



2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

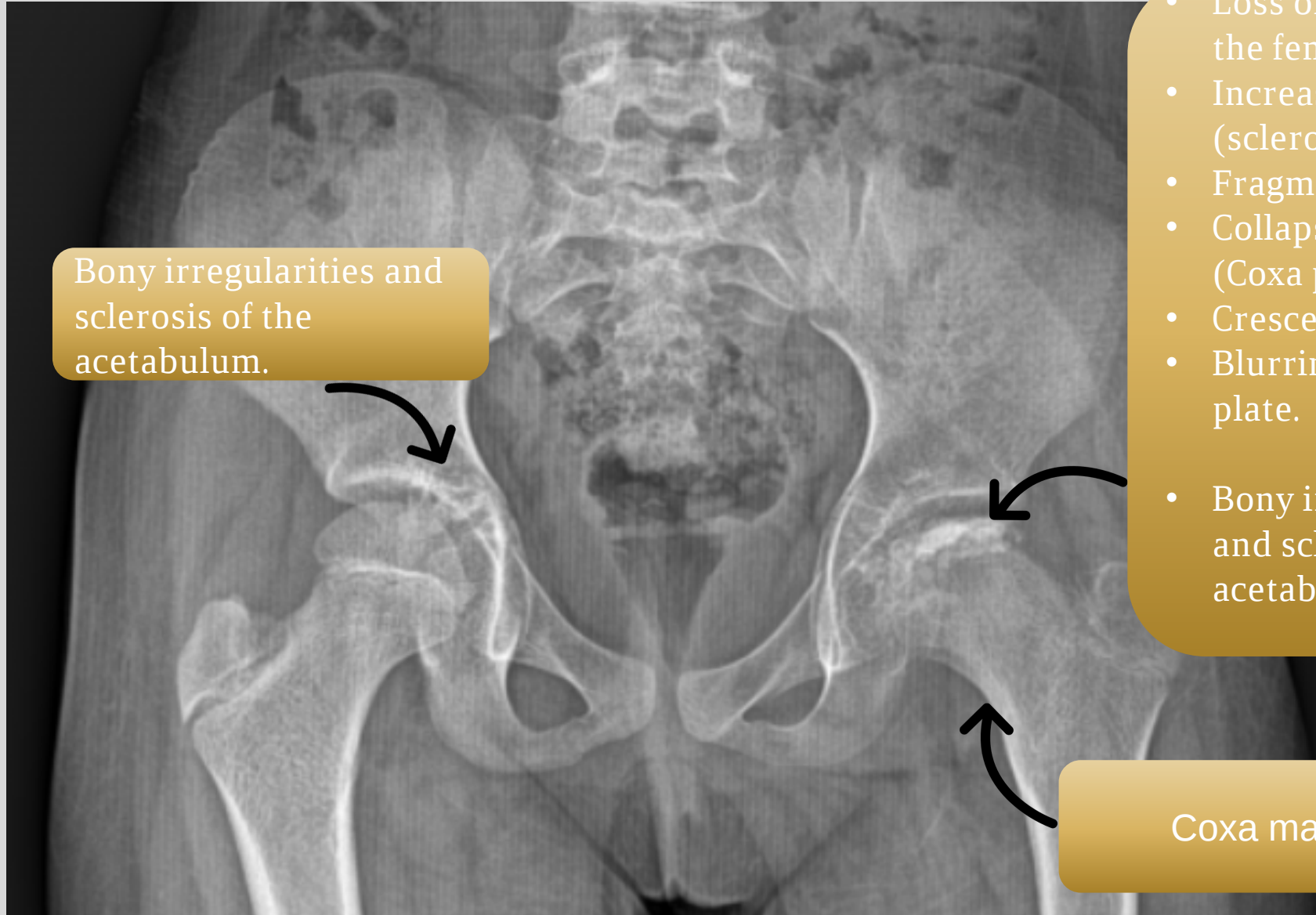
CASE PRESENTATION

**MODERATOR: DR JEEVIKA M U ,HOD DEPT OF RADIDIAGNOSIS
JJMMC, DAVANGERE**

PRESENTER: Dr Aadarsh C G, PG Resident

CLINICAL HISTORY:

- A 12 year old female child presented with pain in left hip region and limping of left lower limb since past 1 year, which is progressive in nature.
- No h/o fever/trauma.



