weeks)

Type II - IV - 6 weeks then PWB progress to full weight by 12 weeks

## SURGERY INDICATION

- Failed closed reduction
- Incrongruent joint
- Recurrent dislocation - boney defect or fragment in joint.
- Need for early mobilization.

## COMPLICATIONS OF POSTERIOR DISLOCATION.

## EARLY

Sciatic nerve paresis (Posterior dislocation)

Pre - reduction - 8 - 19%

Post reduction

Irreducable posterior dislocations - 3 - 16%

- button holing femoral head through hip capsule
- interposition of piriformis between femoral head & acetabulum

Presence osteocartilagious fragments or inverted limbus in the joint.

missed knee ligament injuries

Recurrent dislocation in traction

## LATE

- Recurrent posterior dislocations 0.3% to 1.2%
- Avascular necrosis of head of femur 6% to >40%. Early reduction of posterior dislocation (≤6 hours) reduces incidence.

- post-traumatic osteoarthritis
- incidence variable - up to 70%
- Unreduced posterior fracture dislocations of hip - late diagnosis.
- Myositis officans 2% but variable.

- **ANTERIOR DISLOCATION**

(10% to 15% traumatic dislocations)

## Mechanism of injury

- RTA - dashboard injury thigh abducted.
- Fall from height
- Blow to back of a patient while in a squated positions.

- Neck of femur or greater trochanter impinges on rim of acetabulum thereby tearing head of femur out of acetabulum through tear in the anterior capsule. Degree of hip flexion determines whether it is inferior or superior type.

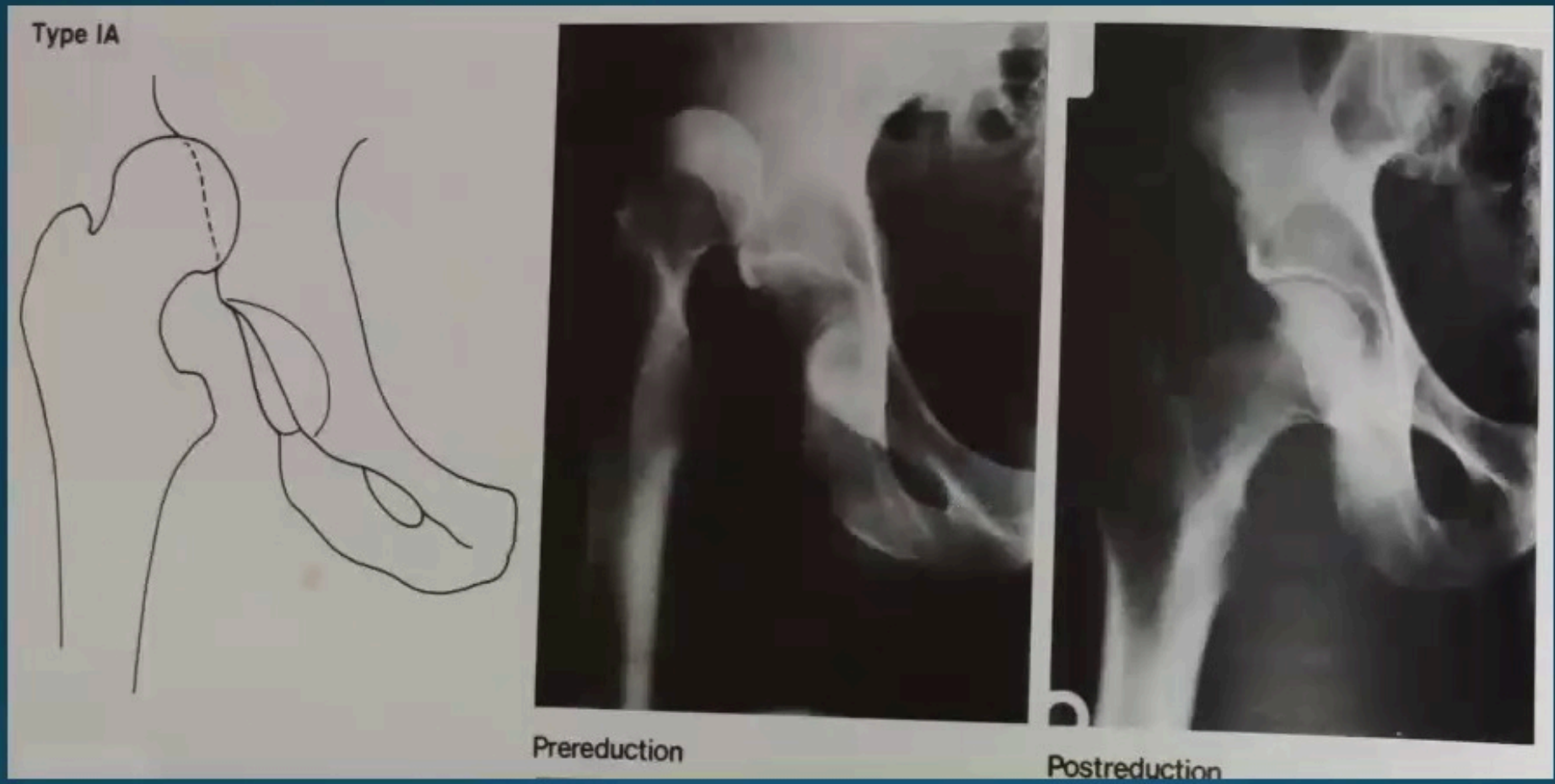
- Abduction flexion, external rotation-inferior type:
- Abduction, extension, external rotation-superior type:
- Femoral head fracture may associated

