

# UNUSUAL PEDIATRIC ANKLES

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# DISCLOSURE

I have no financial disclosures or  
conflicts of interest with the  
contents of this presentation

# GOALS AND OBJECTIVES

1. Recognize that subtle irregularities can escape detection
2. Learn to pick up on and interpret unfamiliar findings
3. Think about the pathophysiology shown on radiographs
4. Consider what to do with unexpected findings

# CASE ONE

- A five month old Afro-American female presents with a possible positional issue of both feet
- There is no significant past medical history
- AP and Lateral foot radiographs were ordered. Lateral is shown.

# CASE ONE

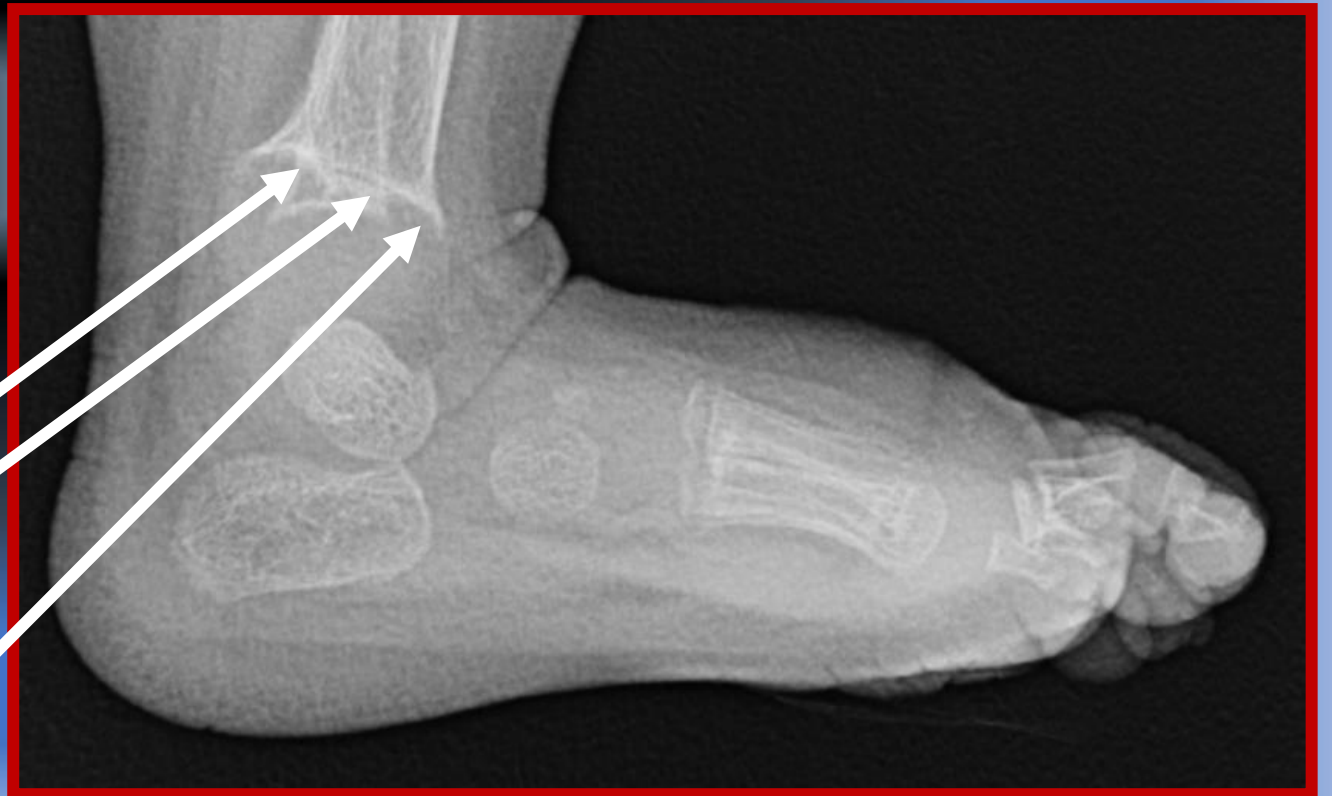


# RADIOGRAPHIC FINDINGS

Indistinct Metaphyseal Margins

Cupping of the Metaphysis

Widened Metaphyseal Margins



# CASE ONE



# RICKETS

## **CALCIPNIC RICKETS**

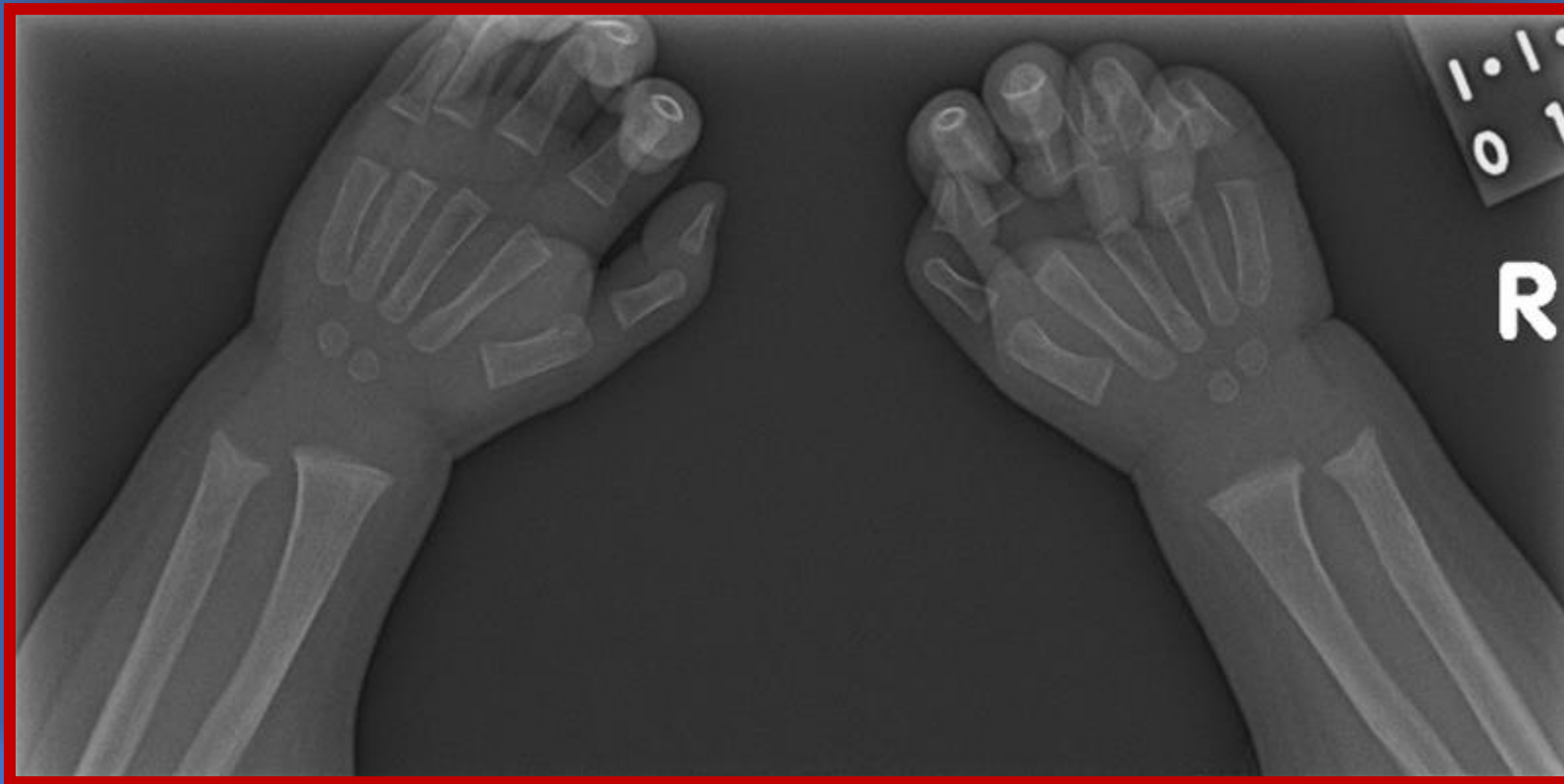
- Vitamin D Deficiency
- Vitamin D Resistant
- Malabsorption
- Lack of Sunlight
- 25 Hydroxylation Defect
- Calcium Deficiency
- CKD Renal Rickets

