ACETABULAR FRACTURE

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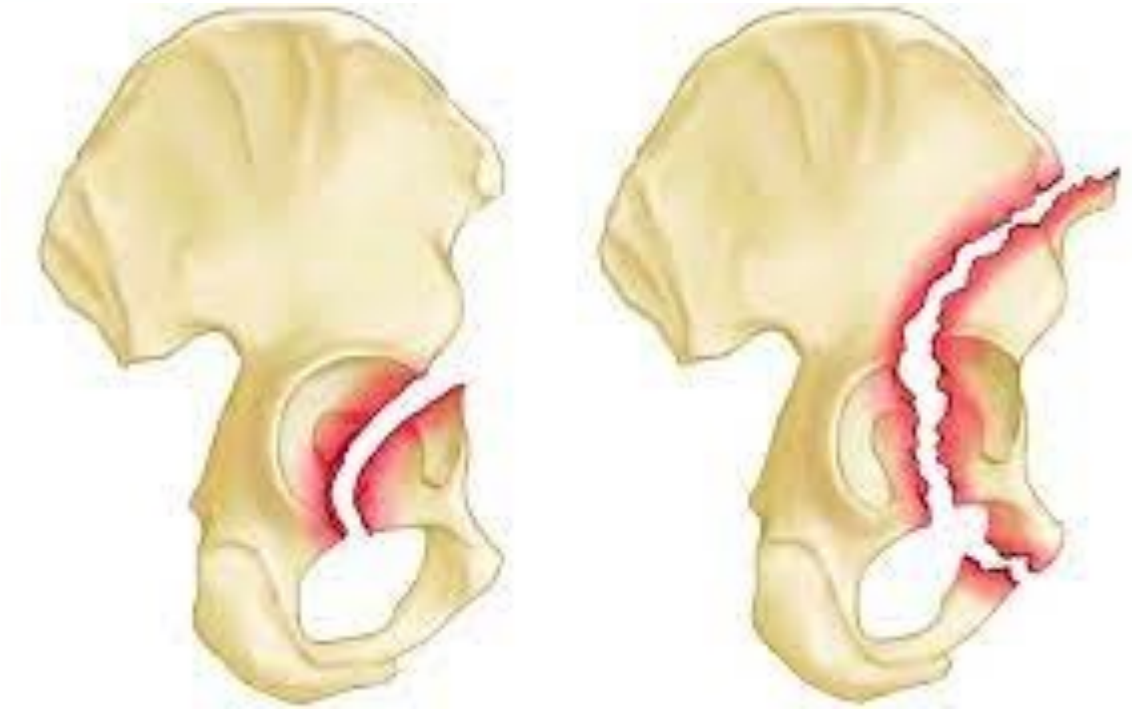
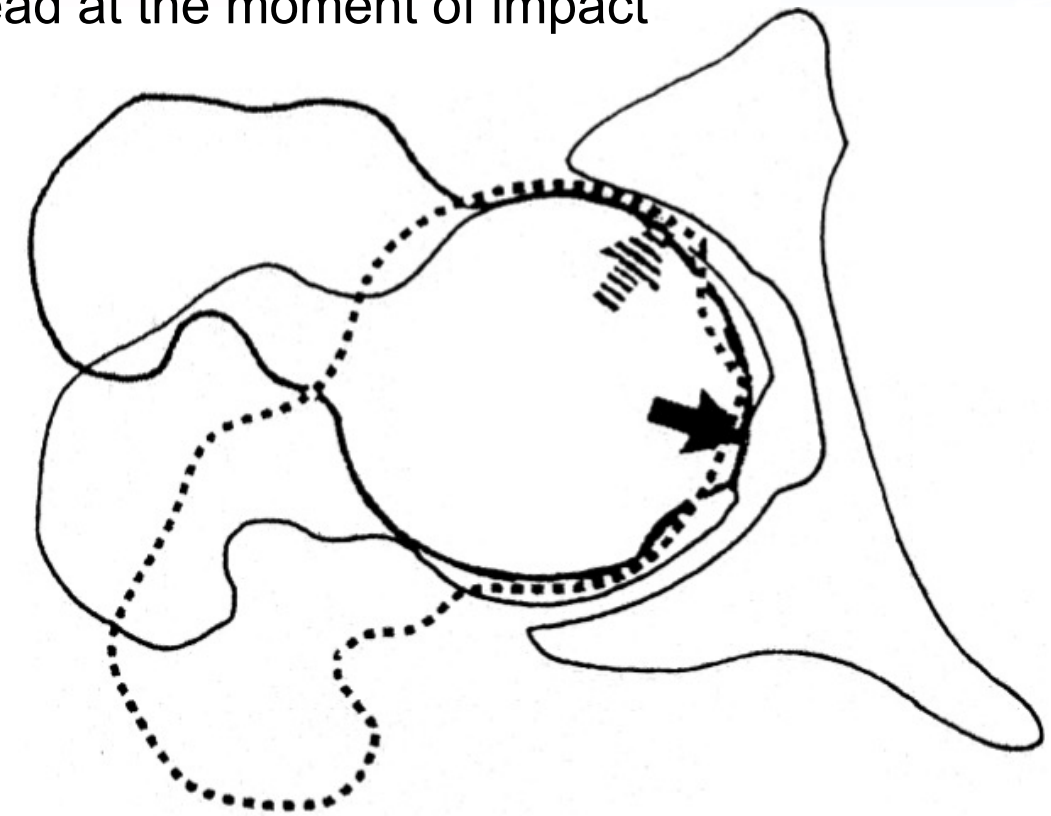
INTRODUCTION

- Generally caused by high energy trauma
- • Such high energy injuries usually have a high incidence of major associated injuries
- • The fracture or fracture dislocation produced depends on the magnitude and the direction of the injuring force as well as on the strength of the bone.



PATHOANATOMY

Fractures depend on the position of the femoral head at the moment of impact

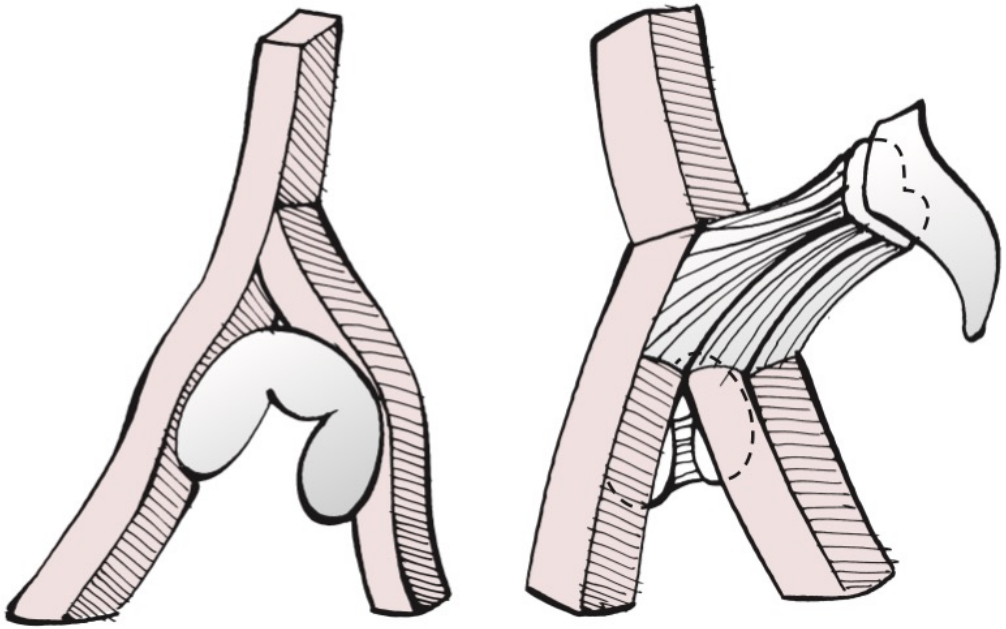


Fracture location	Position of femoral head
Posterior column #	IR
Anterior column #	ER
Superior dome #	Adduction
Inferior aspect of the dome #	Abduction

Rockwood and Green's Fractures in Adults 8e

ANATOMY

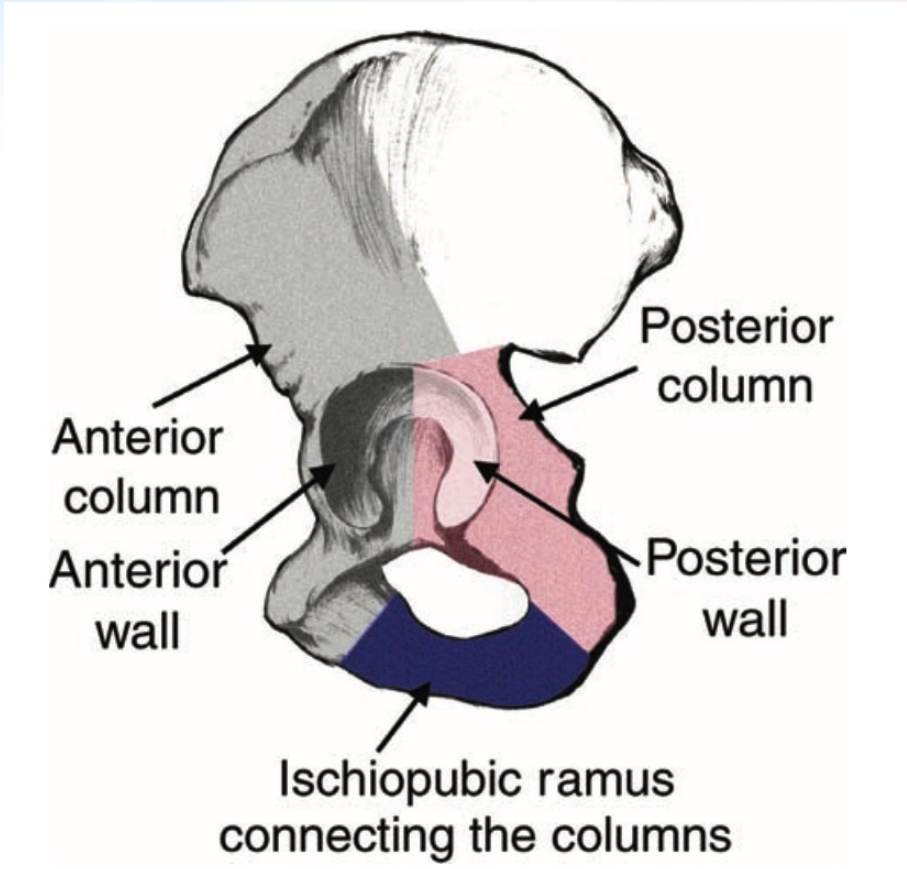
- Incomplete hemispherical socket with an
  - inverted horse-shoe shaped **articular surface**
  - non articulating **cotyloid fossa**.
- The articular surface is composed of and supported by two columns of bone (described by Letournel and Judet) as an **inverted 'Y'**