**1. (Pubic (superior)**

- a). with no fracture (simple)
- b). with fracture of head of femur
- c). with fracture of acetabulum

**2. Oburator (inferior)**

- a) with no fracture (simple)
- b). with fracture head of femur
- c). with fracture of acetabulum


Type IA
Prereduction
Postreduction

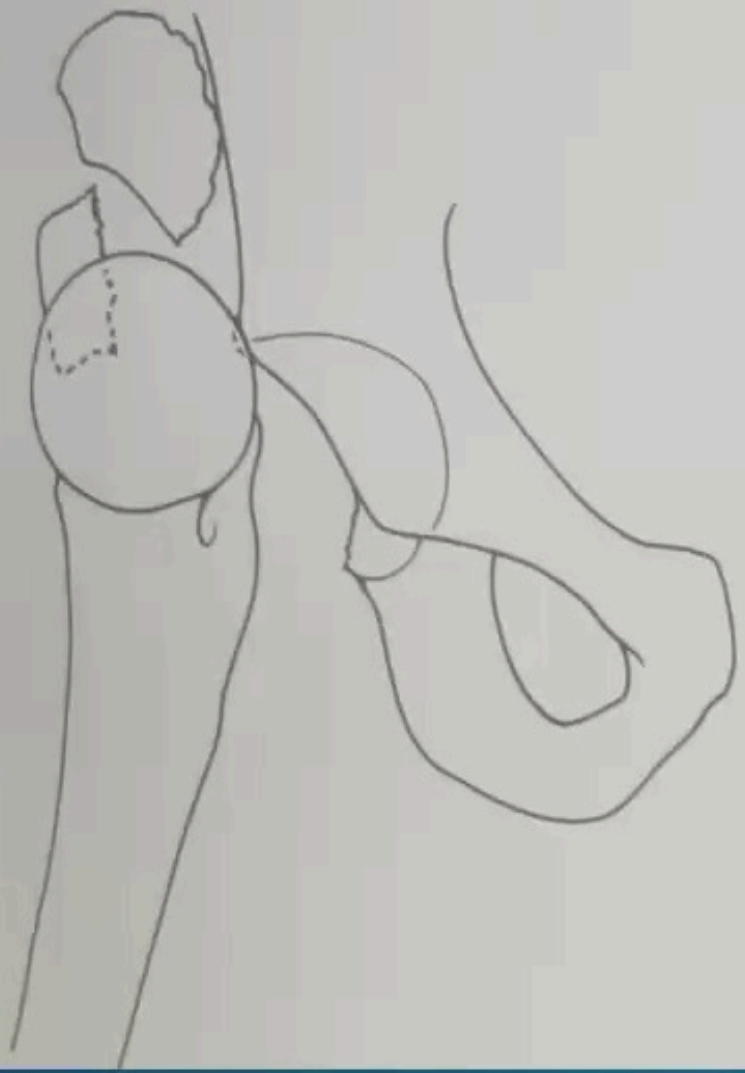
Type IB