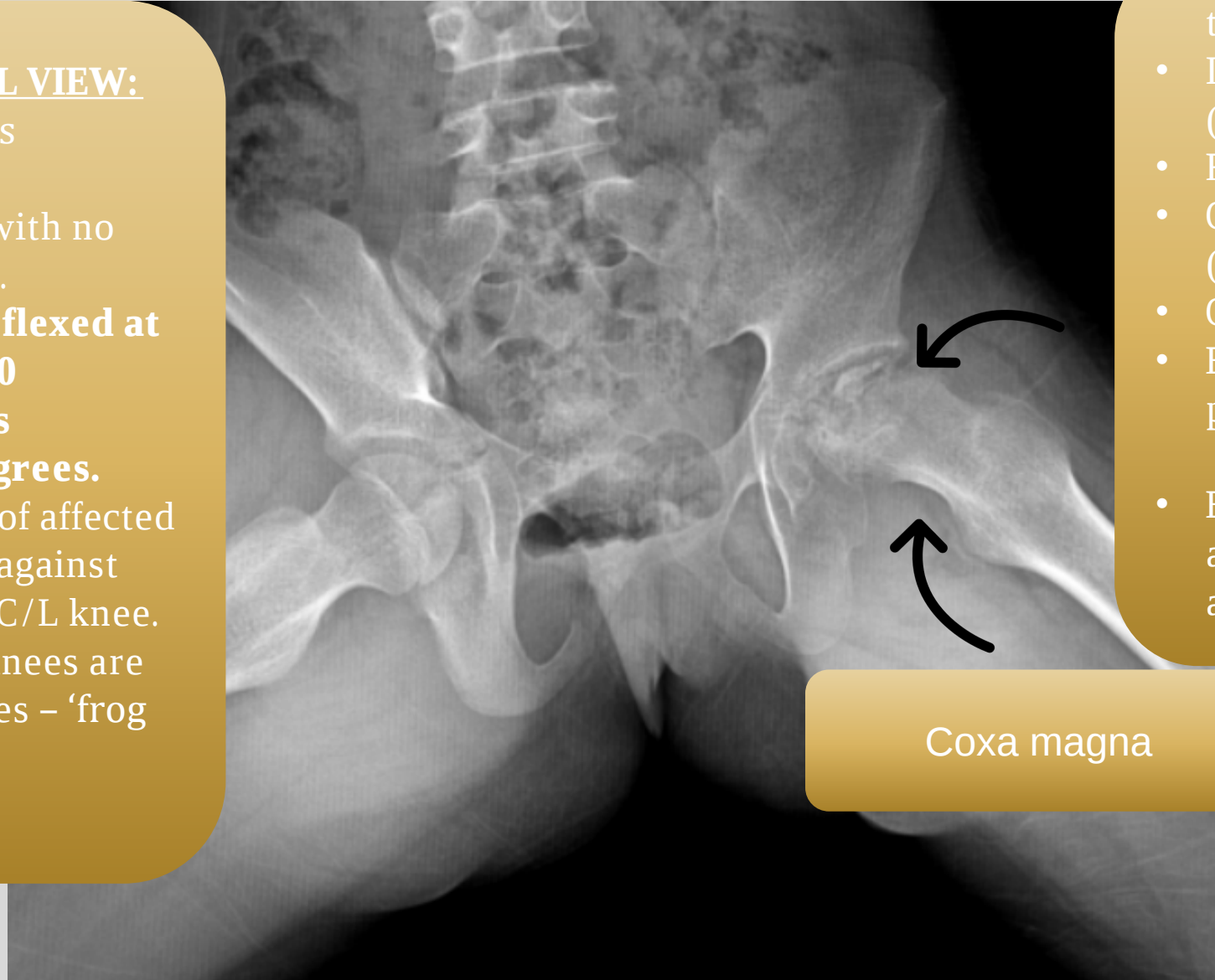
Bony irregularities and sclerosis of the acetabulum.

