Hip Dislocation Apley's

Hip dislocation
Classification
Post. hip dislocation
mechanism
Dg clinical
Rx
Trt
closed reduction
Complications
1) Sciatic n. injury
2) AVN femoral head
3) OA
4) Myositis ossificans

Hip dislocation → posterior
→ anterior
→ central f# dislocation
+/- acetabulum lip f#

Post dislocation of the hip

Fov. post lip of acetabulum f# : f# - dislocation

Mechanism of injury

Flexed hip
Force
- directed along the shaft of the femur
- moderately severe

motor accident
Dashboard injury

Dg

Clinical

Hx: severe trauma
pain
swelling
deformity
- flexion
- adduction
- internal rotation

leg shortening
Feel femoral head in gluteal region

May be unnoticed with other more obvious lesions: - femoral shaft f#
↓
order pelvis x Ray to rule out hip dislocat°

Rx

Femoral head out of acetabulum
Thigh: IR: lesser trochanter not seen
Shenton line broken

Look for: any bony chip from
- post. lip of acetabulum
- head

CT: rule out associated f#

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Feel femoral head in gluteal region
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add pelvis x Ray to rule out hip dislocat°

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Look for: any bony chip from
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Trt

Dislocated hip reduction : emergency

The longer the head stays out → ↑ risk of AVN

Reduction

Manipulation under general anesthesia

Open reduction

Closed

1- Open reduction fails (late presentation)
2- Intra-articular loose fragt
3- Acetabular fragt ↳ enlarge ↳ from weight bearing part (unstability)

Closed reduction techniques

General anesthesia
Patient supine on the floor
Assistant: grasps the pelvis firmly
Operator: hip + knee flexion 90°
axial pull

Light traction with the hip abducted for 3 weeks

Complication:

Sciatic n. injury:

By:- Posteriorly dislocated head
Acetabulum fractured fragt° if not reduced → OR + nerve exploration

Neurapraxie → spontaneous recovery

AVN changes appear on XR within 1-2 years
↑density
gradual collapse.

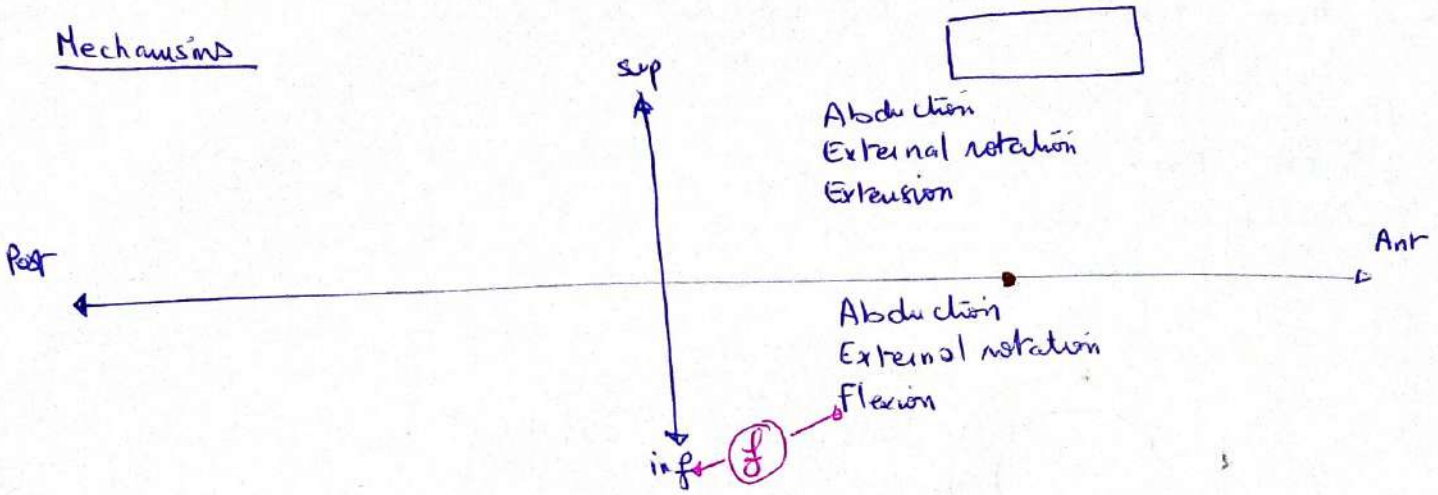
OA Avx deformed head
femo-acetabular incongruity

