



2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

## CASE PRESENTATION

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# Clinical history

- A 9 year old male patient has complaints of uncontrollable urination since 7 years.
- It is not associated with burning micturation/ fecal incontinence. There is no history of trauma.
- It is not associated with any motor/sensory complaints.
- Normal term (38 weeks) vaginal delivery with normal antenatal scans (as per mother, no reports available) and no NICU admissions.
- The mother is non-diabetic with no other co-morbidities or habits.
- The patient also has a limp with deformity of left foot since birth which was not evaluated earlier.



On clinical examination there was deficiency of bilateral gluteal masses, deficiency of natal creases. No skin stigmata noted. Thin atrophic left leg with the left foot demonstrating hindfoot equinus, midfoot cavus and forefoot in adduction- F/S/O Clubfoot/ congenital talipes equinovarus.



Radiograph of the Sacrum with Pelvic bone and bilateral hip joints in AP projection. S1 vertebra is the last vertebra of the spine and is visualized articulating with bilateral iliac bones, associated with spina bifida. The S1 vertebra appears hypoplastic.



Lateral radiograph of the sacrum : S1 is the last vertebra of the spine with non visualization of rest of the sacral and coccygeal vertebrae below S1- S/O agenesis. There is mild loss of the lumbar lordosis. There is no evidence of any soft tissue mass/swelling noted in the post-sacral space. The skin surface appears normal with no evidence of any defect.

### Dorsoplantar Talocalcaneal Angle on the DP view

Normal	Mild	Moderate	Severe
25–40	20–25	15–20	>15



Talo-calcaneal angle is 18 degrees- HINDFOOT  
VARUS  
(normal 25-40 degrees)

AP and lateral weight bearing radiographs  
of left foot were taken. The talus,  
calcaneum, navicular and cuboid are  
medially rotated