- Loss of contour of the femoral head.
- Increased density (sclerosis)
- Fragmentation.
- Collapse/Flattening (Coxa plana)
- Crescent sign.
- Blurring of physeal plate.
- Bony irregularities and sclerosis of the acetabulum.

Coxa magna

FROG LEG LATERAL VIEW:

- To assess Perthe's disease/SCFE.
- Supine position with no rotation of pelvis.
- **Affected limb is flexed at the knee ~ 30-40 degrees, & hip is abducted 45 degrees.**
- Unilateral – heel of affected limb should rest against medial aspect of C/L knee.
- Bilateral – both knees are resting on sponges – 'frog leg appearance'



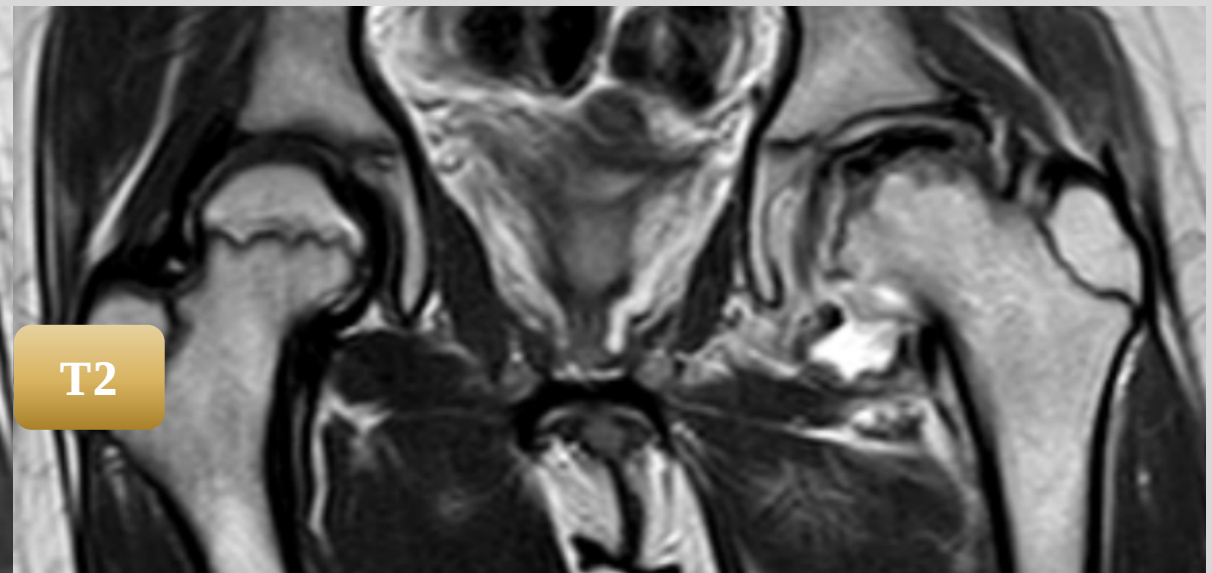
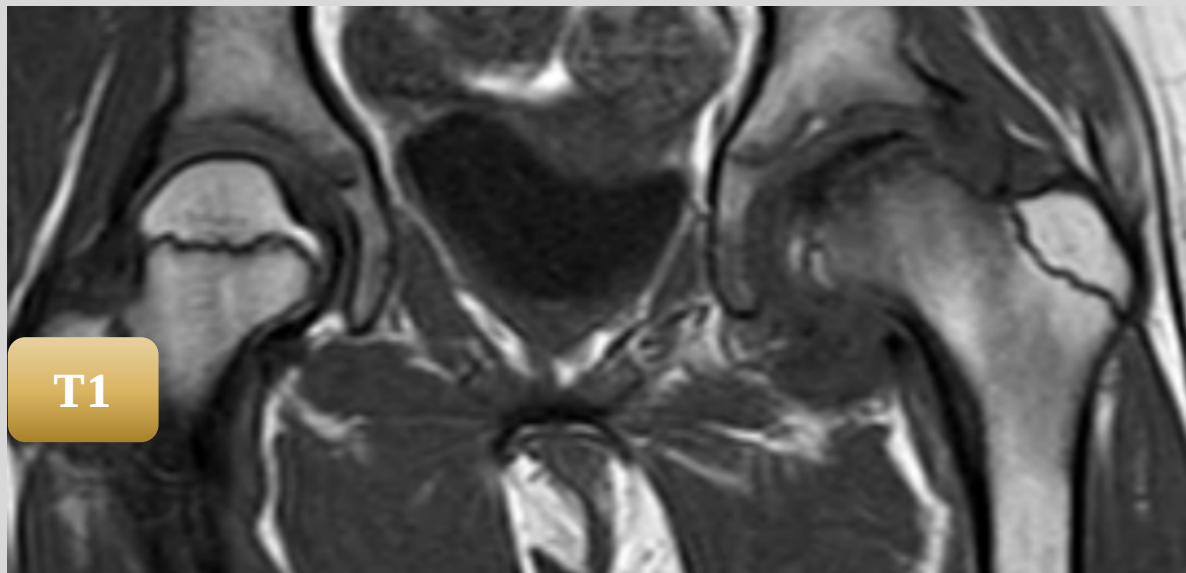
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DIAGNOSIS:

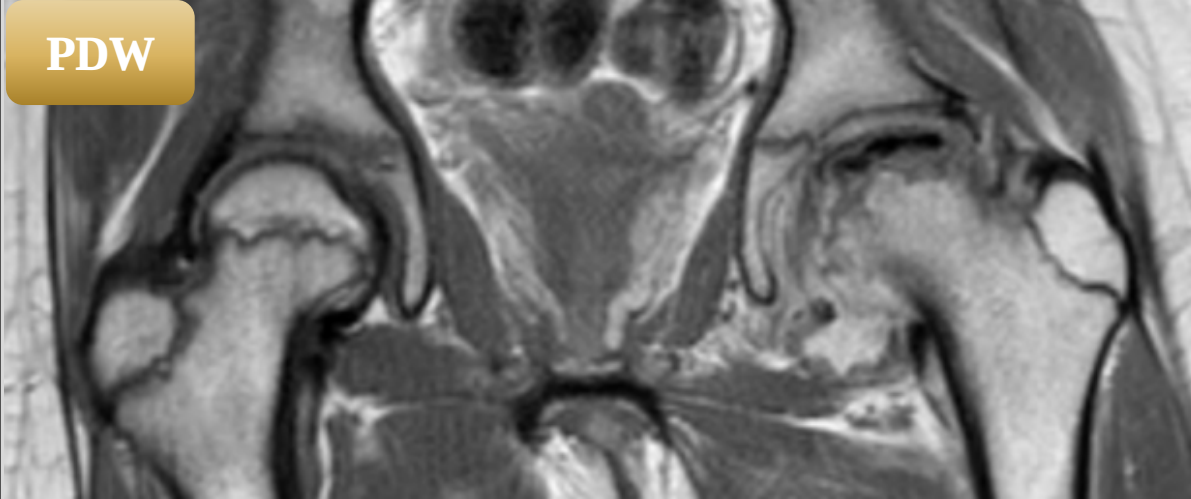
- Perthe's Disease.