Hip dislocation

Motor vehicle collision
Passenger seat
Dashboard

Hip dislocation : Posterior 90% : flexed knee + axial directed force
Anterior

Mechanisms



Emergency → risk of AVN → Reduce within 6h

Nerve injury: Sciatic n. post. hip dislocation
f# - dislocat°

Before reduction → rule out femoral neck undisplaced f# : risk of displacmt

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Hand book of f#

- Epidemio ✓
- Anat ✓
- Mechanism ✓
  - Ant
  - Post
- Clinical evaluation ✓
- Rx ✓
- Classification ✓
- Trt
  - closed reduction
    - Allis method
    - Stimson Gravity
  - open reduct°
- PG ✓
- Cpc
  - AVN ✓
  - OA ✓
  - Recurrence ✓
  - Neuro Vx ✓
  - Femoral head f# ✓
  - Heterotropic ossificat° ✓
  - Thrombo embolism ✓

Hip dislocation

Epidemio

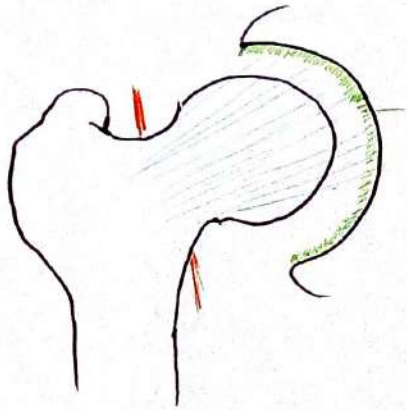
Males 16-40 y old

Motor vehicle accidents : high energy traum ⟶ 50% ⟶ concomitant fx
- unrestraint ++

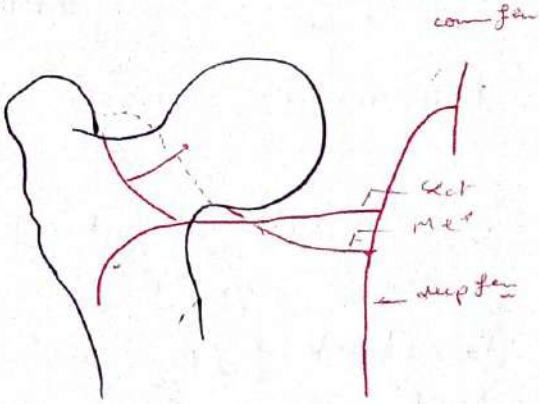
Posterior 90% Anterior 10% hip dislocation

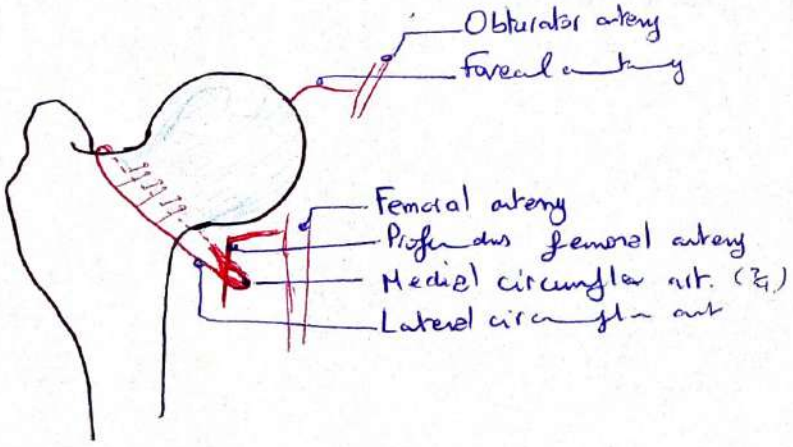
Femoral head osteonecrosis ⟶ 2-17%.
Post traum OA ⟶ 16%.
Sciatic nerve injury ⟶ 10-20%.