### Talo-1st metatarsal angle DP

Normal	Mild	Moderate	Severe
0–20	20–40	40–60	>60

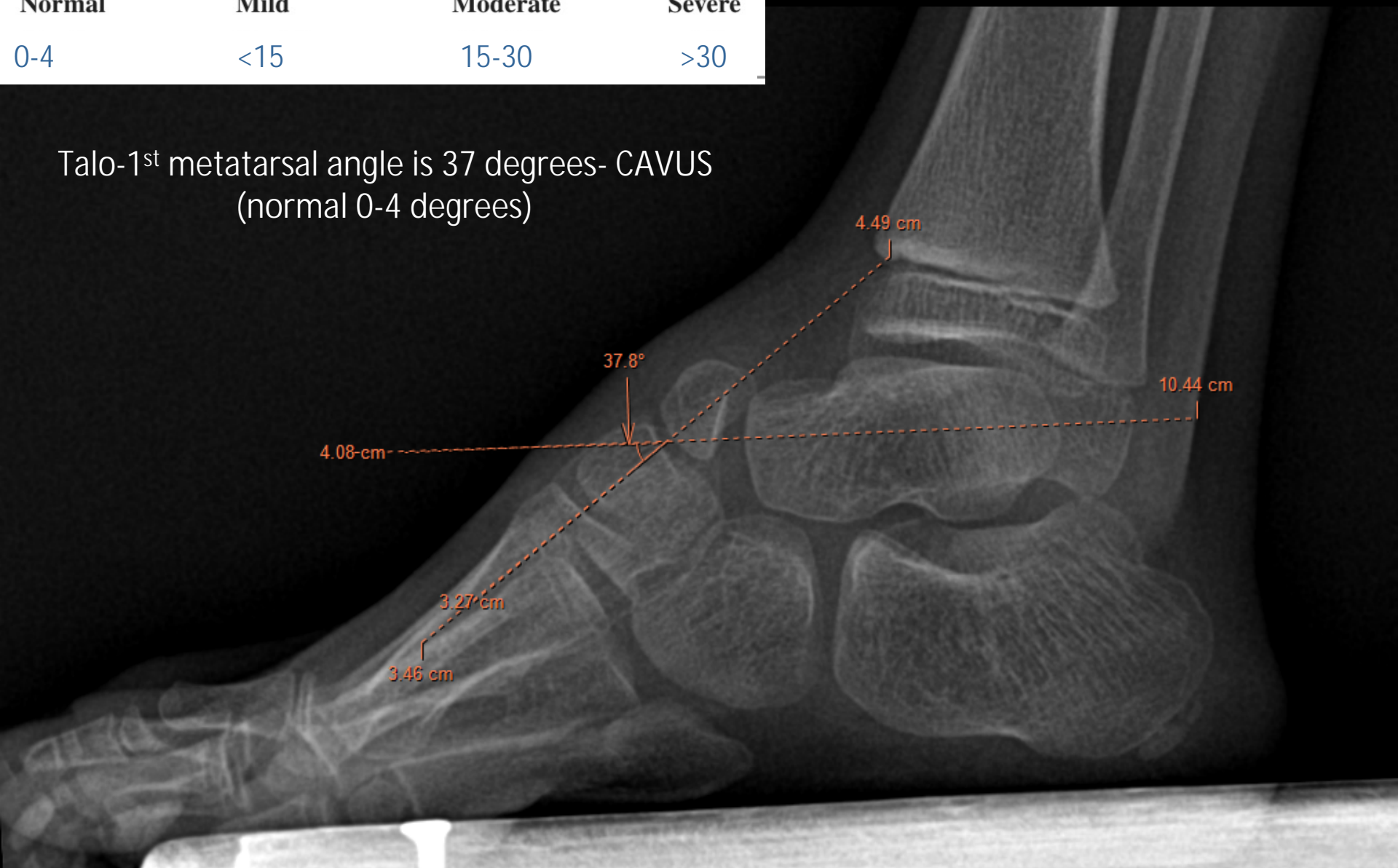


Talo 1<sup>st</sup> metatarsal angle is 21 degrees- FOREFOOT ADDUCTION  