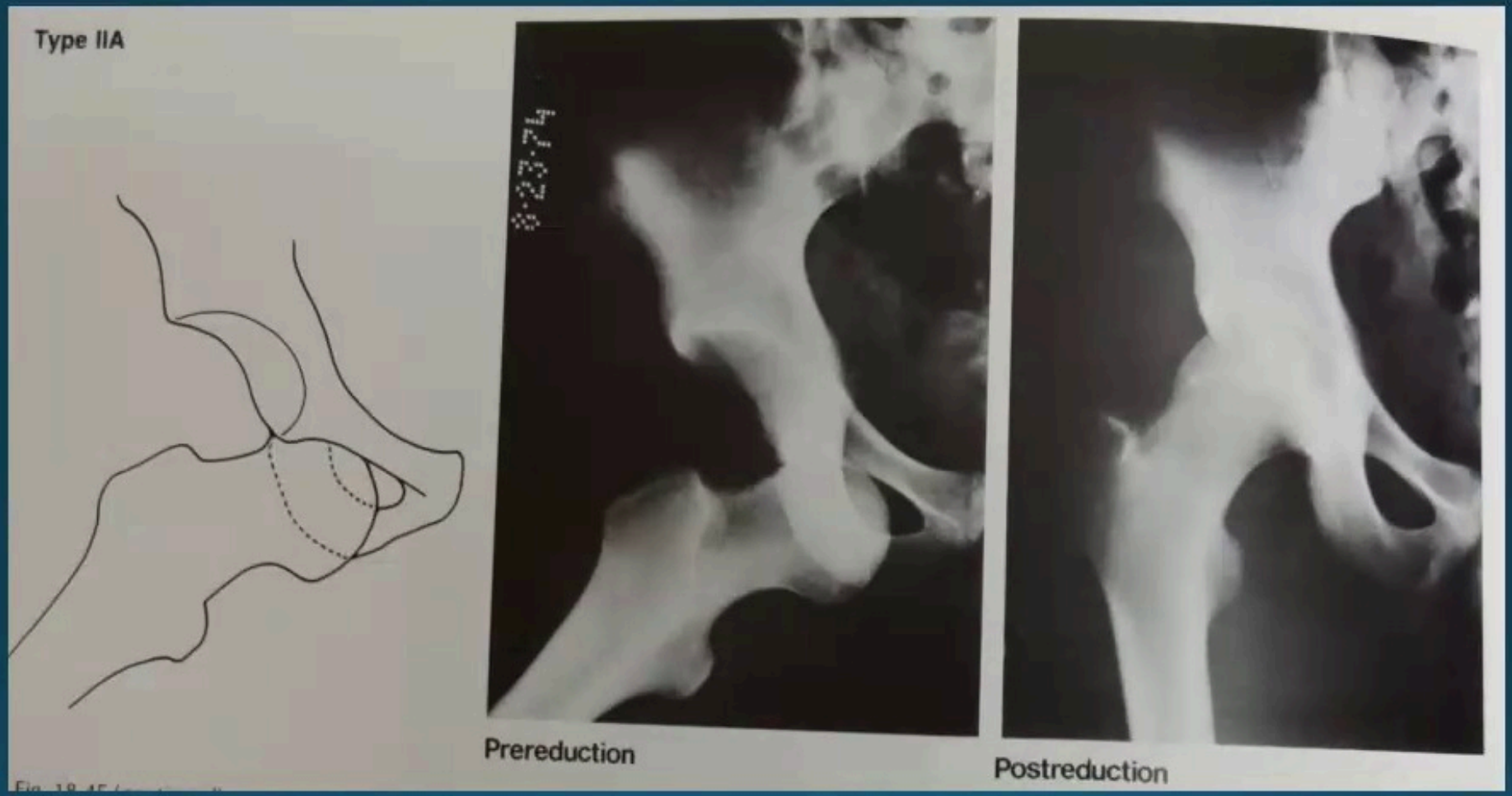
Prereduction

**Fig. 18-45.** Anterior dislocation of the hip Type I: Superior dislocations (pubic and subspinous). Type IA, simple dislocation (no associated fracture). Type IB, associated femoral head fracture (*arrow* shows transchondral fracture of the femoral head).

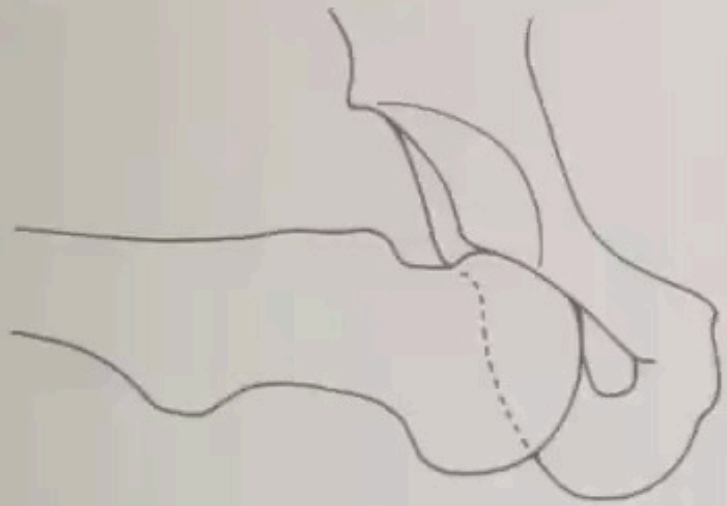
(*continued*)