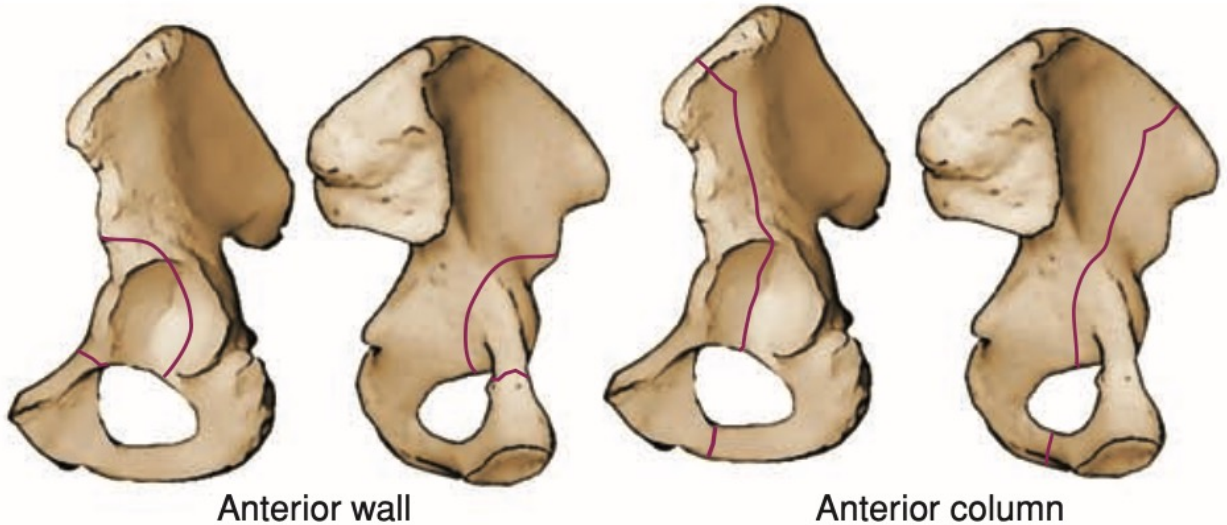
Rockwood and Green's Fractures in Adults 8e

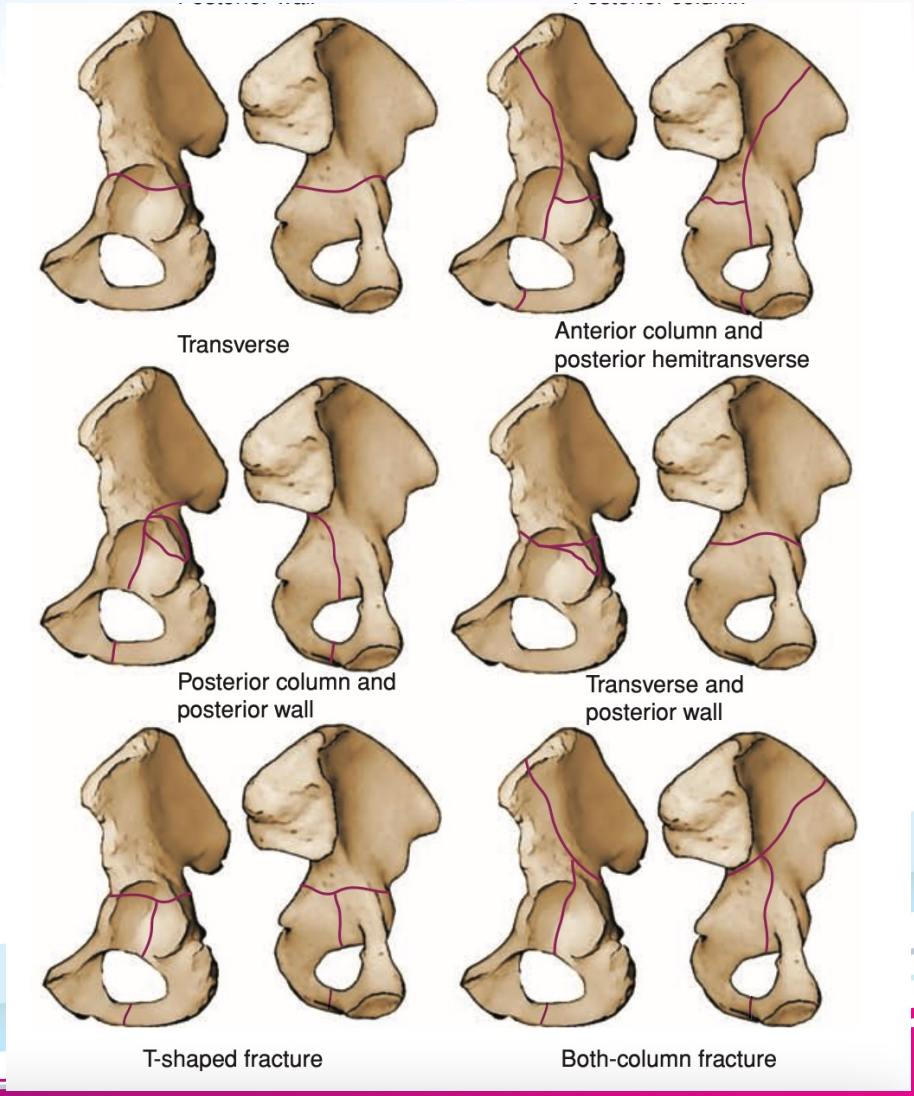
ANATOMY

- Used in the classification of the fractures
- The anterior column
  - Iliac crest, iliac spines, the anterior half of the acetabulum and the pubis.
- The posterior column
  - Ischium, ischial spine, posterior half of the acetabulum and the dense bone forming the sciatic notch
- The shorter posterior column ends at its intersection with the anterior column at the top of the sciatic notch



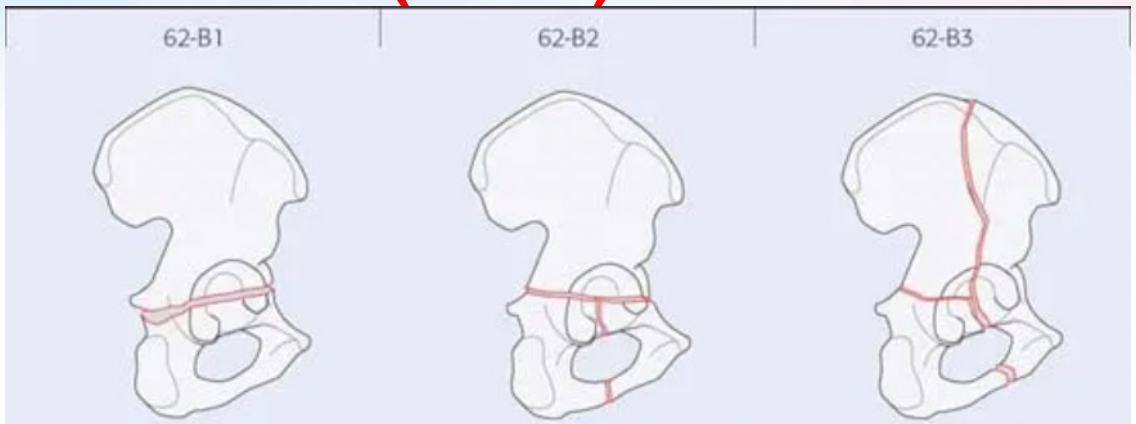
CLASSIFICATION (LETOURNEL AND JUDET)



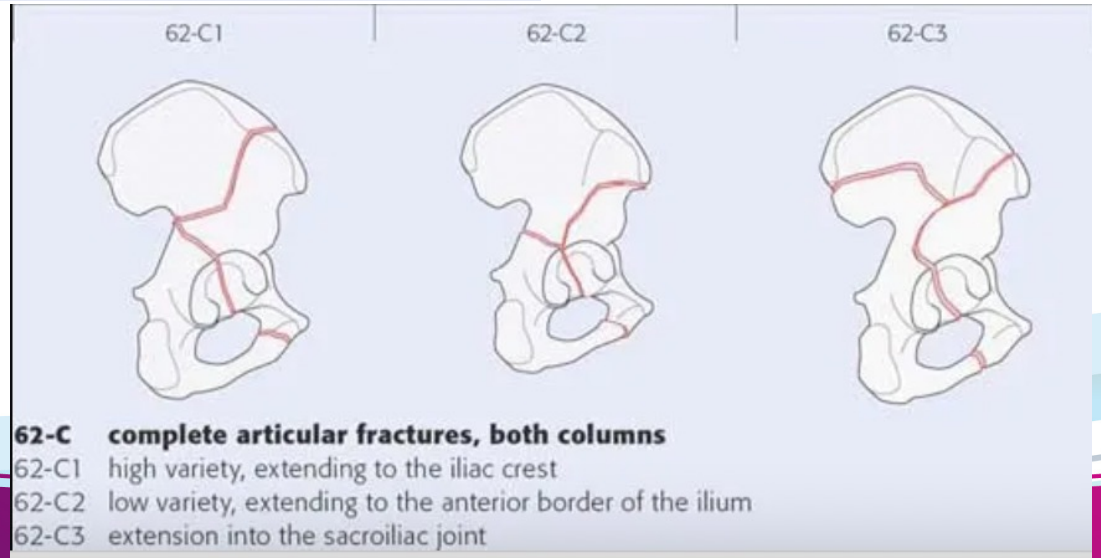


CLASSIFICATION (AO)

62-A partial articular, involving only one of the two columns
62-A1 posterior wall fracture
62-A2 posterior column fracture
62-A3 anterior wall or column fracture



62-B partial articular, involving a transverse component
62-B1 pure transverse fractures
62-B2 T-shaped fractures
62-B3 anterior column and posterior hemitransverse