(normal-0-20 degrees)

## The lateral talo-1<sup>st</sup> metatarsal angle

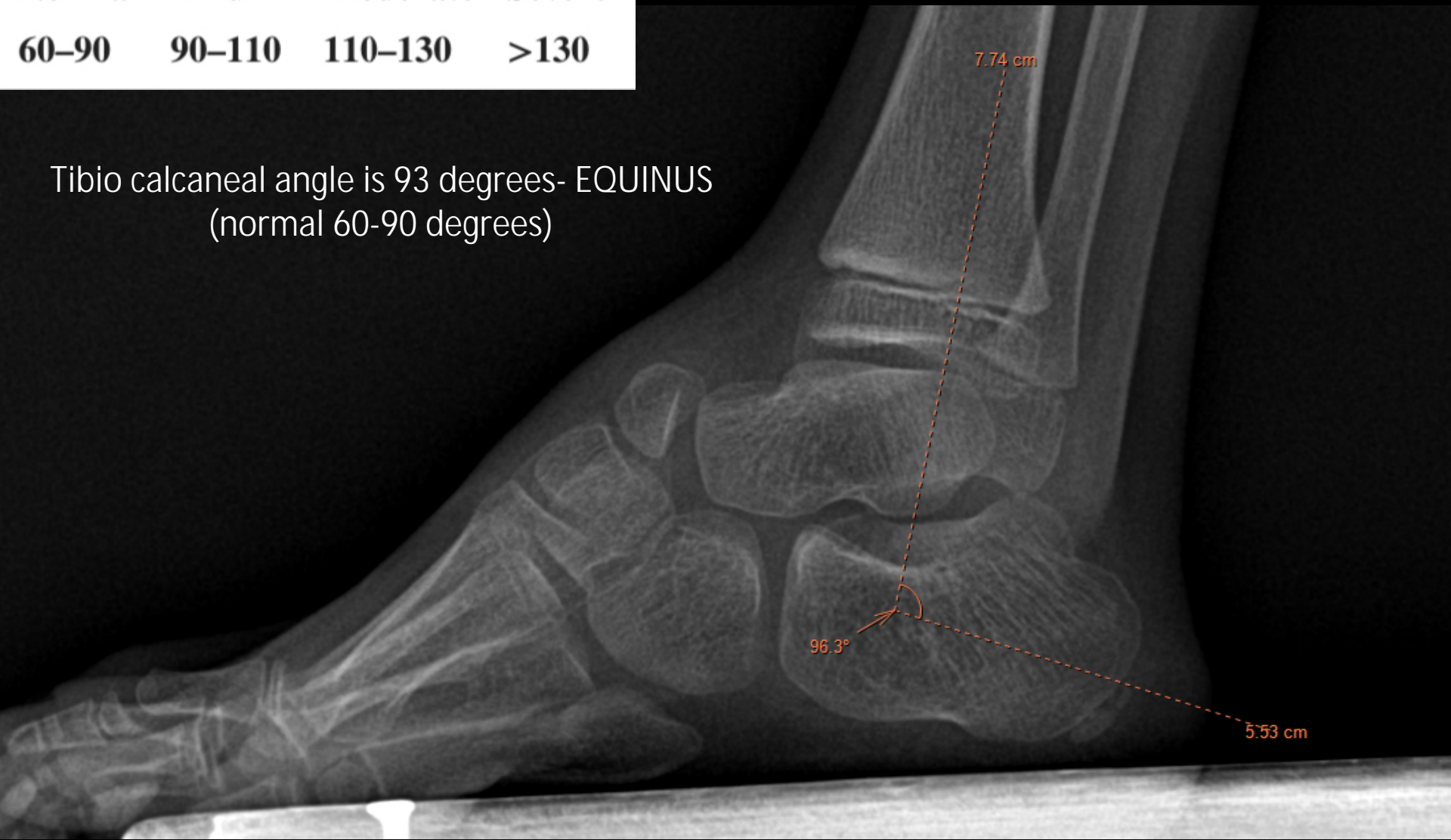
Normal	Mild	Moderate	Severe
0-4	<15	15-30	>30