Type IC

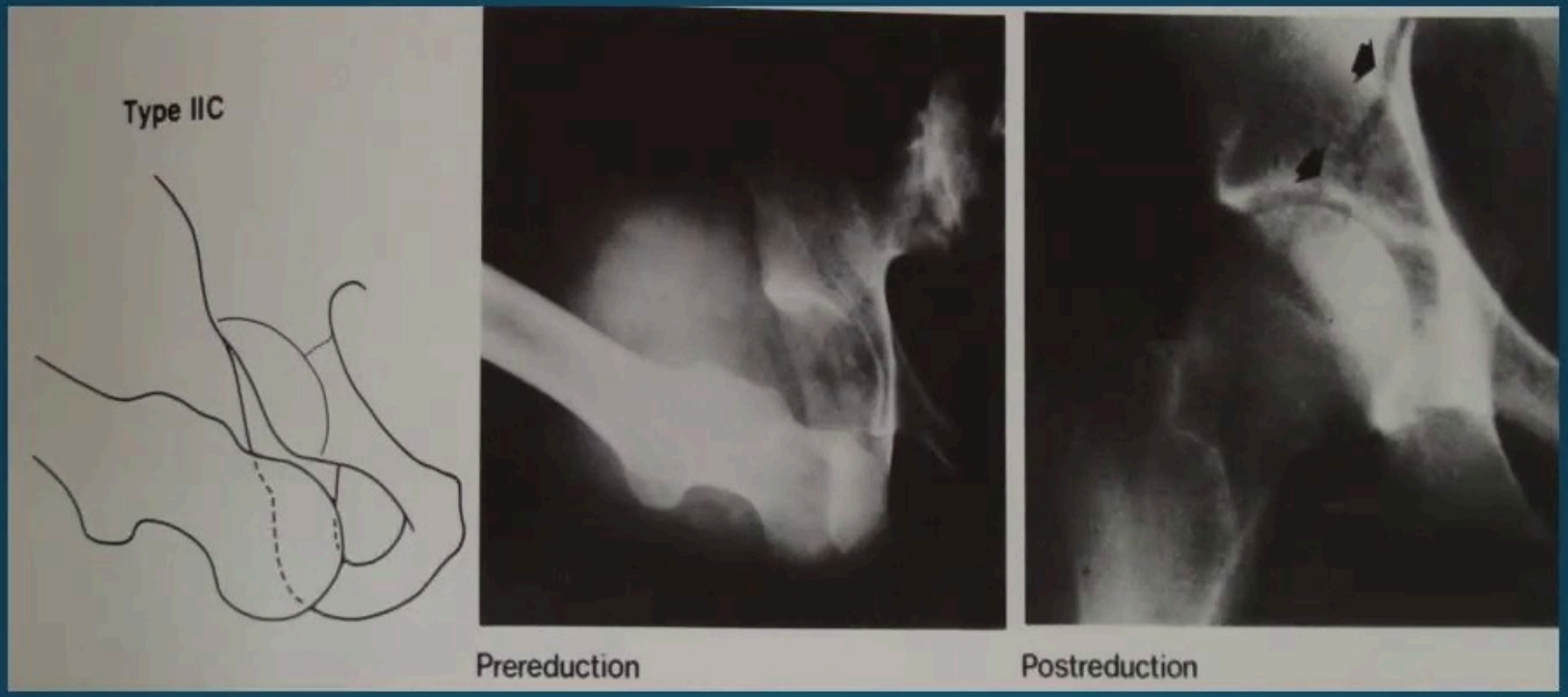



Type IIA
Prereduction
Postreduction

Type IIB

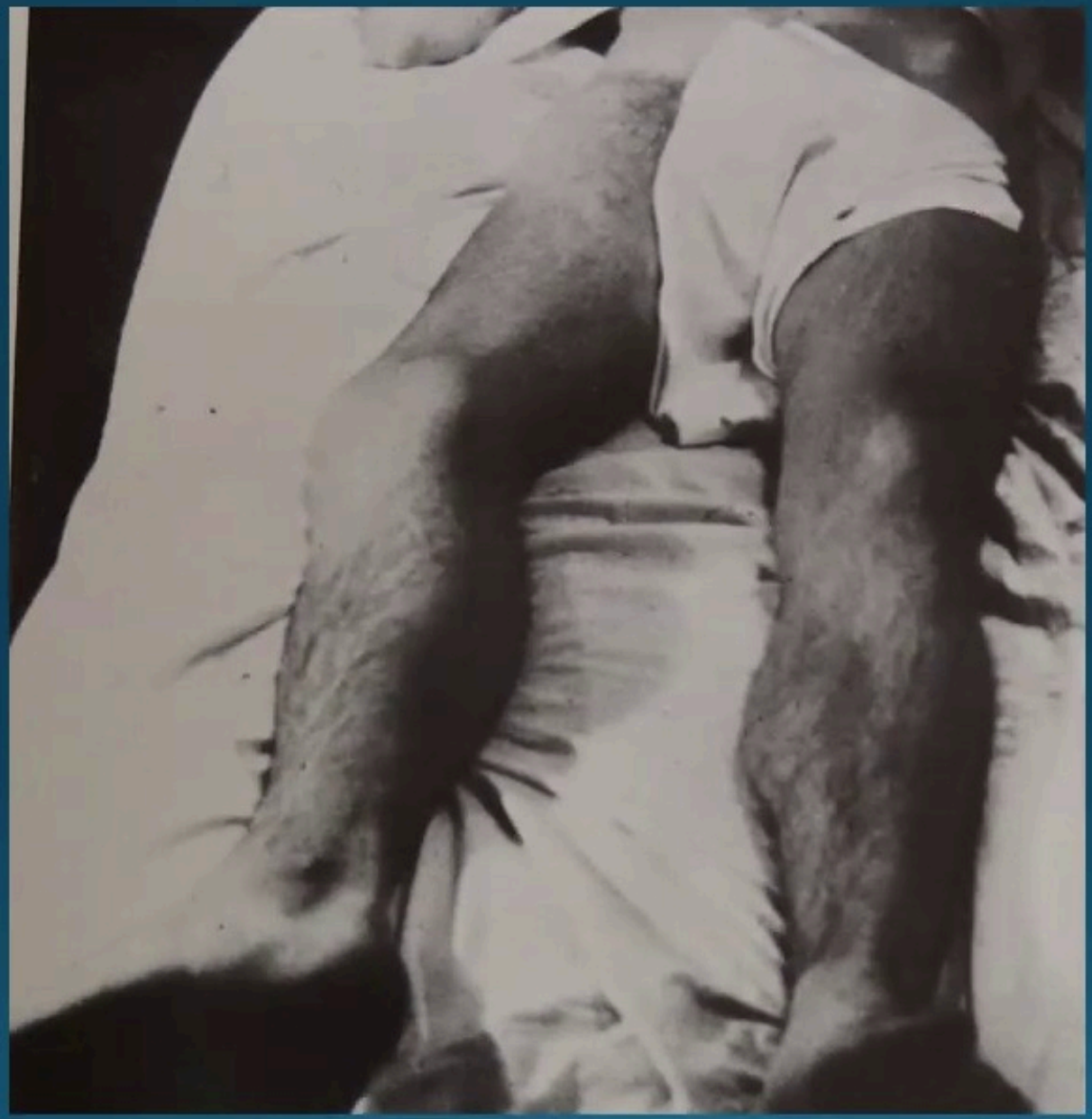


Prereduction


Type IIC
Prereduction
Postreduction

# CLINICAL FEATURES

- ABC of trauma - High energy injury
- Hip extension, external rotation - superior type
- Hip flexion, abduction, external rotation - inferior/obturator.