Anatomy



Labrum deepen the acetabulum ↑S
↑stability





Med + Lat circumflex art. ⟶ extra capsular ring ⟶ branches ⟶ Pierce the hip joint at the level of Capsular seat
base of femoral neck

Mechanism

High energy trauma: • motor vehicle accident
• fall from a height
• industrial accident

Force transmission to the hip:

Knee
- flexed : ant surface → Hip
- extended : sole of foot → Hip

Greater trochanter → Hip

Post pelvis → Hip ← Counter force ← Knee

Direct° of dislocation (Post / Ant)

depends on
- force direction
- lower extremity position at the time of injury

Hip dislocation
- Posterior (90%)
- Anterior (10%)

to Flexed knee (dashboard)

neutral / slight add / post° → without

Abd → with acetabular f# superior-post rim

Abd + Ext. Rotation

° of flexion
- flexed → inf (obturator)
- extension → sup (pubic)

Clinical

High energy injury → full trauma survey

Polytrauma / Polyf#

Cerebral
Chest
Intra abdominal
Pelvic
injuries + other MSK
- acetabular
- pelvic
- spine

f#

Hip dislocation
inability to move LE
severe discomfort

post
Abduction
Internal rotation
Flexion

Ant
Abduction
EXTERNAL ROTATION
Flexion (mild)

Neuro

Sciatic nerve: - posteriorly dislocated femoral head
- post. wall fxtn of acetabulum
→ peroneal portion

Femoral n. → ant. dislocat° rarely (05)

Vascular

Femoral artery, vein → ant dis (rarely)

Clinical

Poly f# / Polytraum
Inability to move LE
Post: ~~Add~~ Abd - IR - Flex
Ant: ~~Add~~ Abd - ER - Flex

Neuro
Sciatic (peroneal)
post dis.
post frgt acetabulum
Femoral n. (ant)

Vx
Femoral ant / ven

bony
Knee
patella
~~hip~~ femur

Radiographic evaluation

Pelvis AP
Hip cross table lateral view, 45° oblique (Judet)
CT scan -
MRI [columbrum integrity
femoral head vascularity

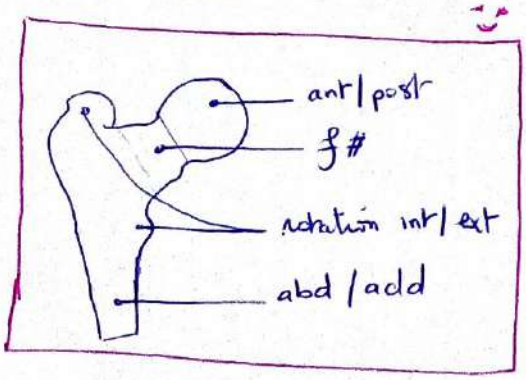
Pelvis AP

Femoral head (compare)
- Smaller → post. disloc. (closer to plate)
- greater → ant. disloc.

Relative appearance of lesser / greater trochanter.
↓
external / internal rotation

Femoral shaft
- Abd
- Add

Femoral neck - f #



Shenton line: smooth and continuous

Hip cross table lat. view

Post / Ant

45° Oblique (Judet) views
osteochondral frgt
acetabulum → integrity
Congruence of joint space.

CT scan

Open reduction
- Sucess → CT (may)
- fail → CT
  intra-art. frgt
  femoral head + acetabular fx

Trt

Hip dislocation reduction is an emergency: risk of osteonecrosis of femoral head

Delayed reduction → worse prognosis

Associated femoral head / acetabulum f# can be treated in the subacute phase

Closed reduction

General anesthesia
Conscious sedation

Allis method
Stimson Gravity
Bigelow → Reverse B.

Open reduction

Indication:
- irreductible dislocation with closed means
- non concentric reduction
- F# of: acetabulum, femoral head, femoral neck } → using or ORIF

PG

Outcome: normal hip ——→ severely painful + degenerated hip

Outcome
- good → simple dislocation without associated fractures
- worse → fracture-dislocation : f# dictate the outcome

Complications

F# femoral head / acetabulum
Post traum OA
AVN
Nerv : Sciatic
Va : femoral : ant. D

Recurrent dislocation
Heterotopic ossification
Thrombo embolisme

Femoral head f# → Post. D → Shearing
→ Ant. D → indentation

Post traum OA: most common long term cpc. ↑↑↑ incidence with acetabular / femoral head

AVN: time until reduction ↑ → risk of AVN ↑ (6-24h)
repeated reduction attempts → Risk

Neuro. Sciatic n.
- post. dislocated head → stretching
- displaced f# frgt → injury
- EMG: 3-4 weeks later
- Within 1 year → no clinical + electrical improvement → surgery

Closed reduct° → sciatic n. injury → n. entrapment → Surgical exploration

Recurrent dislocat°

Anteversion ↙ → post.
↗ → ant.

Recurrent D

Heterotopic ossification.

Initial muscular damage + hematoma

Surgery : ↑ with

Prophylaxis indomethacin for 6 weeks
radiation use

Thromboembolism