Talo-1<sup>st</sup> metatarsal angle is 37 degrees- CAVUS  
(normal 0-4 degrees)



Tibio-calcaneal angle L			
Normal	Mild	Moderate	Severe
60-90	90-110	110-130	>130

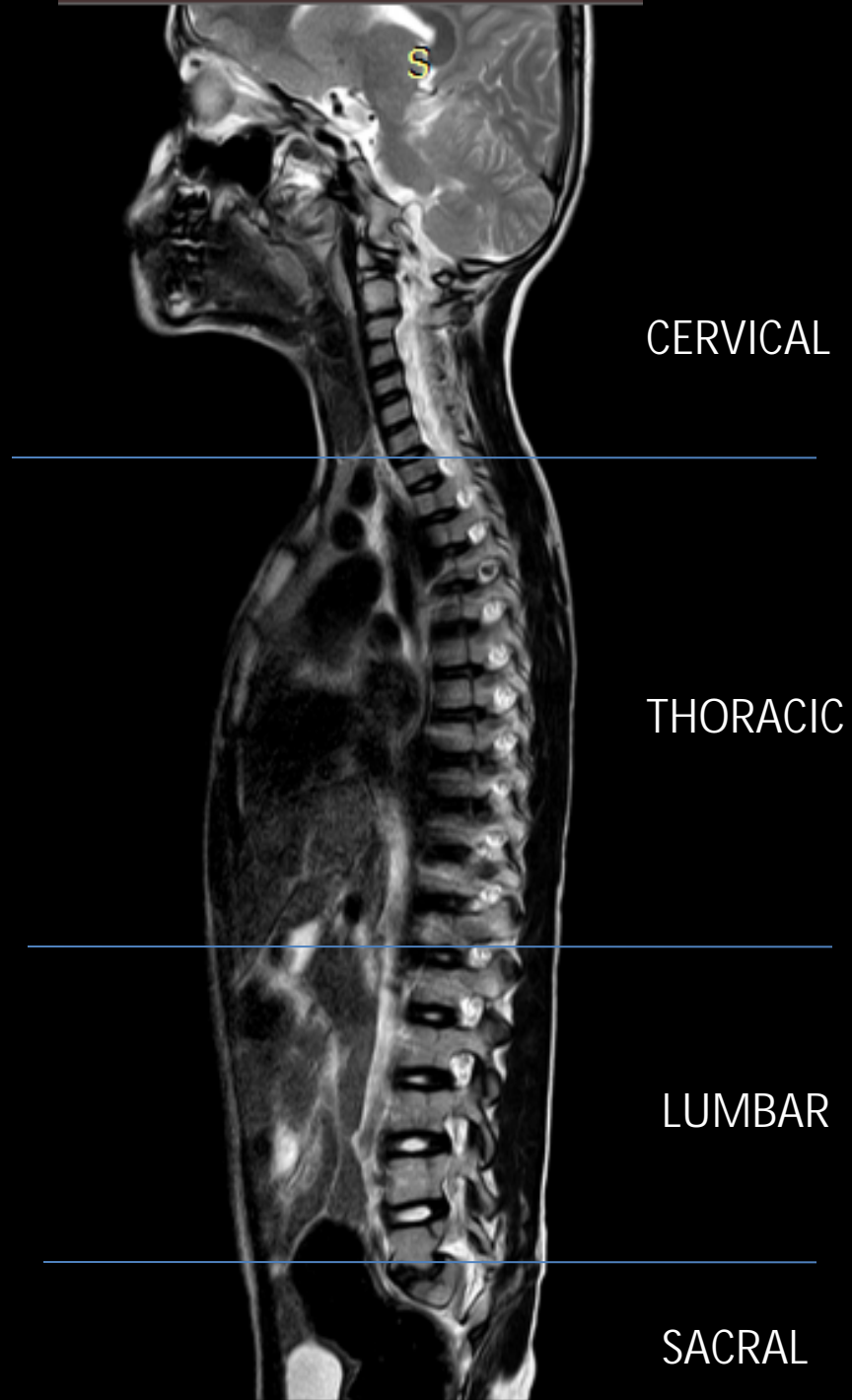
Tibio calcaneal angle is 93 degrees- EQUINUS  
(normal 60-90 degrees)