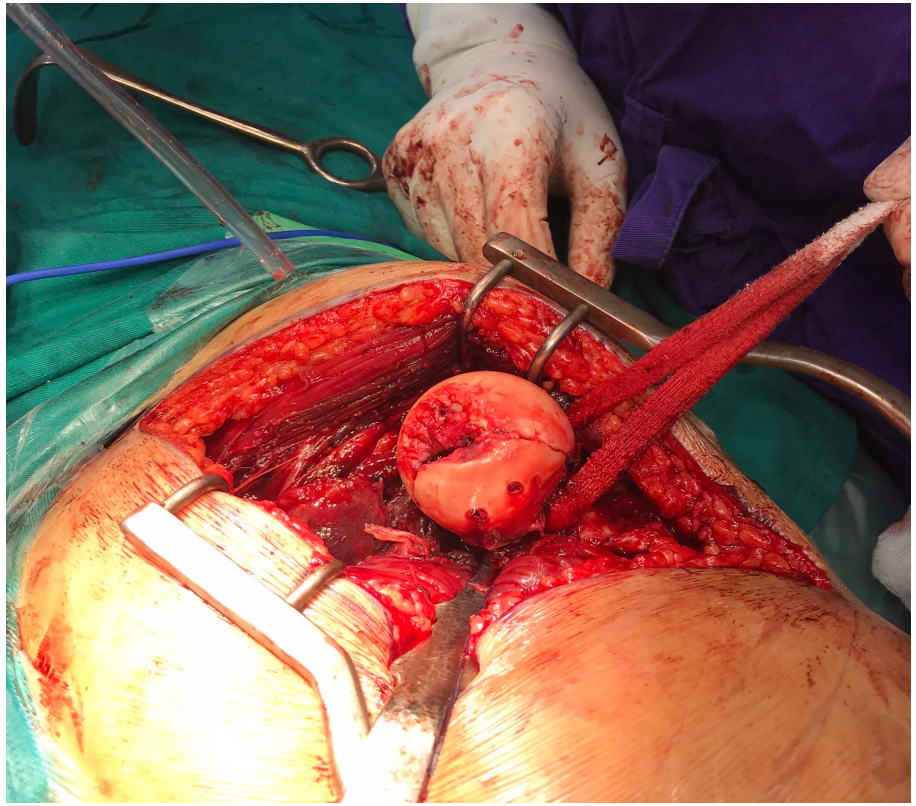


62-C complete articular fractures, both columns
62-C1 high variety, extending to the iliac crest
62-C2 low variety, extending to the anterior border of the ilium
62-C3 extension into the sacroiliac joint

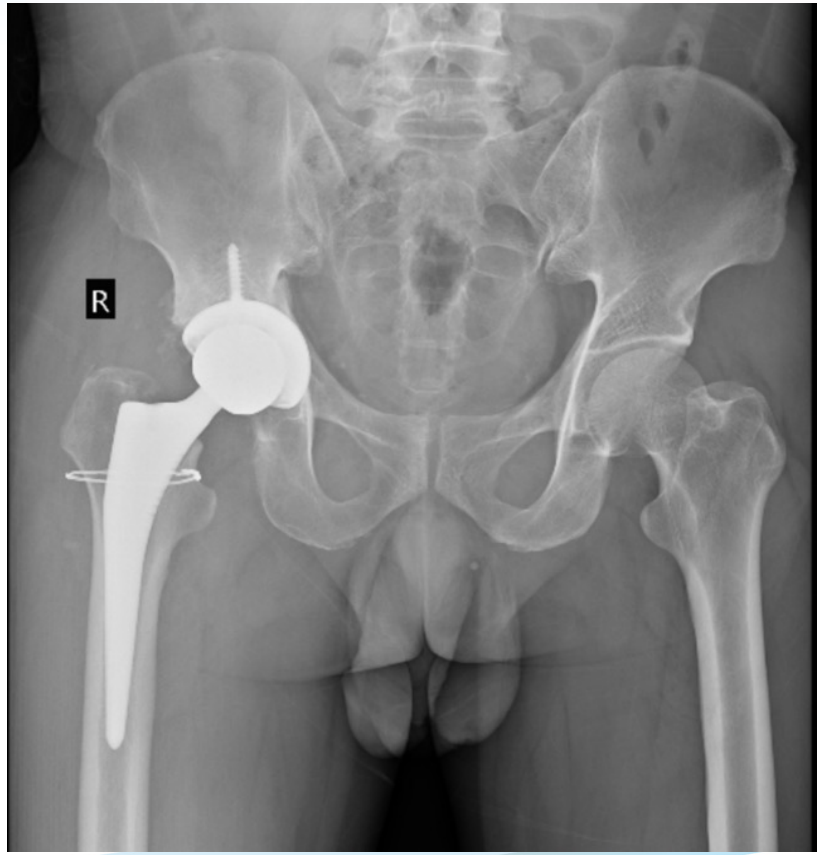
CASE PRESENTATION

- Male, 47 y/o
- No significant past medical and surgical history in past
- Traffic accidents
- XQ: Pipkin fracture type IV – Transverse / Posterior Wall

CASE PRESENTATION

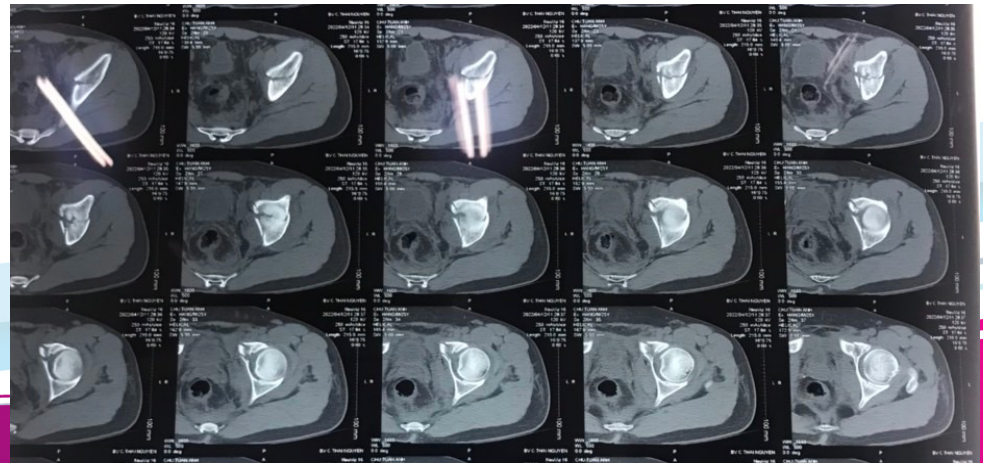


CASE PRESENTATION

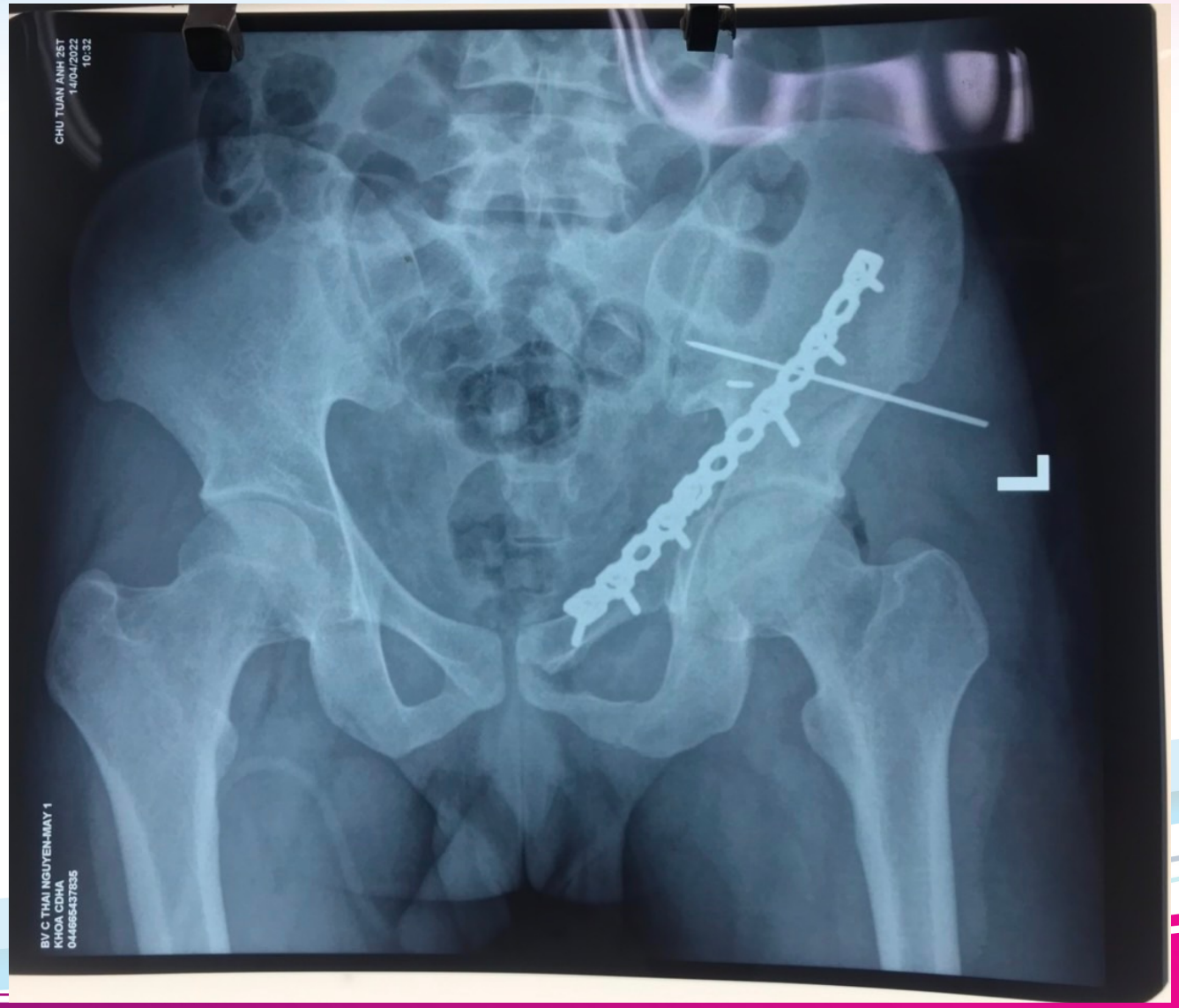


CASE PRESENTATION

- Male, 25 y/o
- No significant past medical and surgical history in past
- Traffic accidents
- XQ + CT: Anterior column