- Femoral head palpable - ASIS, groin, obturator foremen
- Check femoral nerve status.

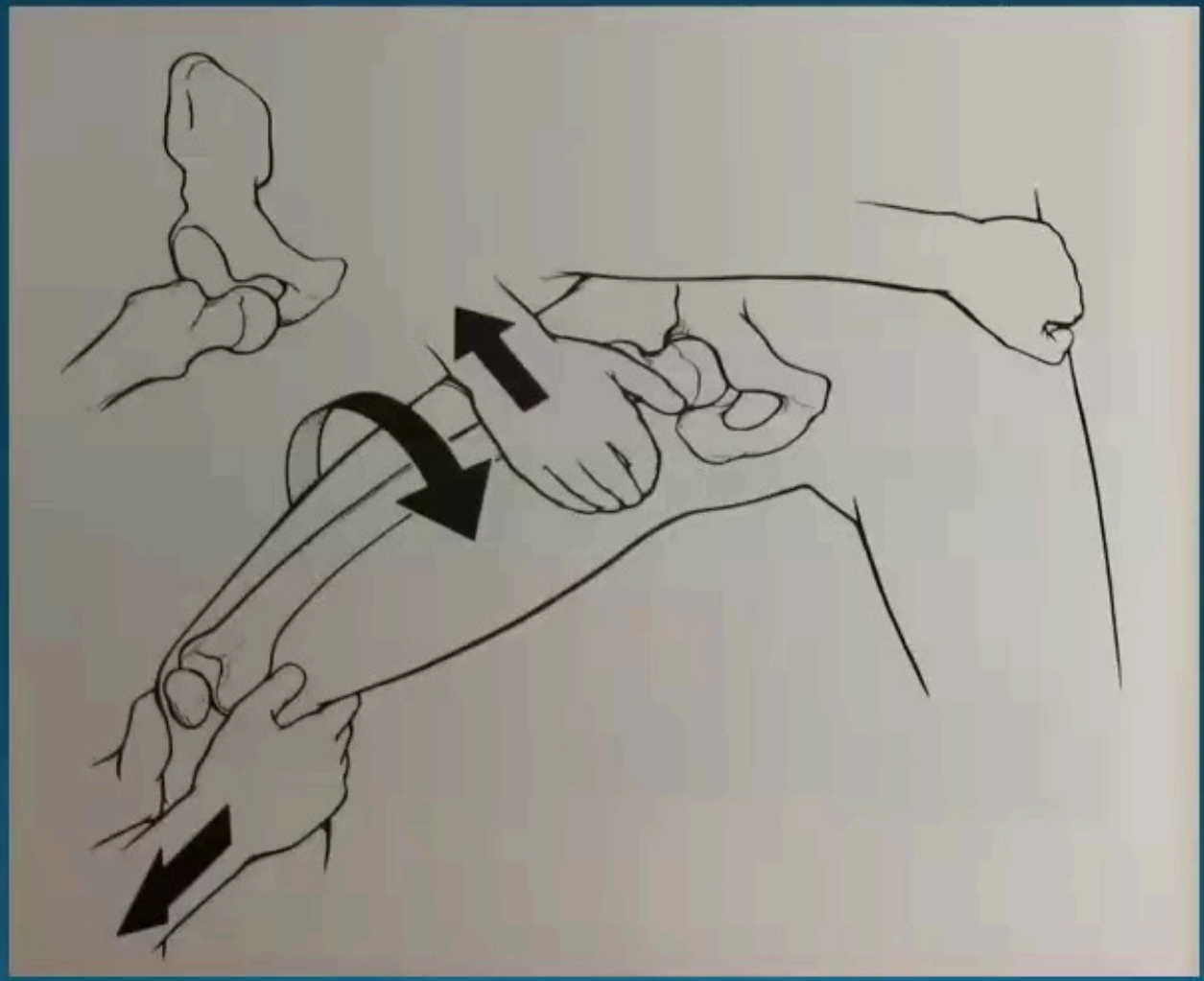
# Imaging

- Plain radiography
  - AP pelvis
  - Oblique's
- CT scan.