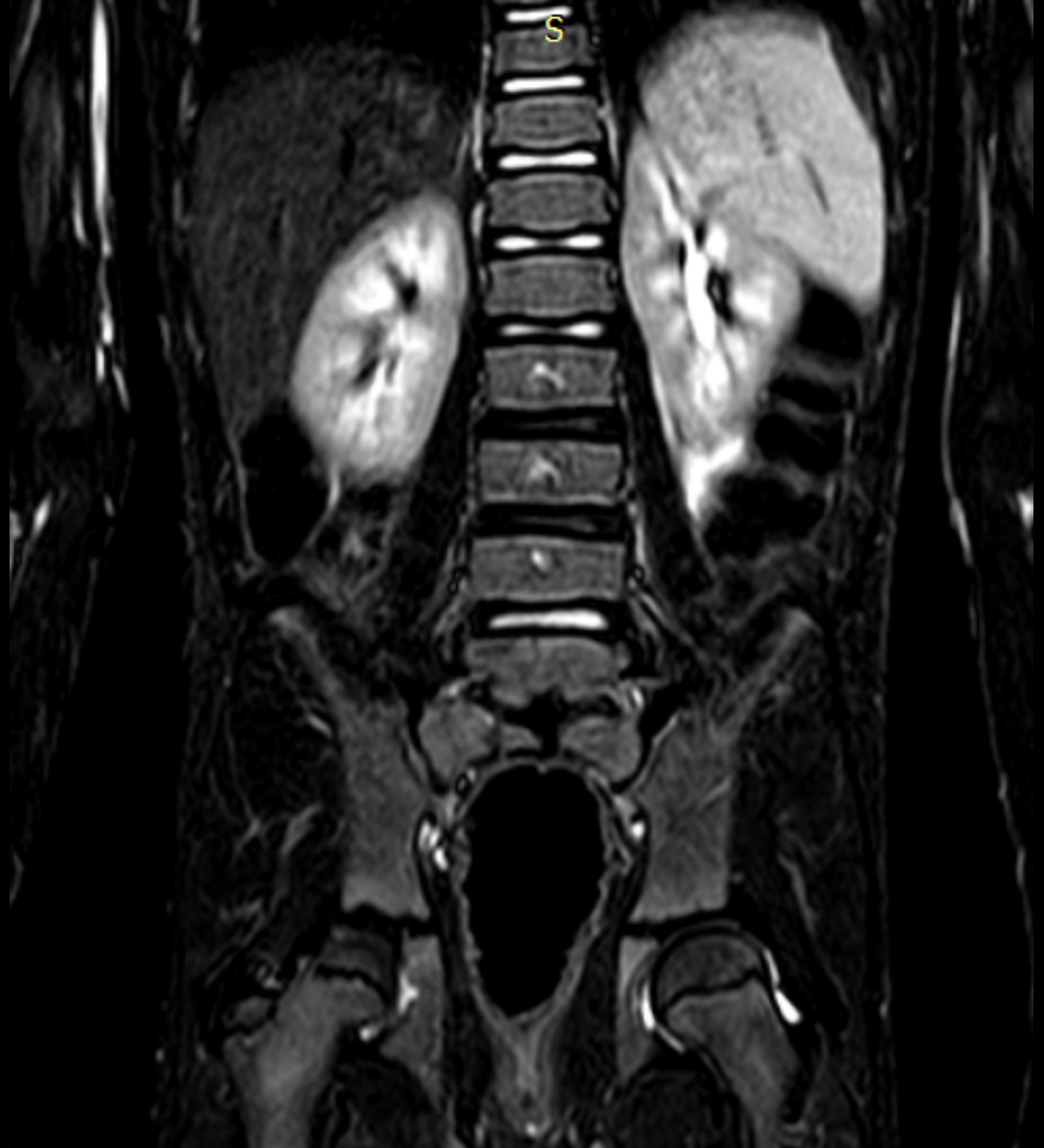
# DIAGNOSIS ON RADIOGRAPHS

- Sacral agenesis- Type II with iliac bones articulating with S1 and failure of development of distal sacral elements.
- Left foot congenital talipes equinovarus (Clubfoot)