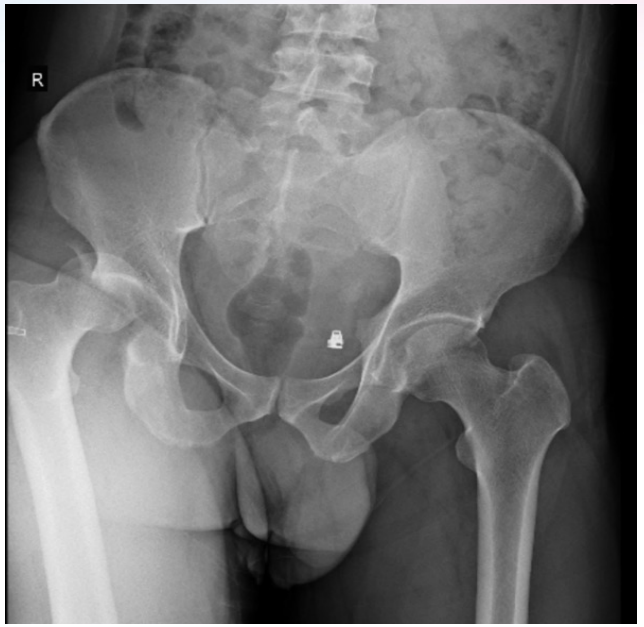


CASE PRESENTATION

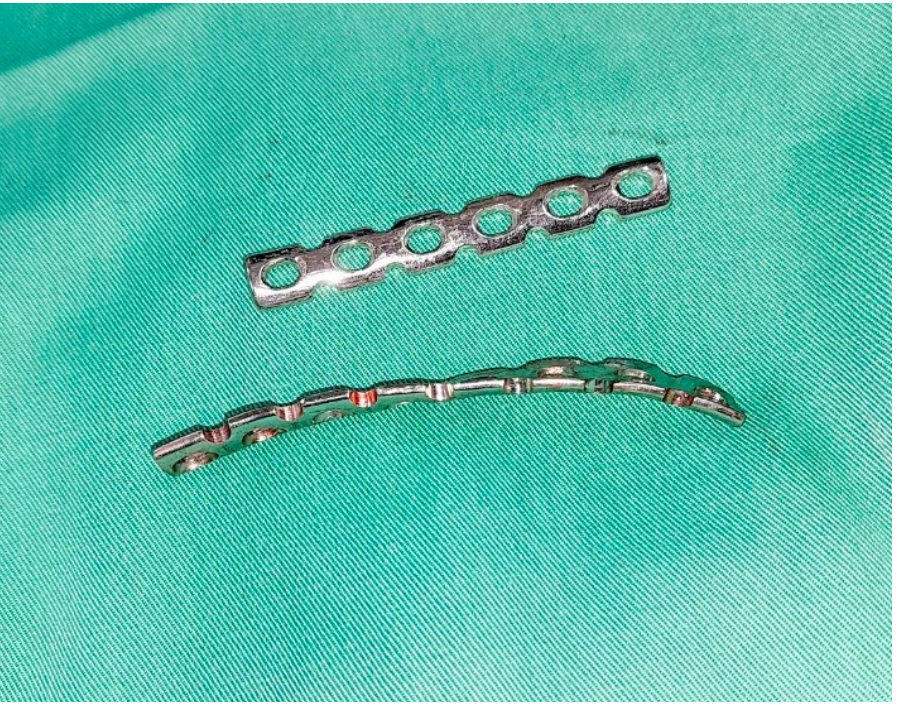


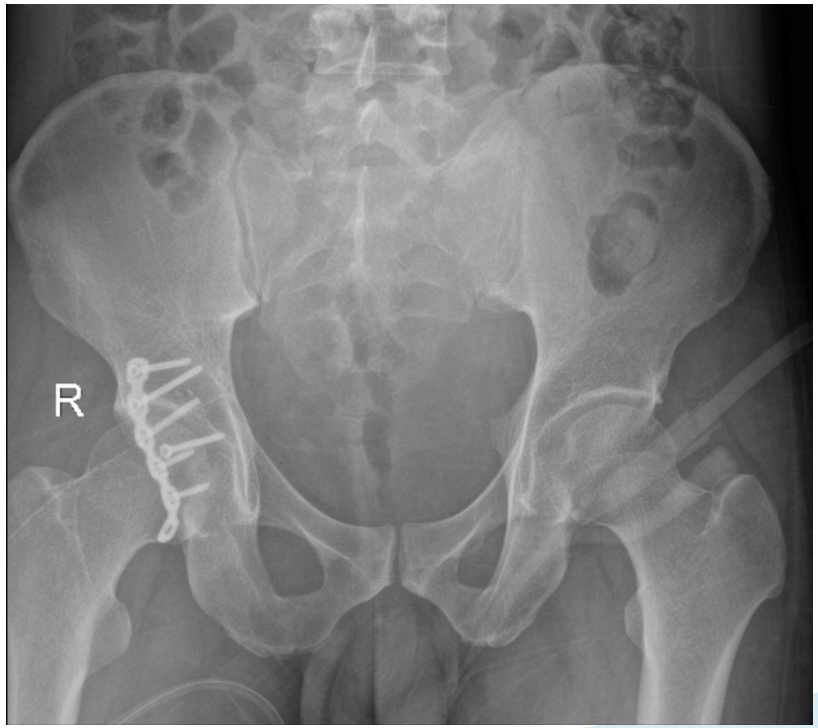
CASE PRESENTATION

- Male, 32 y/o
- No significant past medical and surgical history in past
- Fall ~ 4m
- XQ + CT: Posterior Wall - Hip Dislocation