(Suggested MRI for further evaluation)

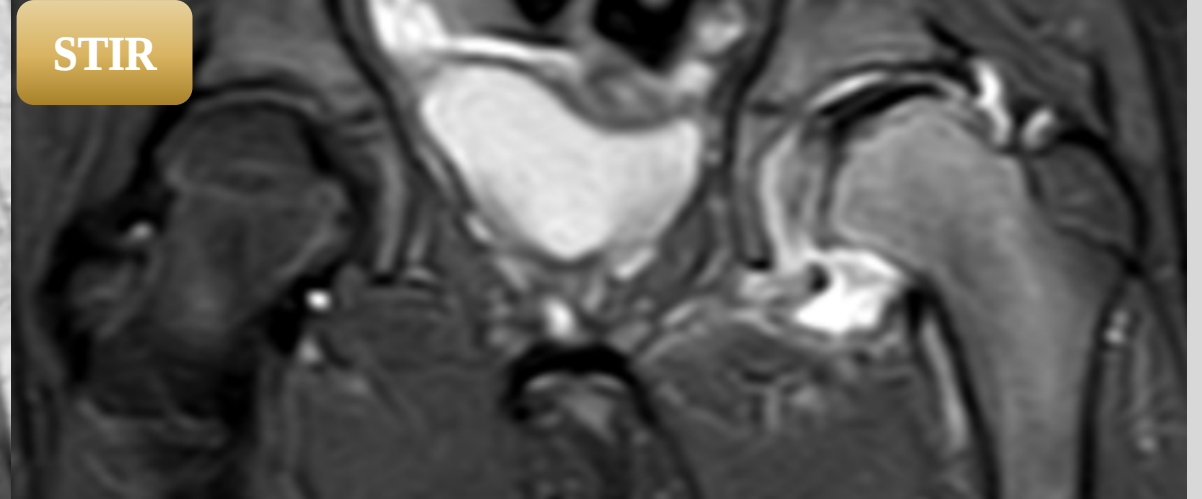


- There is volume loss with irregular deformed (flattening and widening) contour of the left femoral head predominantly in the anterior aspect of left femoral epiphysis from 9 o'clock to 3 o'clock and widening of the neck of femur- Coxa plana and magna.
- The femoral epiphysis appears T1 and T2 hypointense with no post contrast enhancement- Sclerosis
The deformed femoral head has inner T2 hyperintense outer T2 hypointense lines- Double line of osteonecrosis
E/o subchondral fracture noted predominantly in the anterior aspect with adjacent T2/PDFS hyperintensity- Crescent sign
- T2 and STIR hyperintensity noted in the epiphysis, metaphysis and diaphysis of head and neck of femur. Significant post contrast enhancement noted in the head and neck of femur- S/o Edema
- Mild free fluid is noted in the left hip joint with extension into ilio-psoas bursa with widening of medial joint space predominantly in the posterior aspect -S/o mild joint effusion.
- Mild synovial thickening with normal enhancement noted.
- There is cartilaginous defect noted with loss of normal labrum.
- The acetabulum is seen completely covering the deformed femoral head with no e/o slippage/ displacement.