# T2 sagittal section of the spine



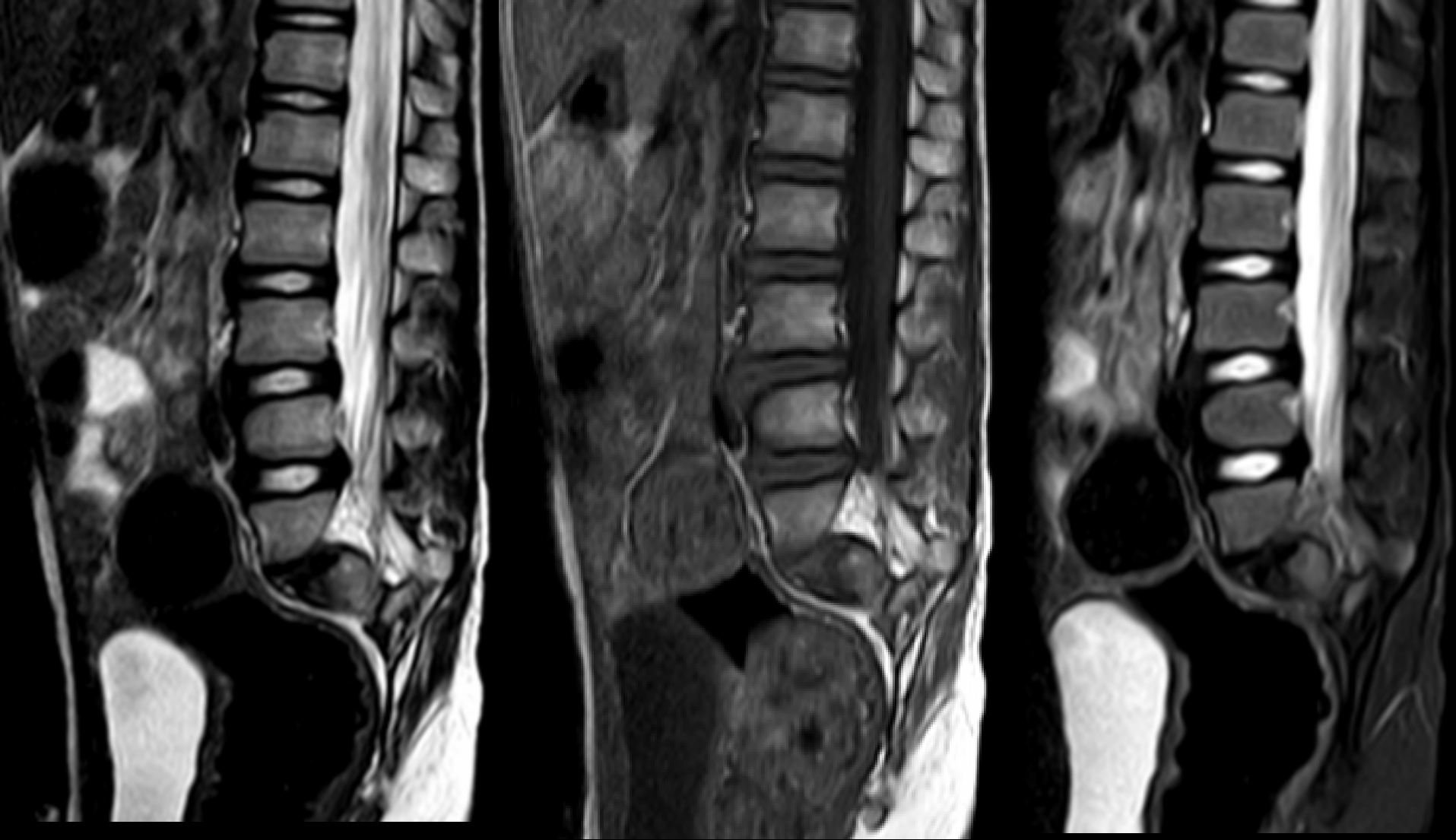
There are 7  
cervical  
vertebrae, 12  
thoracic, 5  
lumbar and 1  
sacral  
vertebra