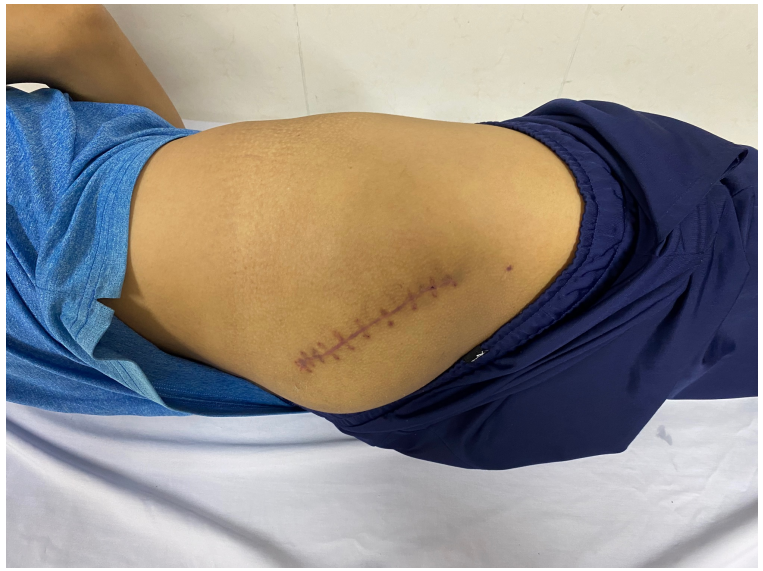


CASE PRESENTATION

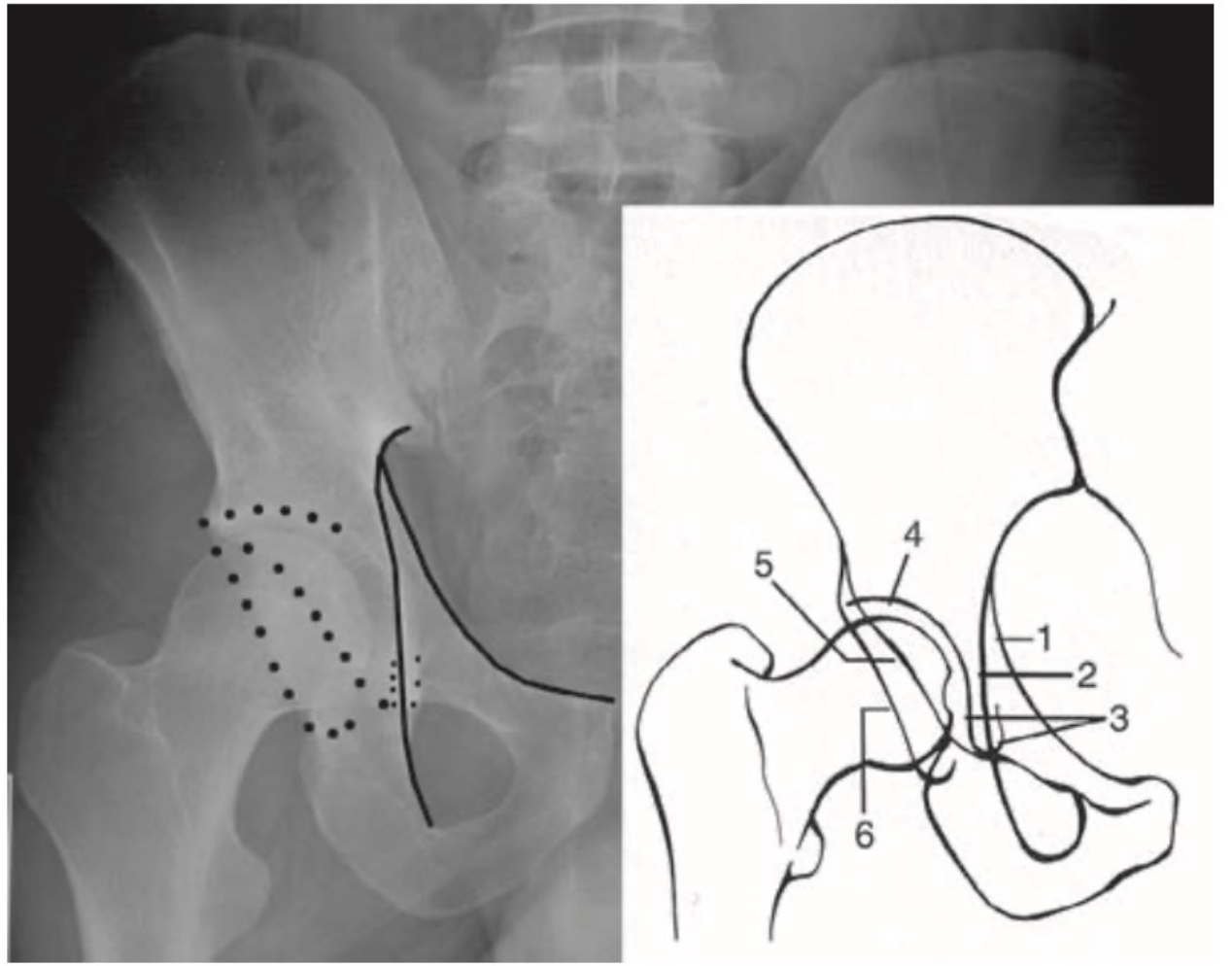




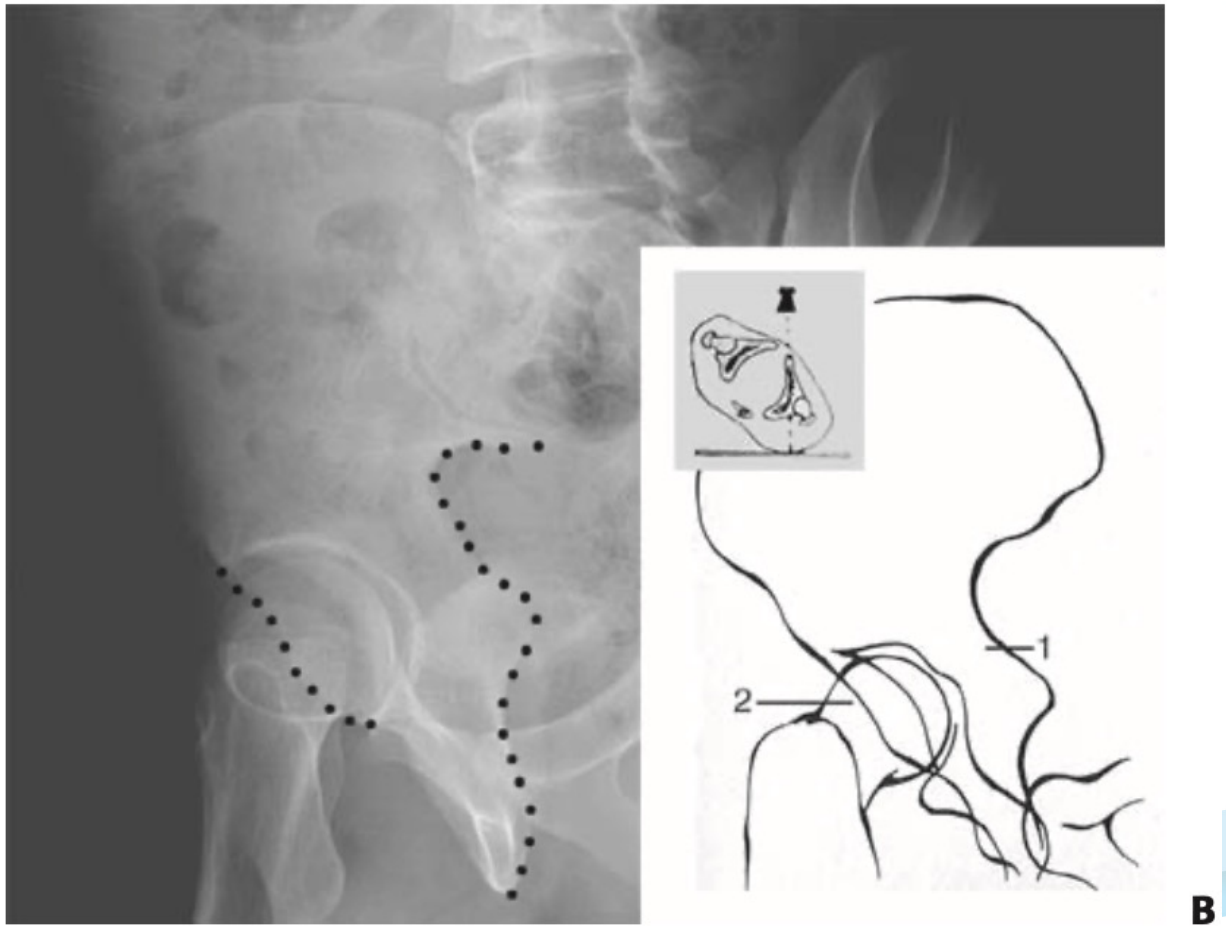
CASE PRESENTATION



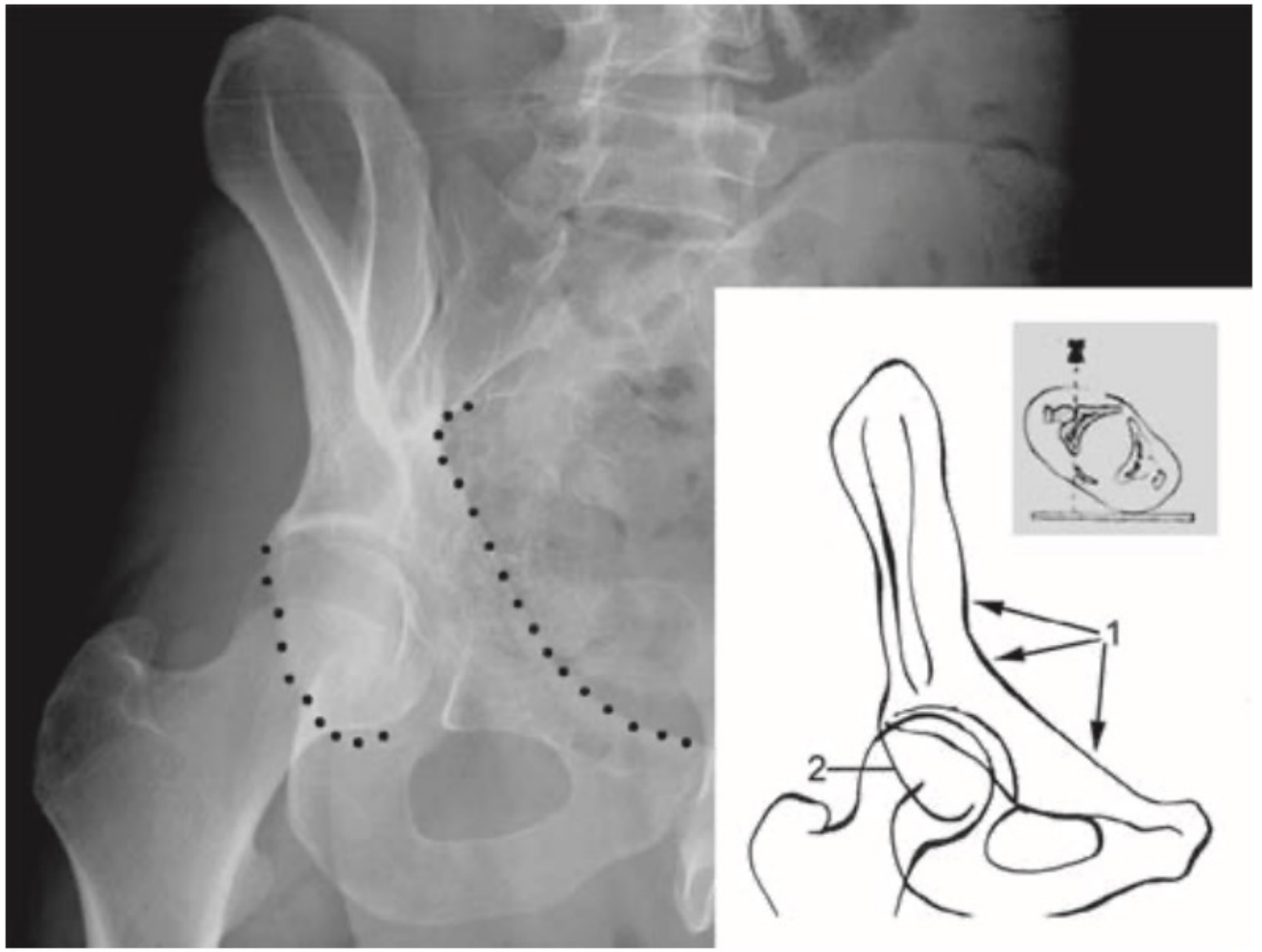
ANTEROPOSTERIOR (AP) RADIOGRAPH OF THE PELVIS