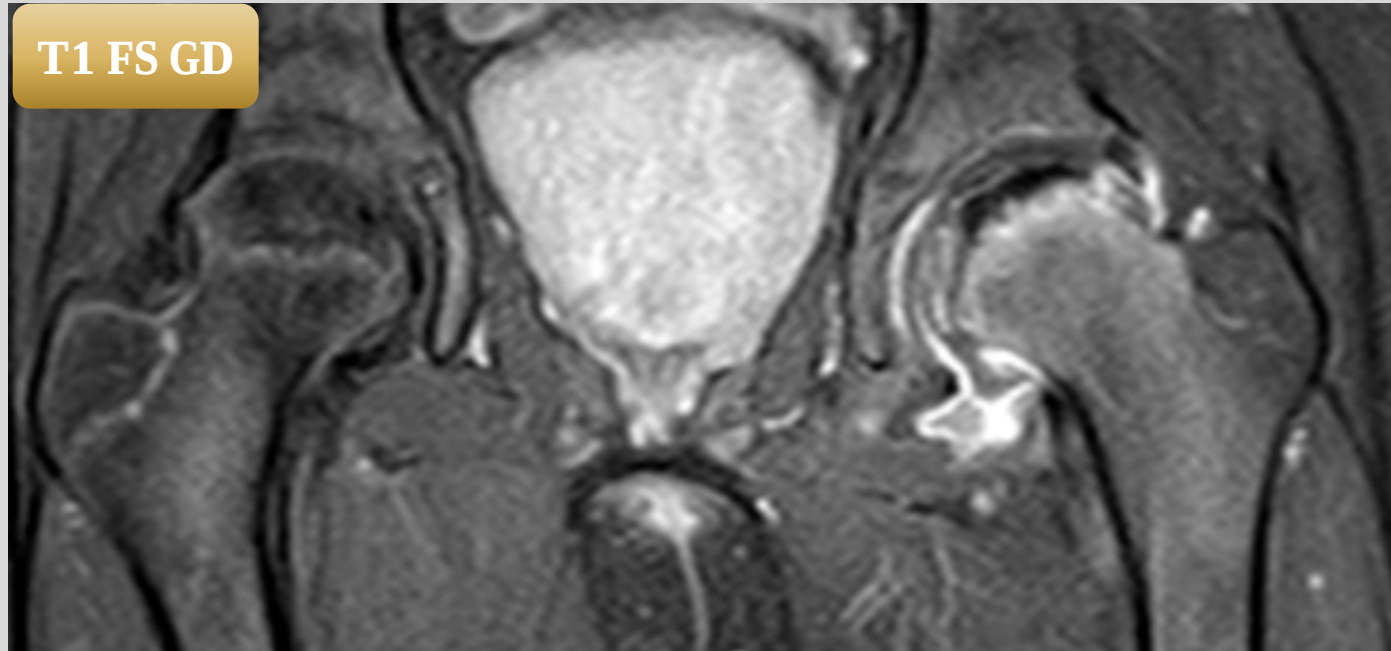
PDW

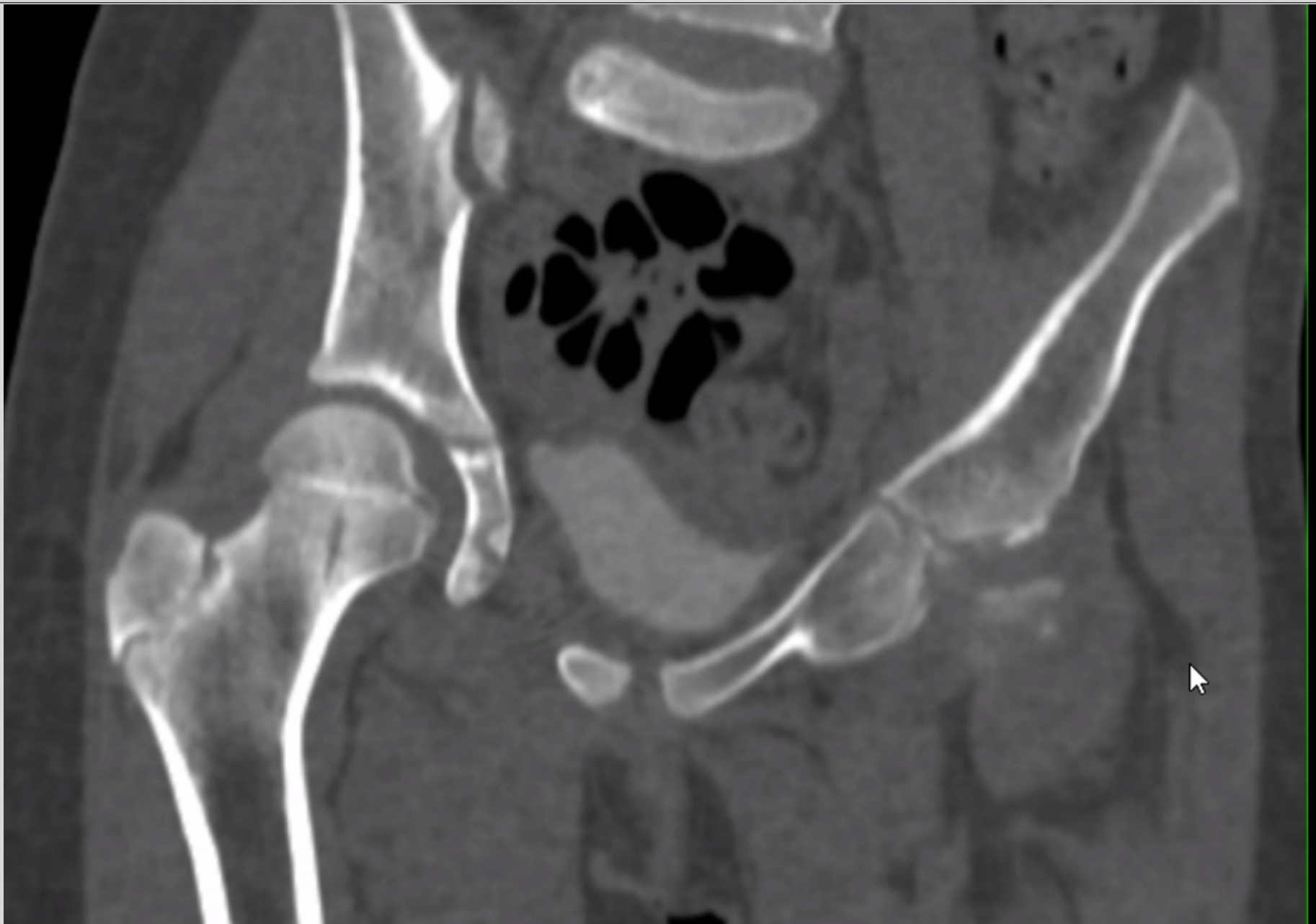


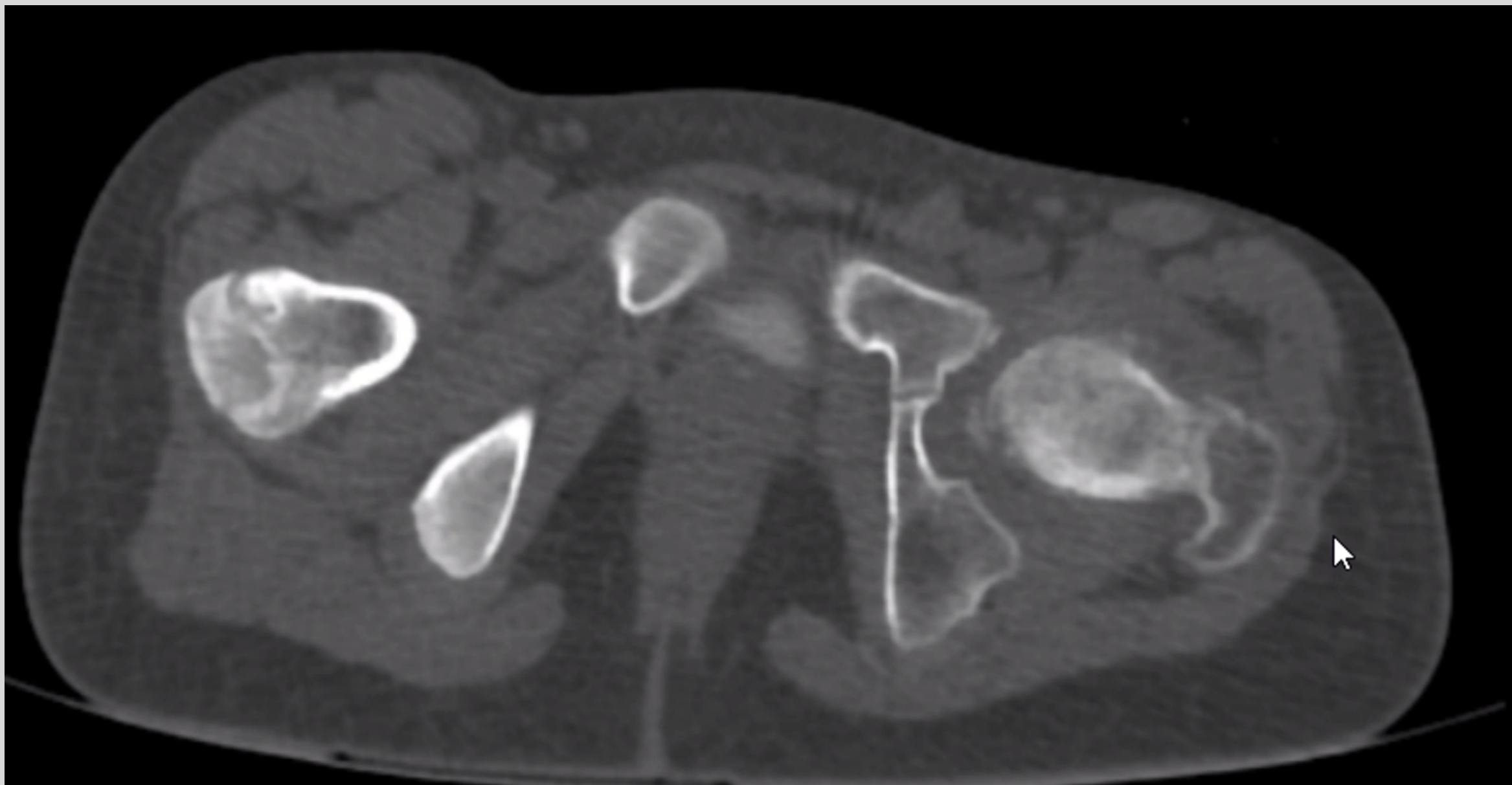
STIR



T1 FS GD







DIAGNOSIS:

➤ **Osteonecrosis of left femoral head –PERTHE'S DISEASE**

-Catterall classification grade 4.

-Waldenstrom classification stage IV.

“HEAD-AT-RISK” SIGNS

Gage sign – a radiolucent, V-shaped osteoporotic segment in lateral portion of femoral head

Calcification lateral to epiphysis, representing extruded cartilage & indicating pressure on head from lateral edge of acetabulum.

Lateral subluxation of femoral head.

Horizontal inclination of growth plate, indicating physeal growth closure.