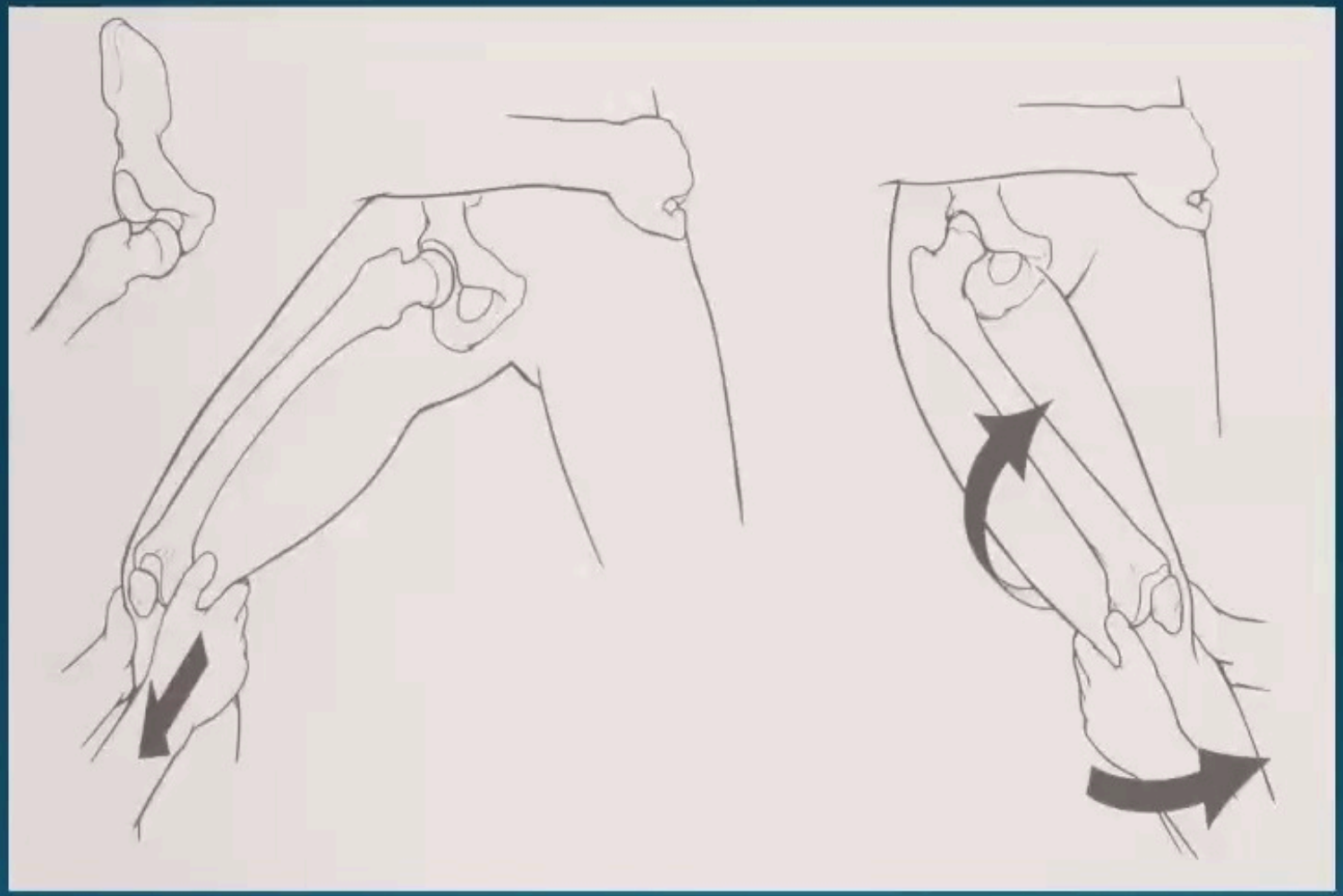
# Treatment

- Early diagnosis with prompt closed reduction under GA advocated.

- Allis' maneuver



- Reverse Biglow's maneuver.



- Post - reduction plain radiographs.
- Traction

## Surgical treatment

Failed close reduction.

Recurrent dislocation.

Early mobilization required.

## Complications

Neurovascular - injury femoral vessels & nerve.