ILIAC OBLIQUE RADIOGRAPH

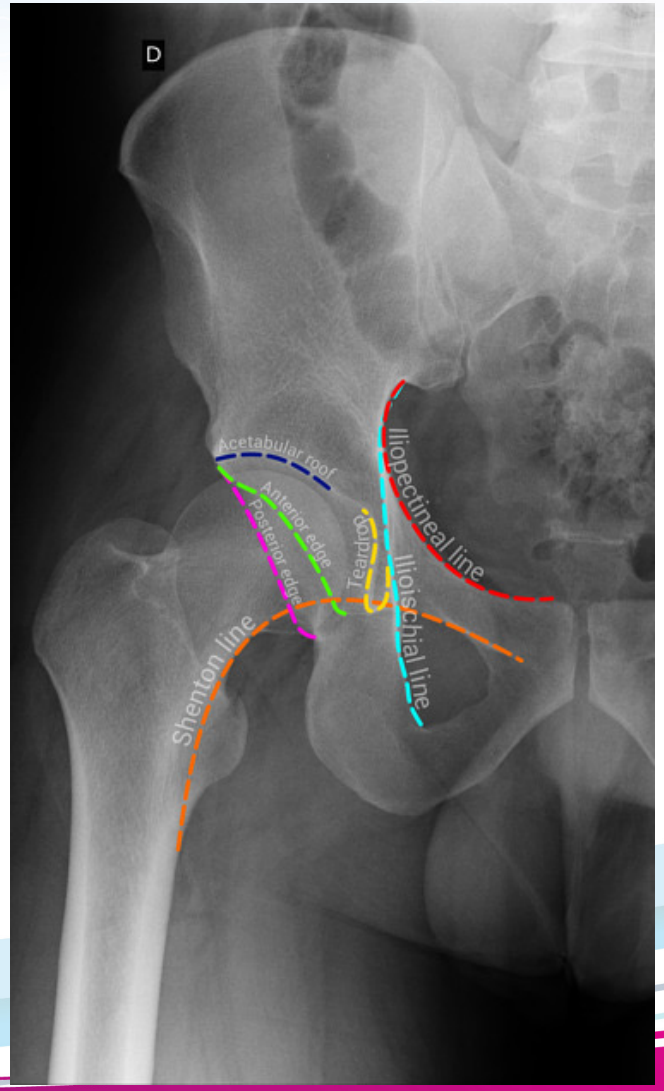


OBTURATOR OBLIQUE RADIOGRAPH

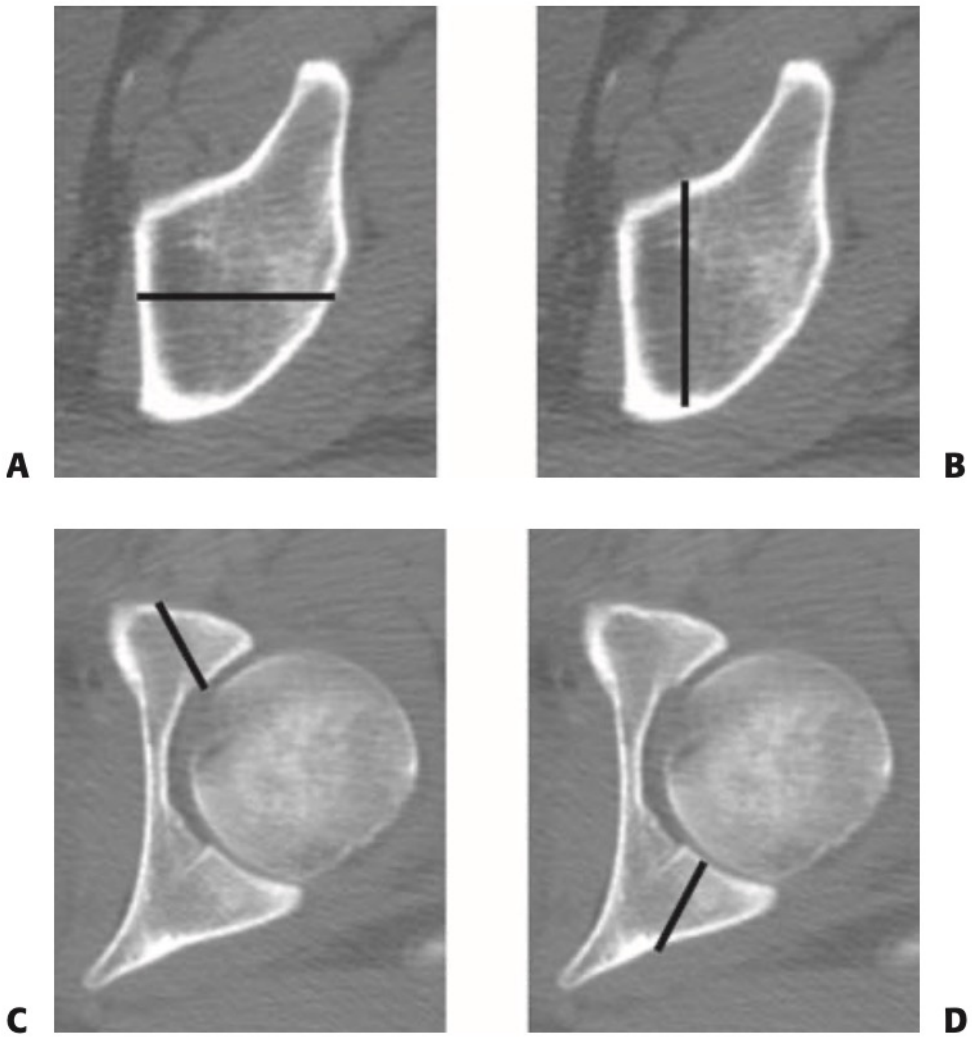


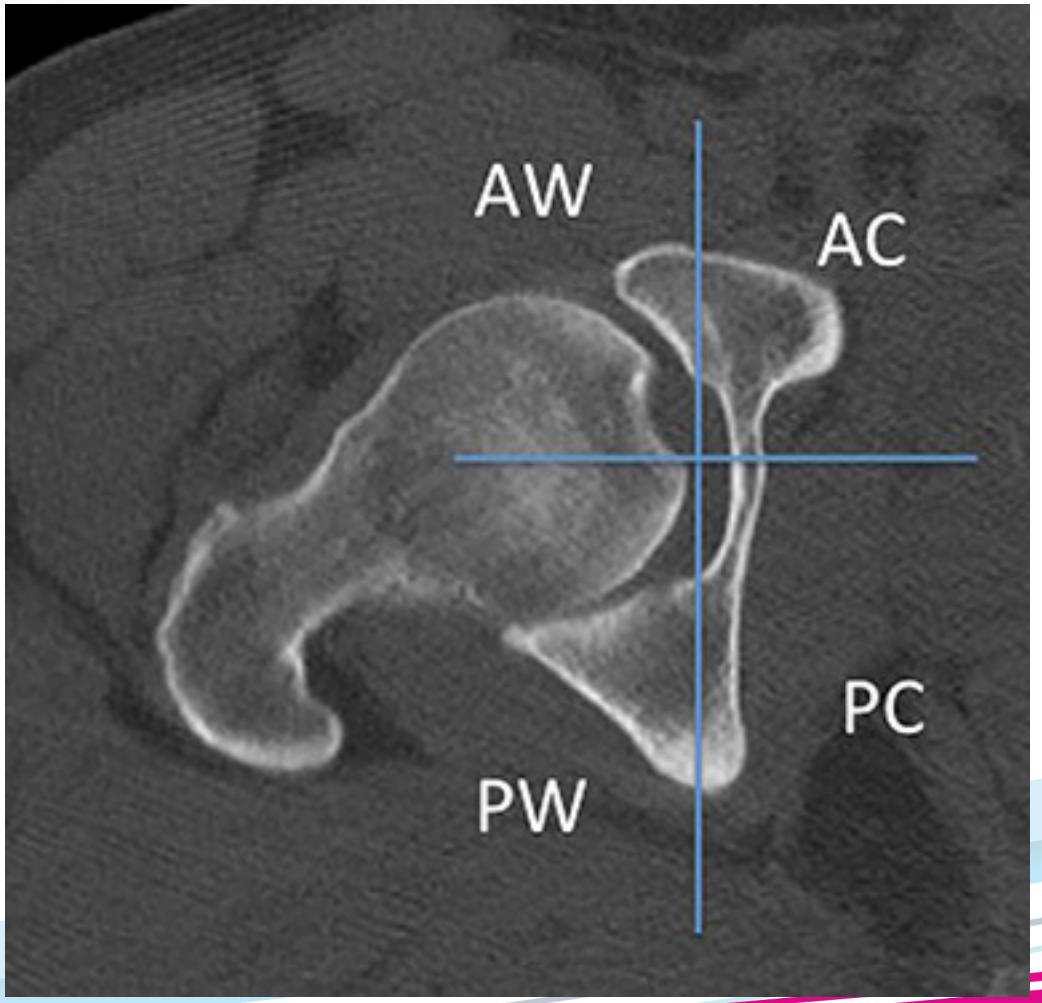
RADIOGRAPHIC EVALUATION

- Requires
  - CT scan
  - 3 plain radiographic views
    - Antero-posterior view of the hip
    - 45° iliac oblique view
    - 45° obturator oblique view