Diffuse metaphyseal changes.

Perthe's disease	TB Hip	Septic arthritis	SCFE	Transient Synovitis
Early signs: - Joint effusion. - Asymmetrical femoral epiphyseal size. - Sclerosis of femoral capital epiphysis. - Blurring of physeal plate. - Radiolucency of proximal metaphysis. Late signs: - Coxa plana. - Coxa magna. - Sagging rope sign.	Stage of synovitis: Haziness, rarefaction Stage of Early Arthritis: osteopenia, bony lesion in femoral head. Stage of Arthritis: destruction of articular surface, reduction in joint space. Stage of Advanced Arthritis: Complete destruction, no joint space, wandering acetabulum.	- Joint effusion. - Juxta-articular osteoporosis due to hyperemia. - Narrowing of the joint space due to cartilage destruction in acute phase. - Destruction of subchondral bone on both sides of joint. If untreated, reactive juxta-articular sclerosis and in severe cases, ankylosis will develop.	Pre-slip phase: Widening of growth plate with irregularity & blurring of physeal edges & demineralization of metaphysis. Acute slip: head will be postero-medial to rest of the femur. Chronic slip: Physis becomes sclerotic & metaphysis widens (coxa magna). Trethowan sign.	Increase in medial joint space. Follow up radiograph in 6 months show resolution.



THANK YOU