Irreducibility

Post-traumatic O.A

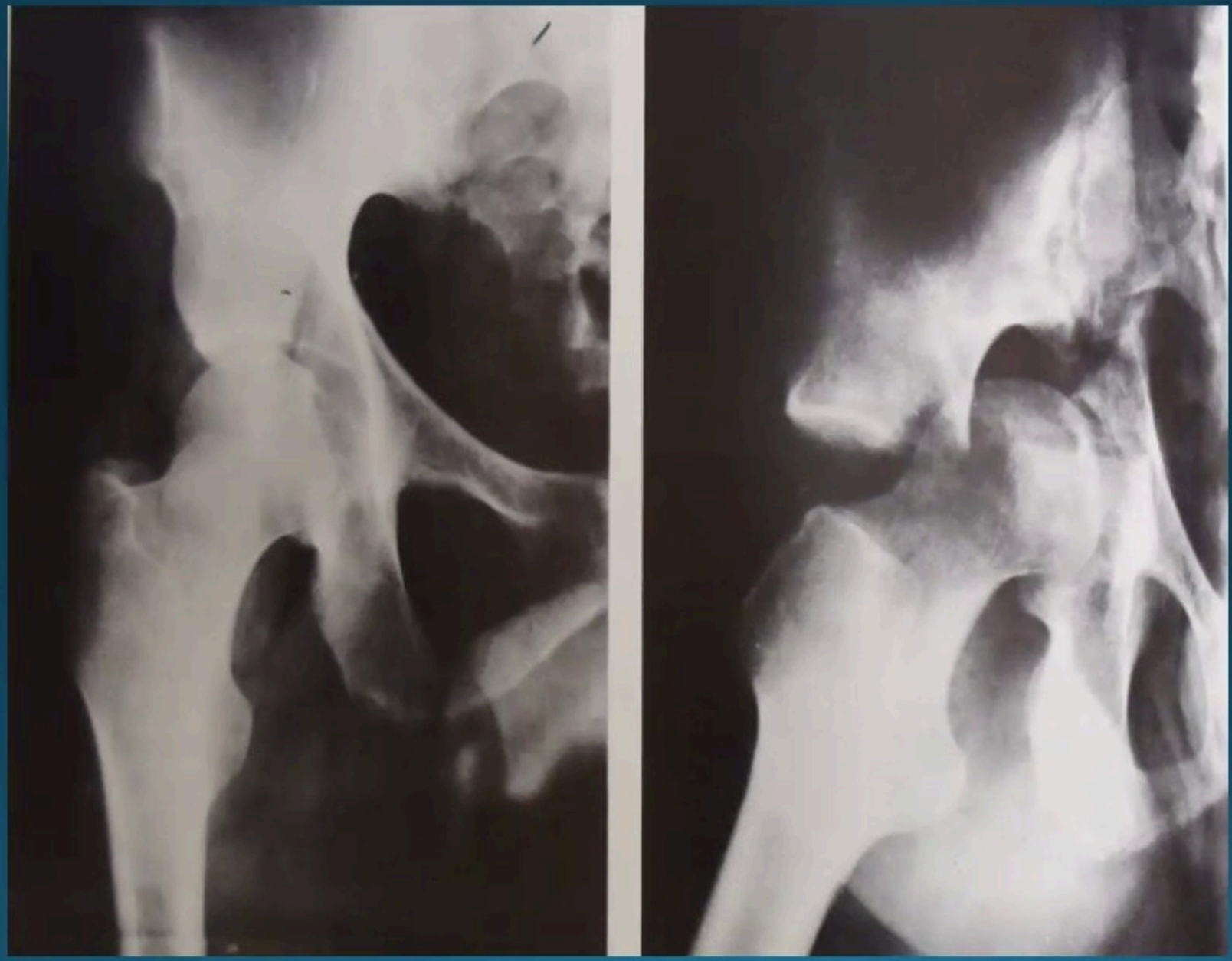
AVN

Recurrent dislocation.

# CENTRAL DISLOCATION

Mechanism

- blow to lateral aspect of the greater trochanter with the femoral head transmitting the force to the acetabulum.



## CLINICAL FEATURES

- No or slight shortening of the involved limb
- Bruising over greater trochanter
- PR - head of femur felt.