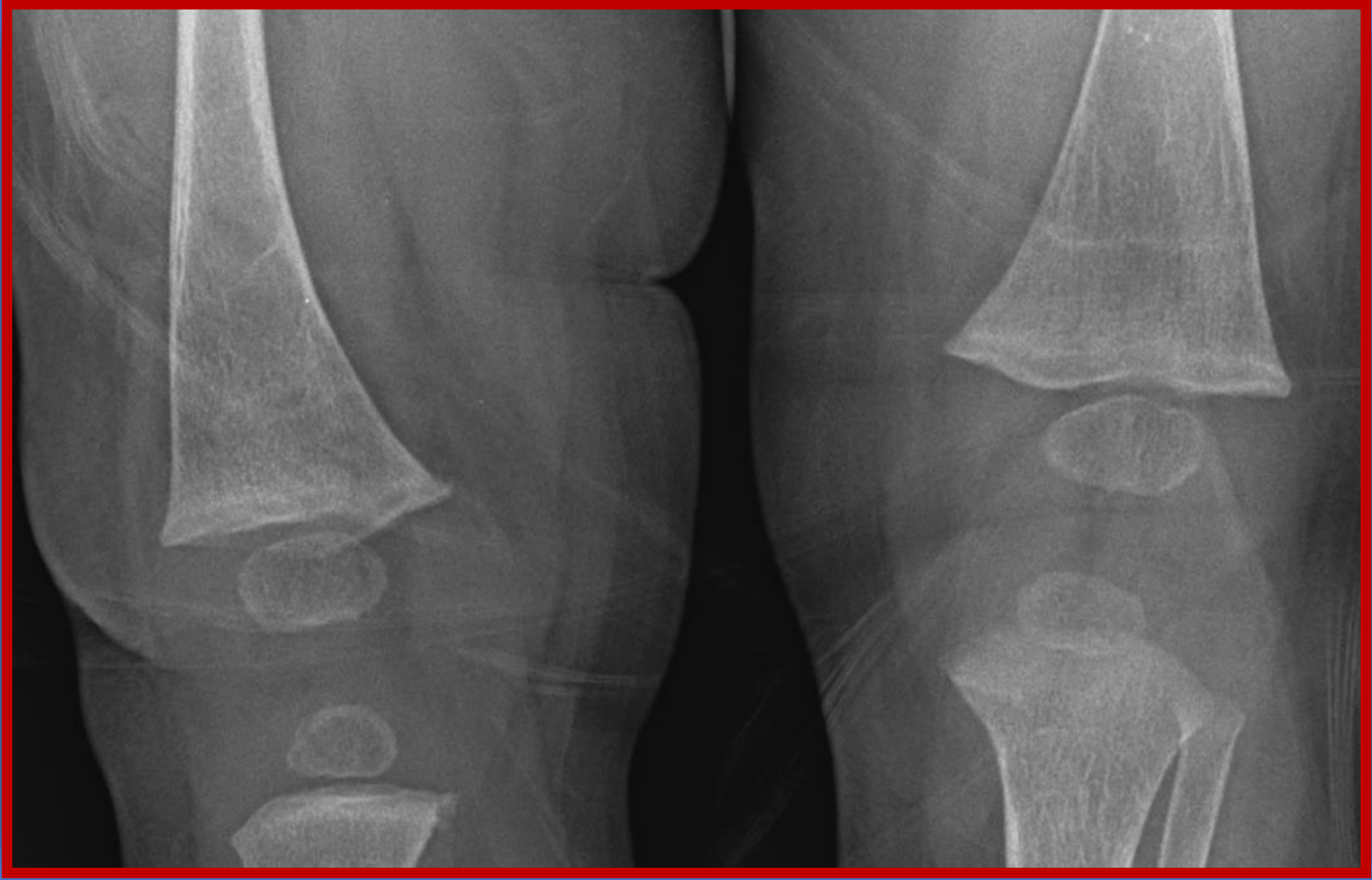
## **PHOSPOTEMIC RICKETS**

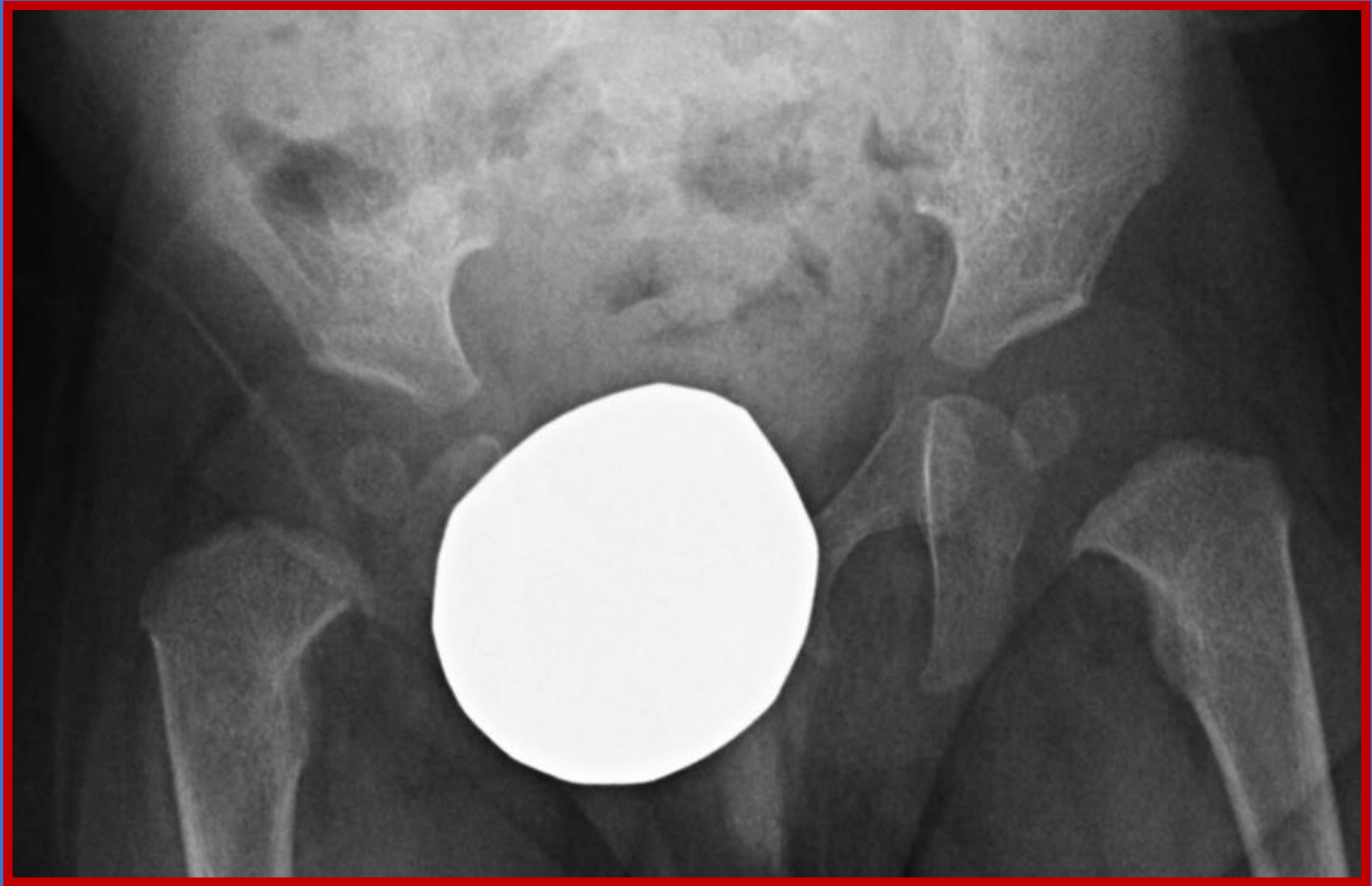
- Genetic Mutations
  - XLHR
  - ARHR
  - ADHR
- Fanconi Syndrome
- Dietary Phosphate Deficiency
- Phosphate Malabsorption