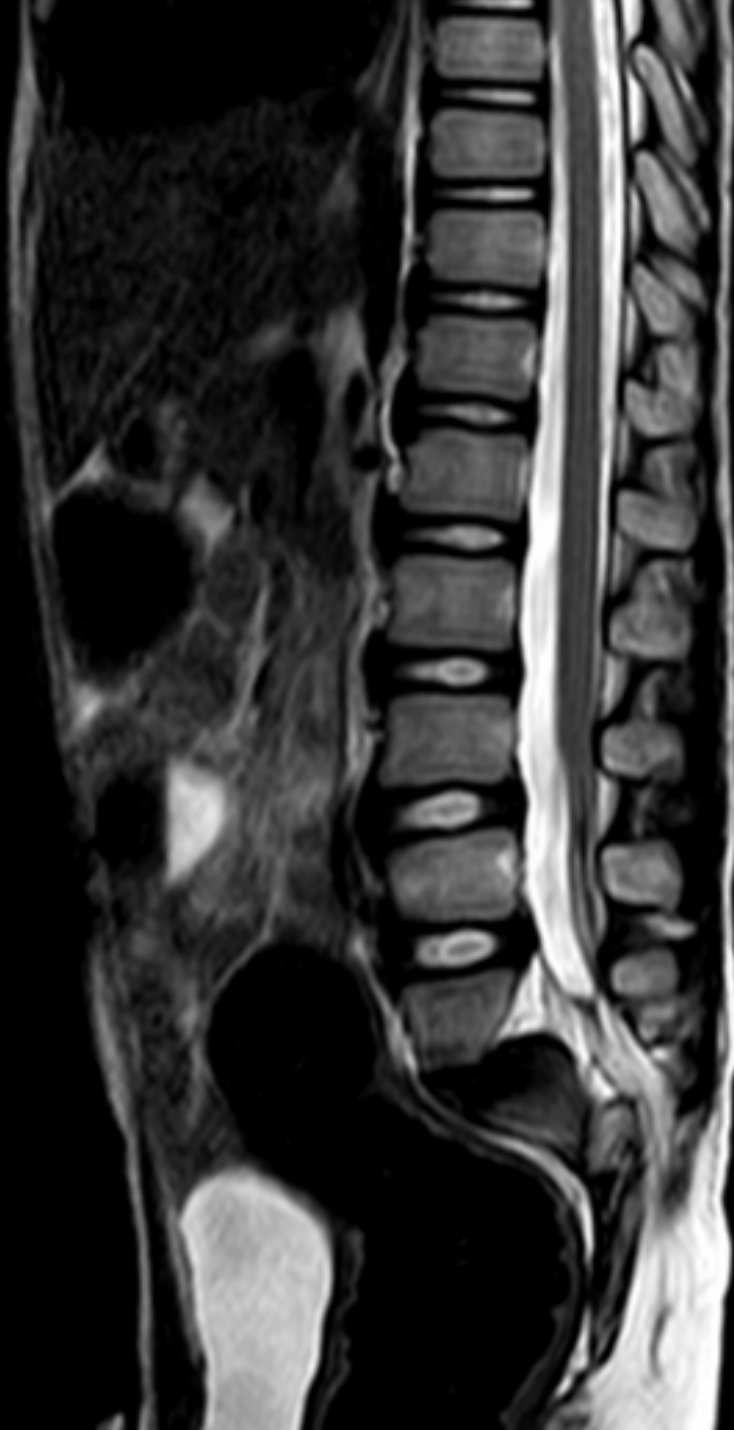
T1 sagittal and STIR coronal section : Hypoplastic S1 is the lowest vertebra, with bilaterally symmetric agenesis of the distal sacrum. Articulation of both iliac bones is noted at the S1 level. → Sacral agenesis type-II



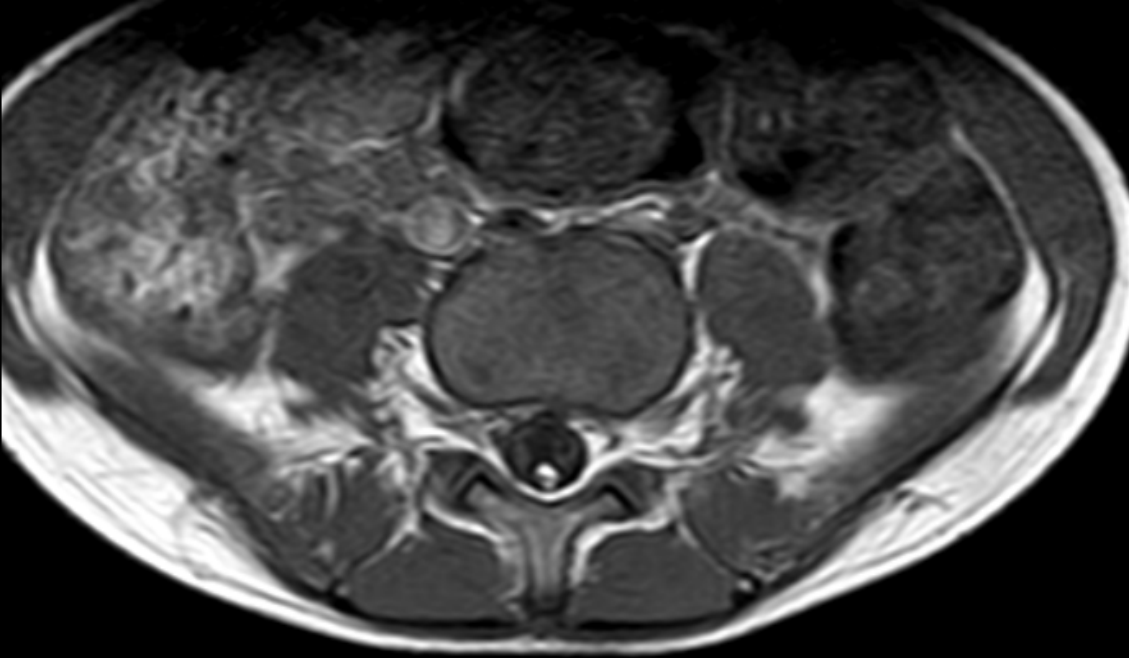
T2 axial section : Defect noted in posterior spinous arch at the level of S1 vertebrae  
→ S/o spina bifida occulta