## Imaging

- **Plain radiography**

  Pelvis - AP gross disruption of femoral head – acetabular relationship

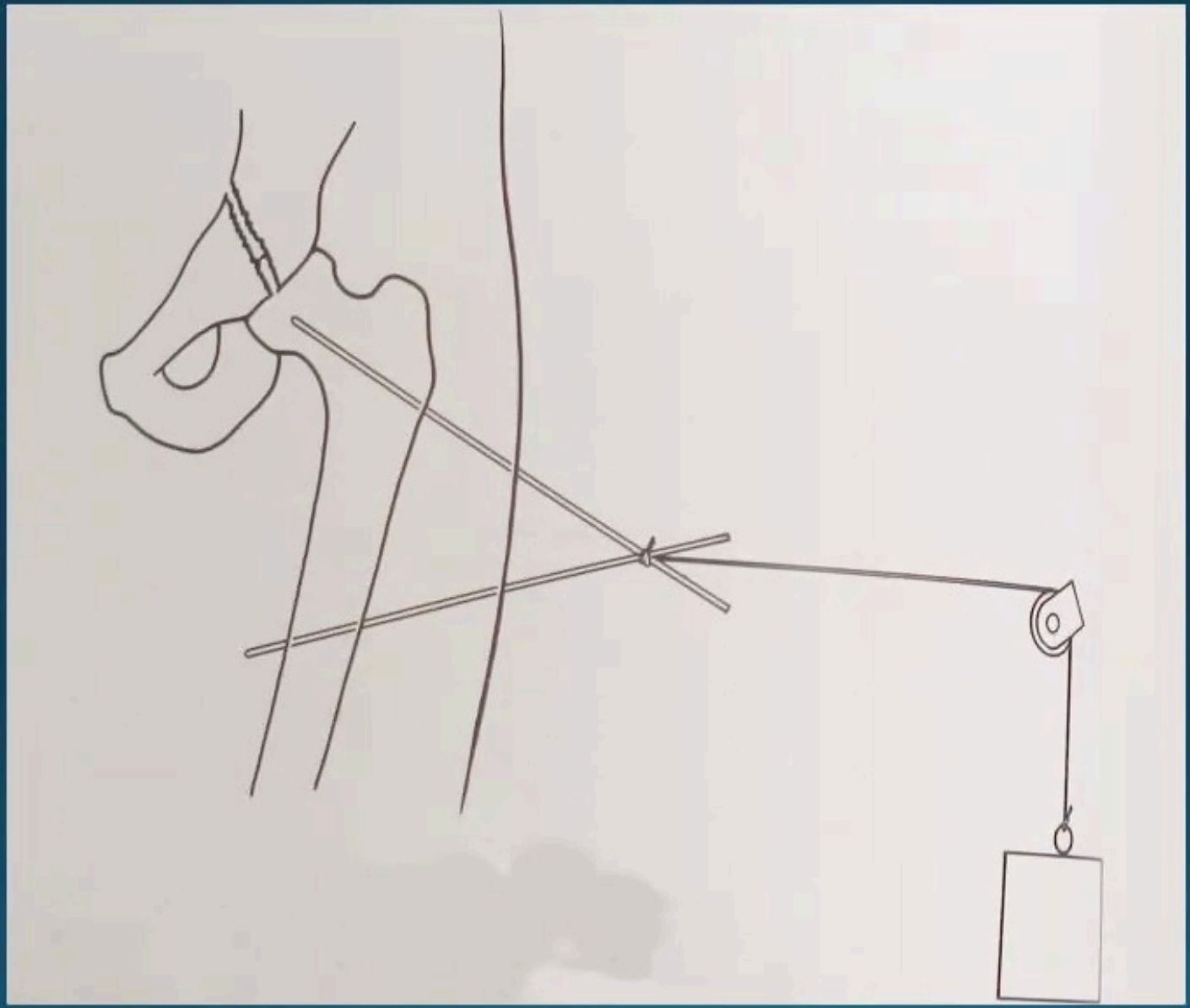
  Lateral of affected hip

  Oblique views

- **CT - scan.**

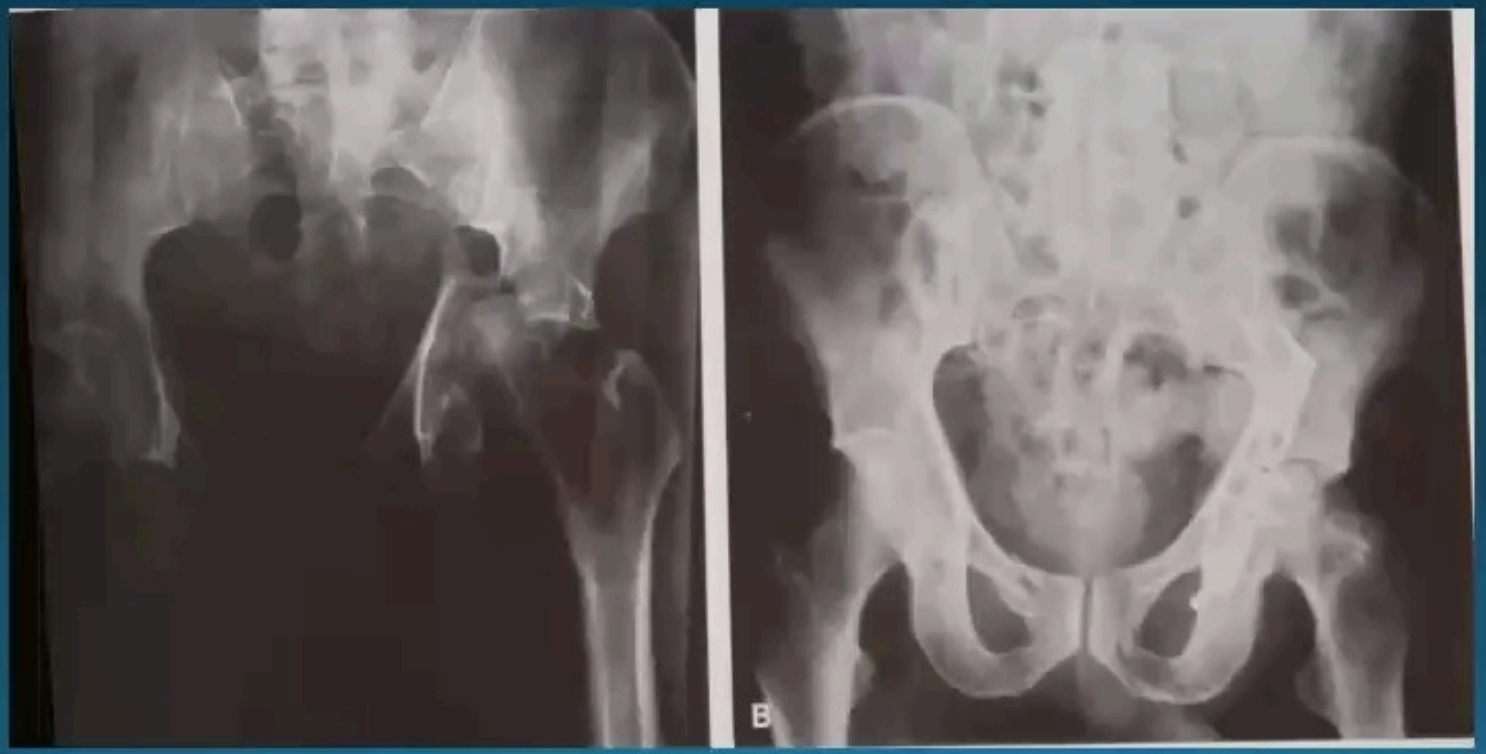
## Treatment

1. Traction with or without closed reduction of femoral head (undisplaced or displaced and reduced) - non- weight bearing for 6-8 weeks. Hip movements started early in traction.



# Surgical

## 2. Open reduction & internal fixation



3Primary arthroplasty

4 Arthrodesis.

## COMPLICATIONS

### Early

sciatic nerve paresis - in burst fractures

superior gluteal artery injury - eg in fractures communicating

with greater sciatic notch.

Bowel obstruction due to ileus.

## Late

AVN

Recurrent central dislocation

Post-traumatic osteoarthritis

Non-union

Mayositis ossificans.