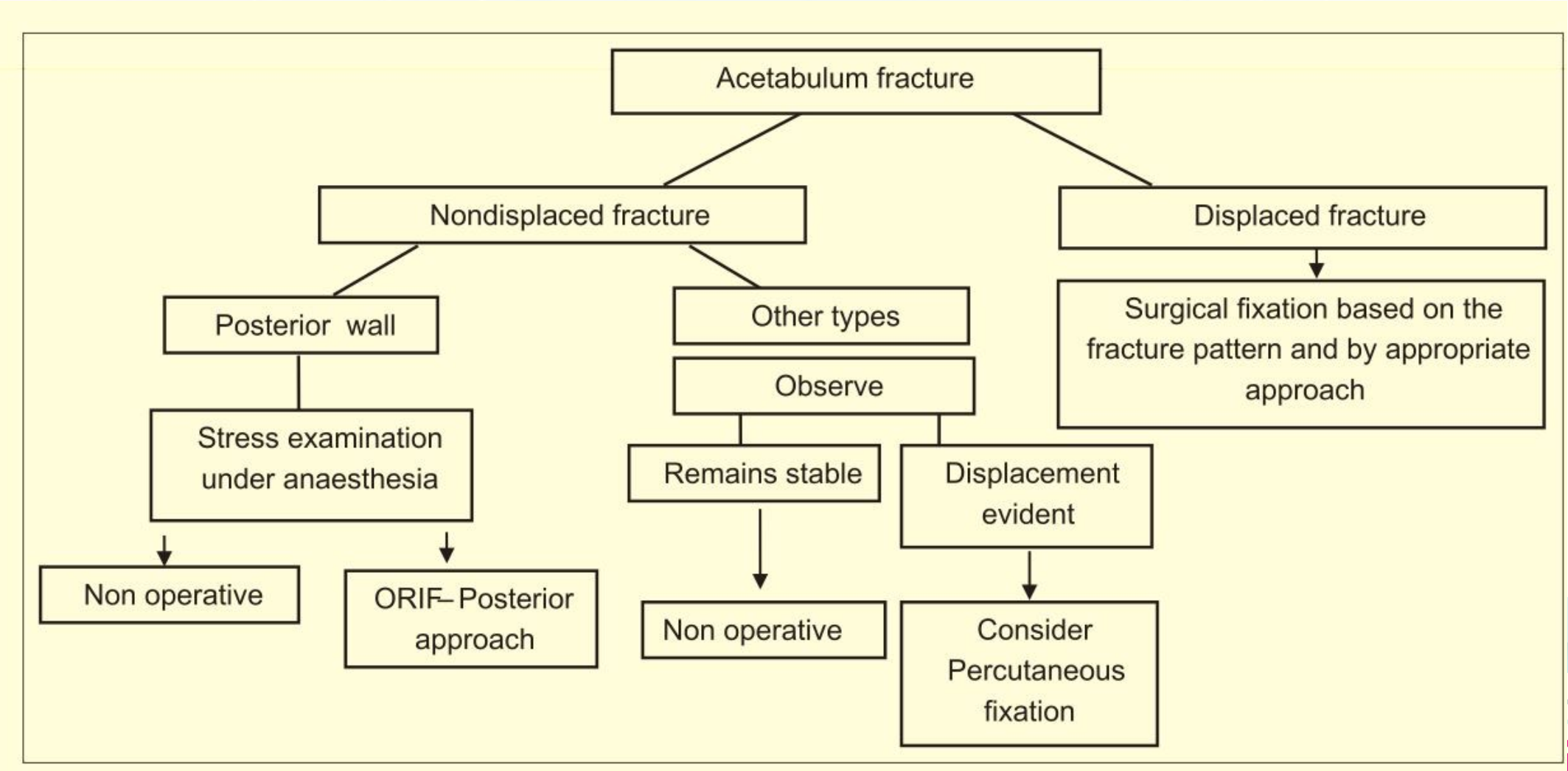


CT-SCAN





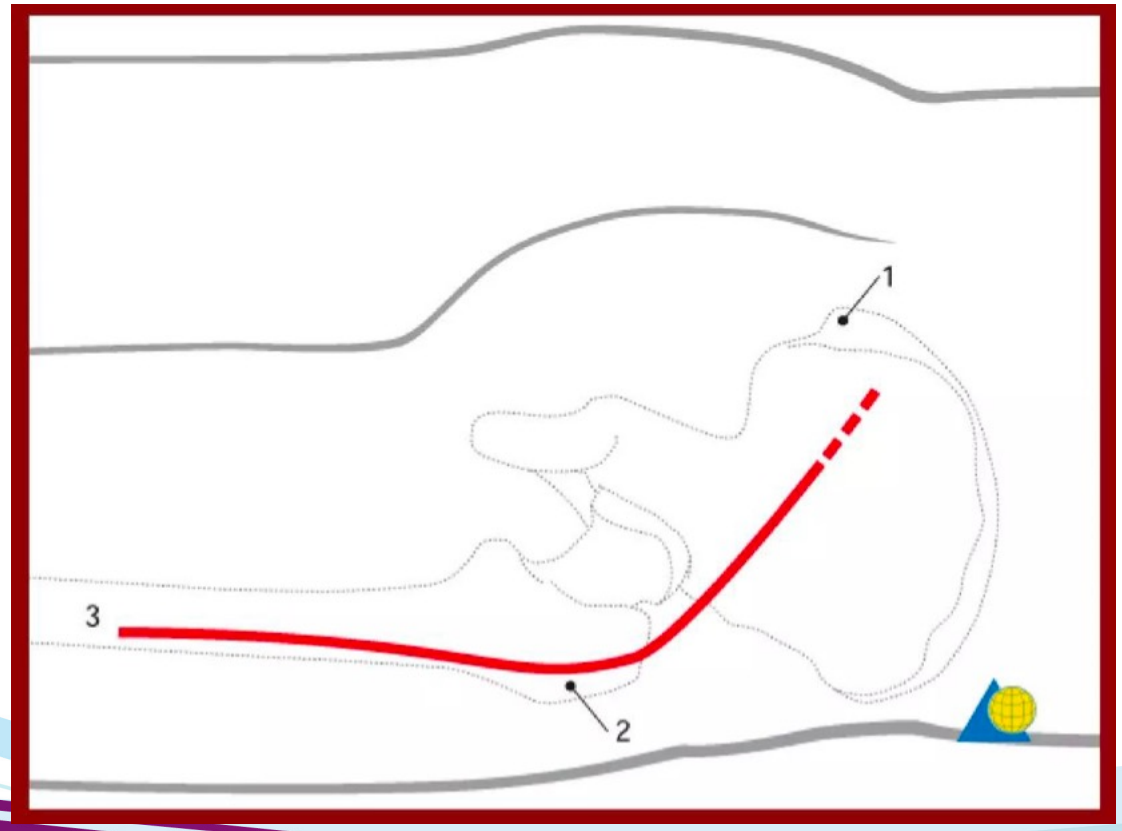
TREATMENT

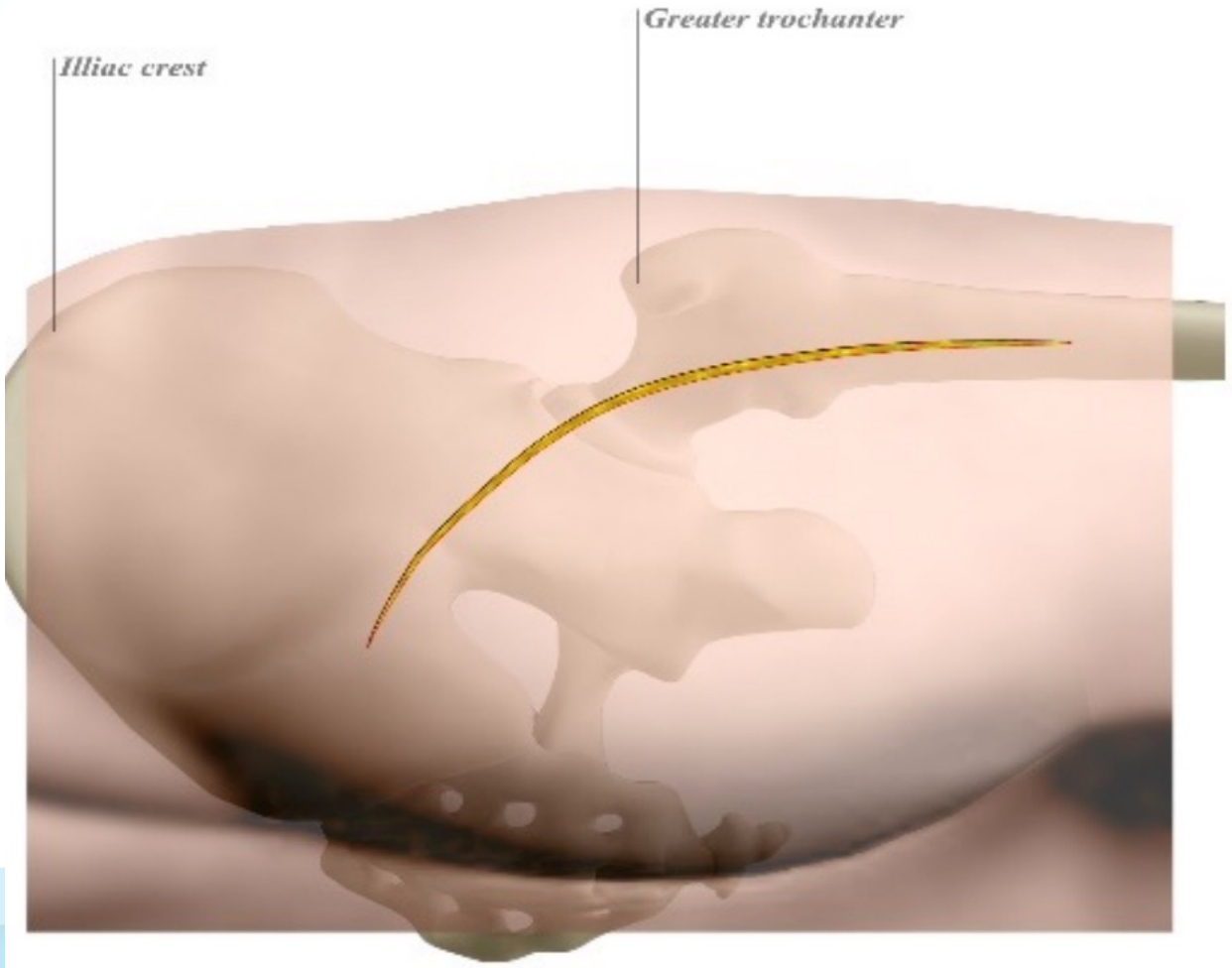

Acetabulum fracture
Nondisplaced fracture
Displaced fracture
Posterior wall
Other types
Surgical fixation based on the fracture pattern and by appropriate approach
Observe
Stress examination under anaesthesia
Remains stable
Displacement evident
Non operative
ORIF– Posterior approach
Non operative
Consider Percutaneous fixation

SURGICAL APPROACH

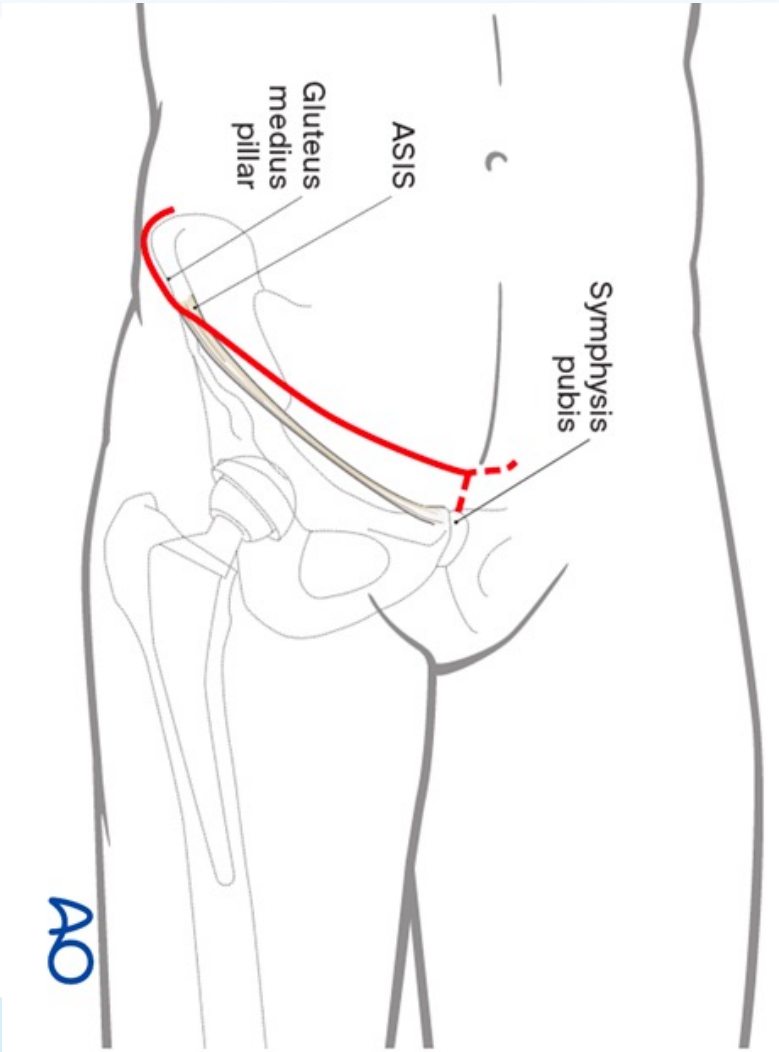
Surgical approach	Fracture pattern
Kocher-Langenbeck approach	Posterior wall
	Posterior column
	Posterior column and wall
	Transverse fracture and transverse-infratectal
	T-type fracture and T-type infratectal
Ilioinguinal approach	Anterior wall
	Anterior column
	Anterior and posterior hemitransverse
	Both column
Iliofemoral approach	Anterior wall
	Anterior column
Extended iliofemoral approach	T-shaped transtectal
	Transverse transtectal
	Both column