T1 and T2 bright fat signal with suppression on STIR within the canal and communicating with the prominent subcutaneous fat via the sacral defect  
→ S/o Lipomyelocoele

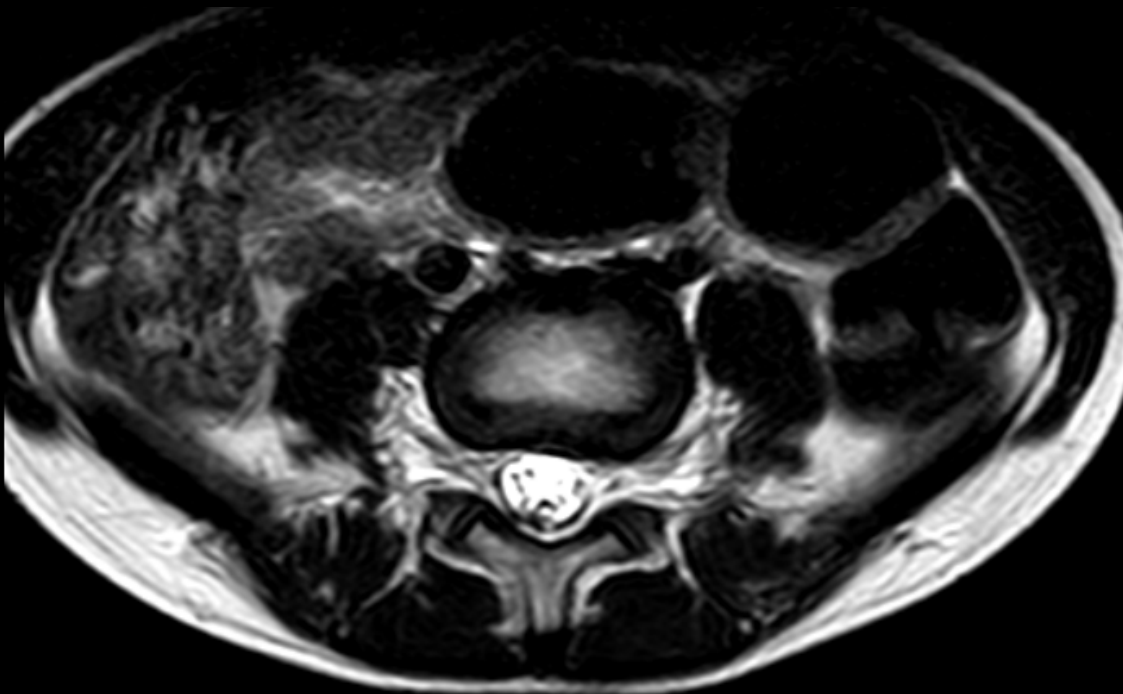


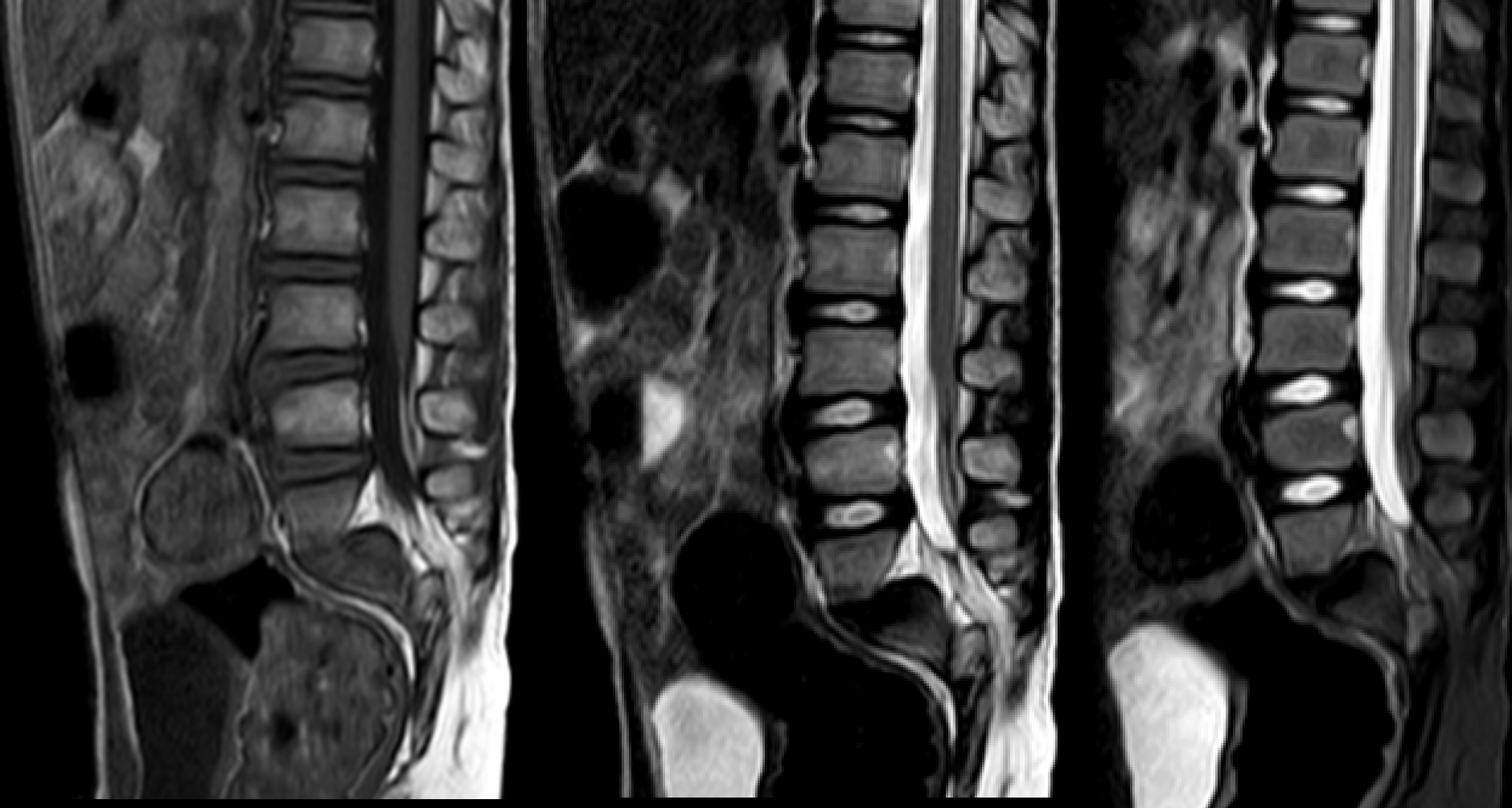
Low-lying spinal cord,  
which is seen, tethered ie  
attached to the posterior  
aspect of dural sac at the L3  
vertebral level  
→S/o Tethered cord



Tip of the conus  
located at the L3  
level. Immediately  
below the conus, in  
the midline is a  
longitudinal streak  
of high T1 and high  
T2 signal

→ S/o Filum  
terminale lipoma





The same can be seen here as T1 and T2 hyperintense structure suppressed on STIR.

# DIAGNOSIS

- Hypoplastic S1 vertebra, with bilaterally symmetric agenesis of the distal sacrum. → S/O Sacral agenesis type-II
  - Defect in posterior spinous arch at the level of S1 vertebrae. → S/o spina bifida occulta
  - T1 bright fat signal within the canal and communicating with the prominent subcutaneous fat via the sacral defect → S/o Lipomyelocele
  - Low-lying spinal cord, which is seen, tethered at the L3 vertebral level. ) → S/o Tethered cord
  - Tip of the conus located at the L3 level. Immediately below the conus, in the midline is a longitudinal streak of high T1 and high T2 signal measuring 4mm(AP) → Filum terminale lipoma
- Features suggestive of caudal regression syndrome(Group II)

THANK YOU