# AFTER TREATMENT







“ROSARY”

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# CASE TWO

A 7 year old male presents for a unilateral foot and ankle deformity

- There are some lateral ray abnormalities

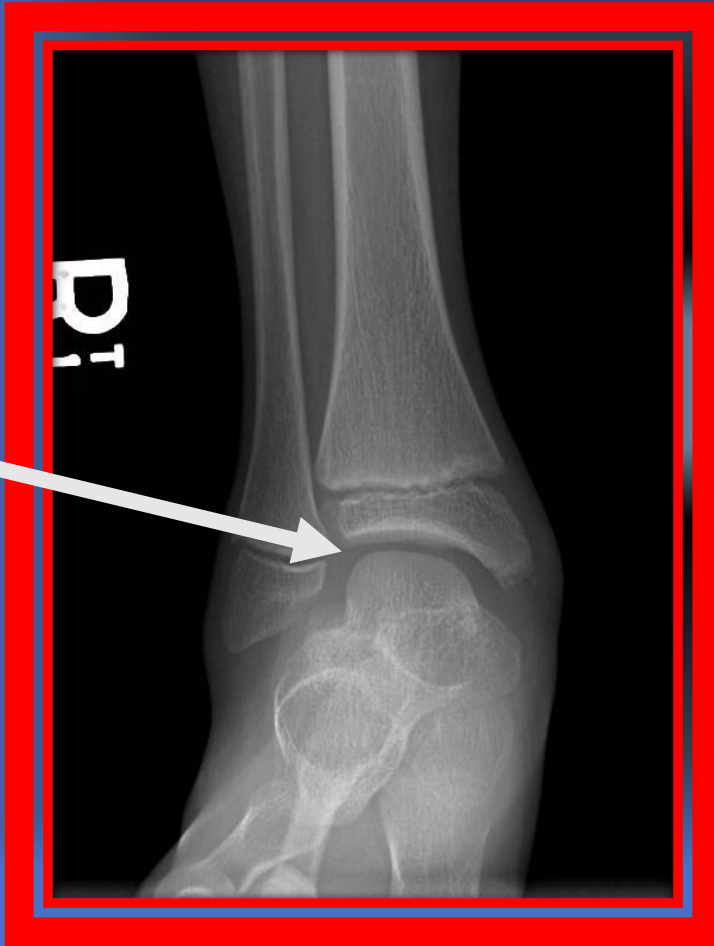


# CASE TWO



# CASE TWO

Rounded Talus



Absent Lateral Ray





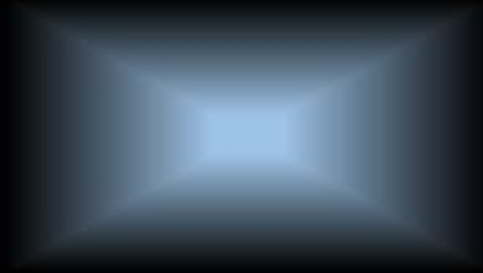
# CONGENITAL BALL-SOCKET ANKLE DEFORMITY

- Lateral Ray Deficiency (Usually, But Not Always)
- Massive Rearfoot Coalitions
- Ball And Socket Ankle Deformity
- Fibular Hemimelia



# CASE THREE

- This is a 9 year and 11 month female who has a mass on the end of the left third toe for about 6 months. It is deforming the nail and is occasionally painful.