KOCHER – LANGENBECK APPROACH

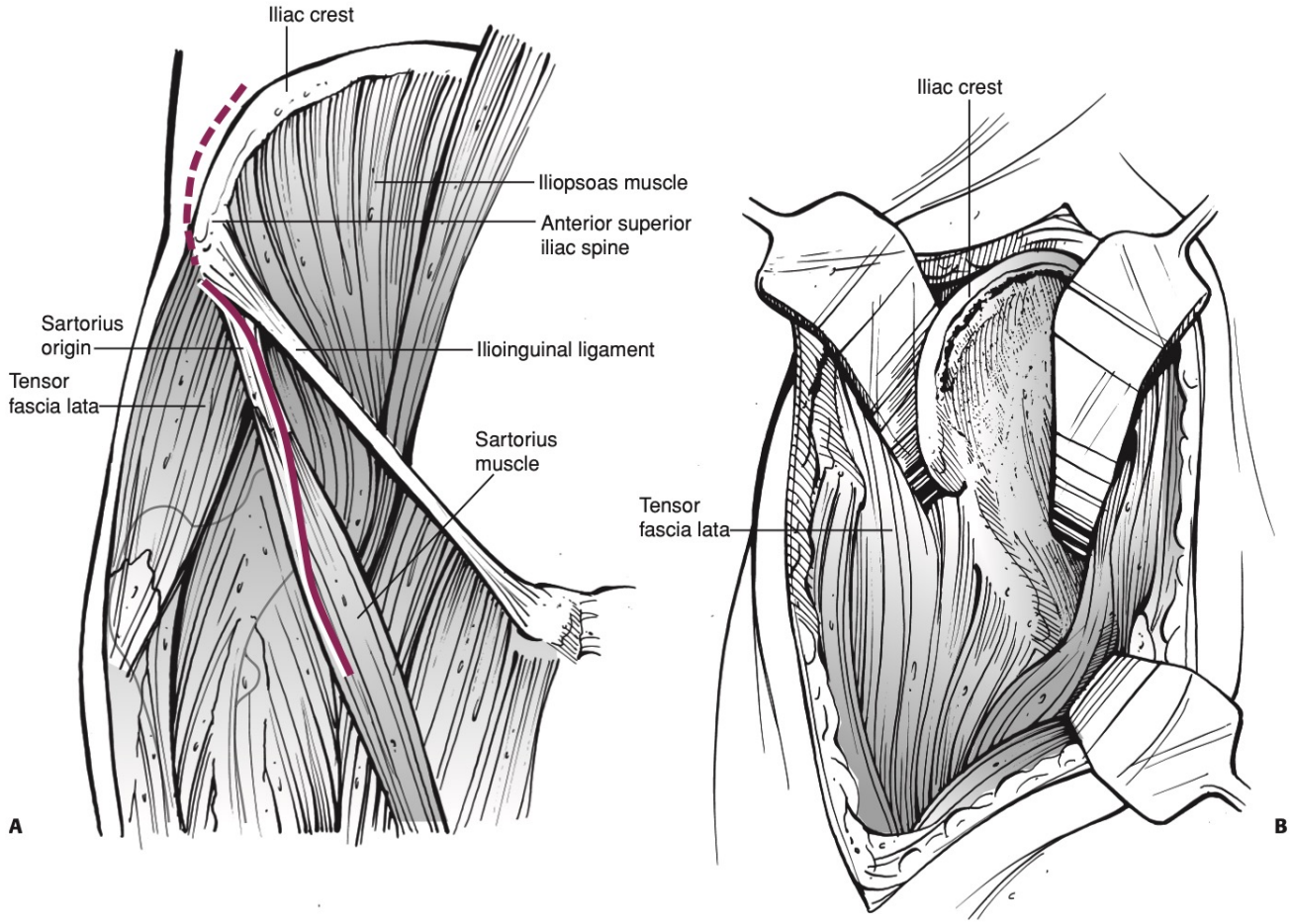




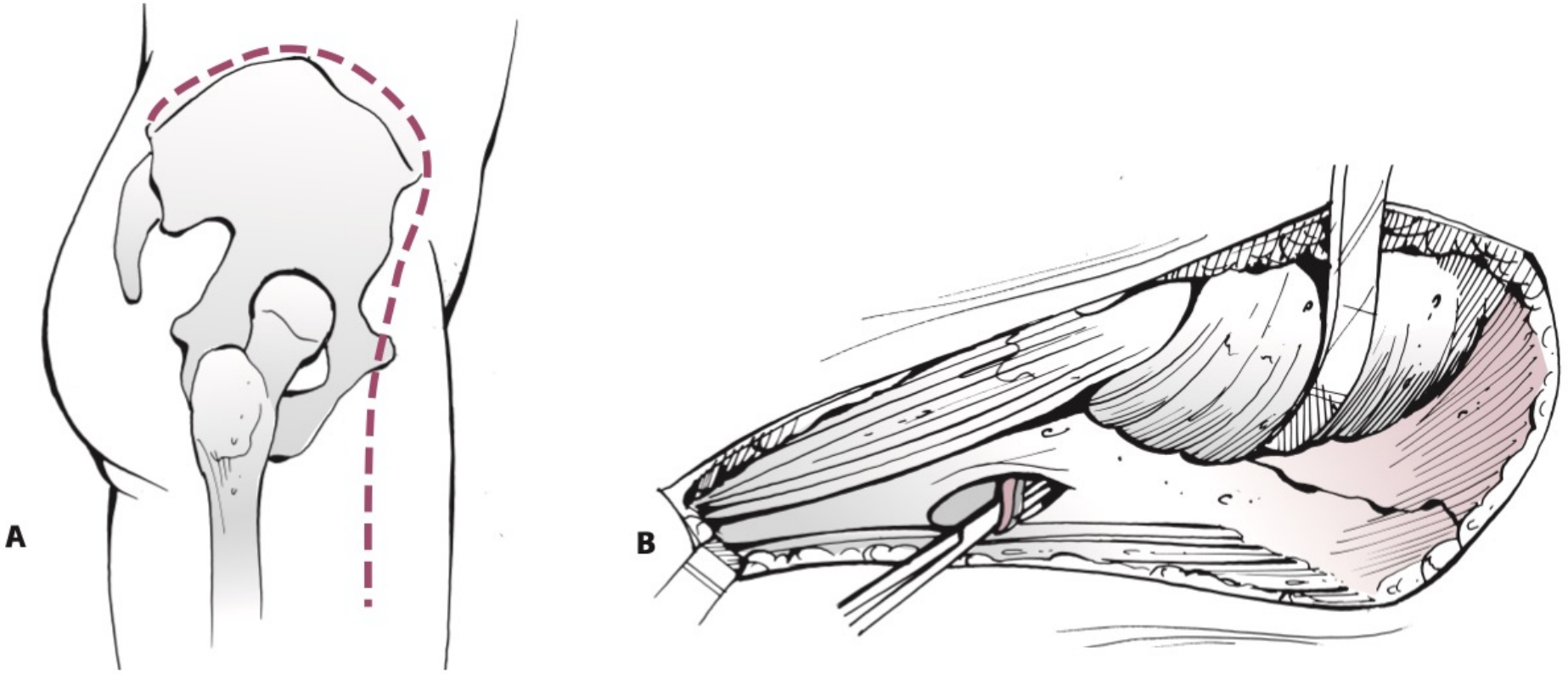
ILLIO-INGUINAL APPROACH



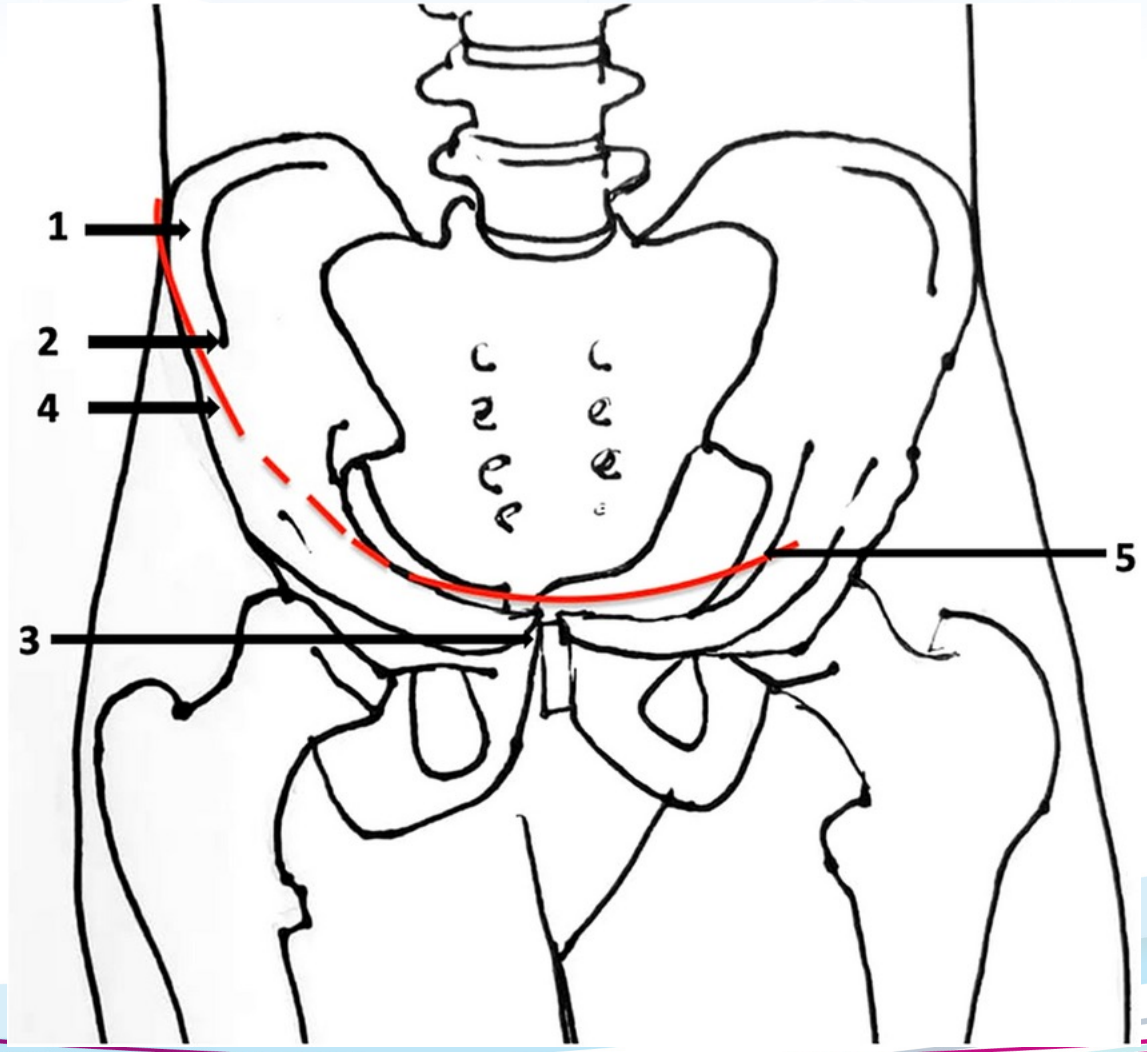
ILIOFEMORAL APPROACH



EXTENDED ILIOFEMORAL APPROACH



STOPPA APPROACH



TAKE HOME MASSAGES

- Acetabular fracture is an intraarticular fracture requiring anatomical reduction, rigid fixation and early mobilization
- Classification of acetabular fracture guide the surgeon for best approach
- Fracture demanding experts for fixation

REFERENCES

1. Judet R, Judet J, Letournel É. Fractures of the acetabulum: classification and surgical approaches for open reduction. Preliminary report. *J Bone Joint Surg Am.* 1964;**46**:1615–1646. doi: 10.2106/00004623-196446080-00001.

2. Letournel E, Judet R. Fracture of the acetabulum. 2nd edition. Berlin: Springer-Verlag; 1993.3. Matta JM. Fractures of the acetabulum: accuracy of reduction and clinical results in patients managed operatively within three weeks after the injury. *J Bone Joint Surg Am.* 1996;**78**(11):1632–1645. doi: 10.2106/00004623-199611000-00002.

3. Rockwood and Green's Fractures in Adults 8e

THANK YOU!