# HISTORY OF CHIEF COMPLAINT

- Started suddenly about 6 months ago as a firm mass
- No trauma recalled
- No workup to date



# OH! AND HER PARENTS ARE CONCERNED ABOUT THE APPEARANCE OF HER ANKLES

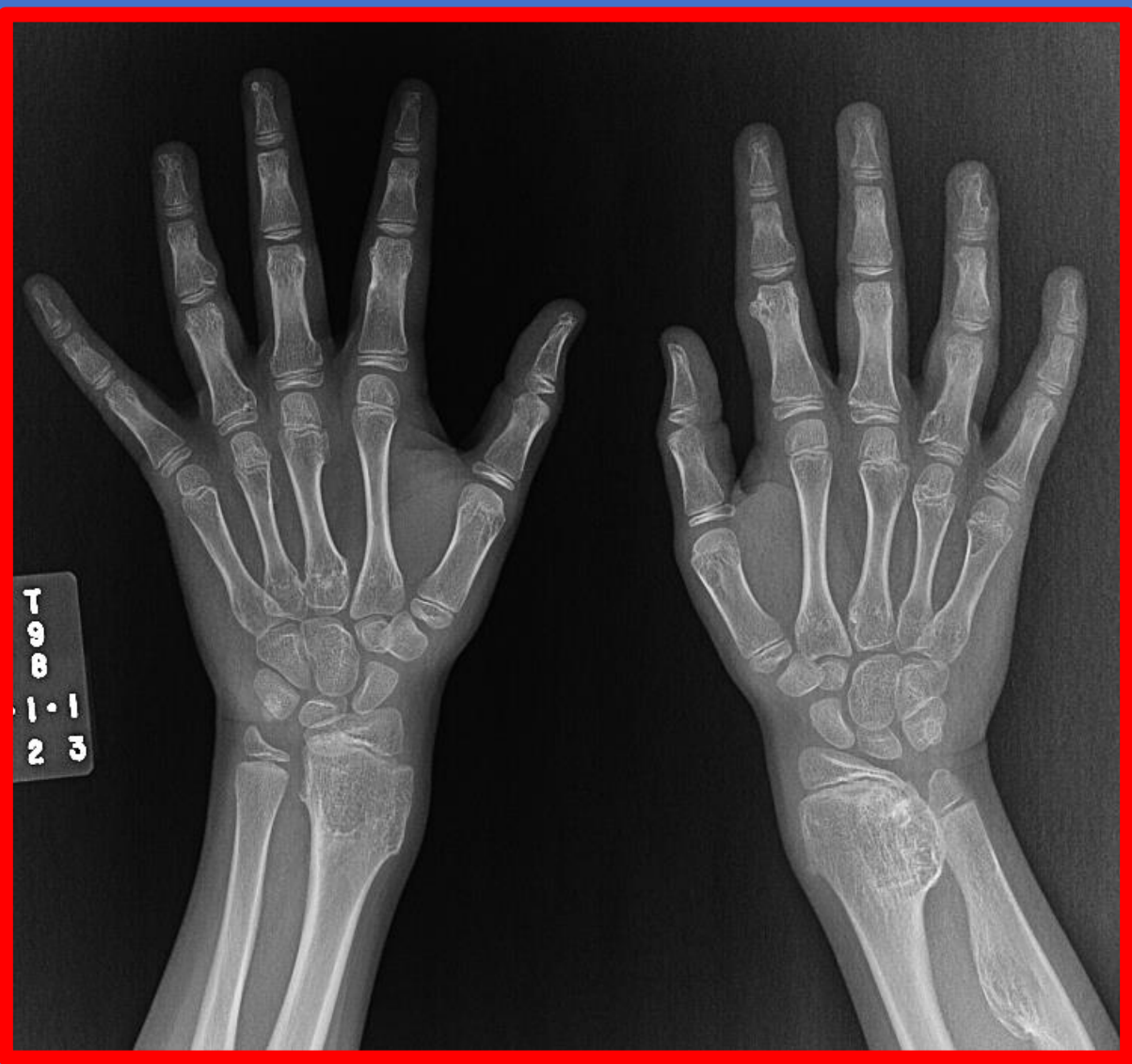
- Over the last year, they appear wider



# HER TEENAGED BROTHER

- We don't know anything about him yet, but this is a radiograph of one of his ankles







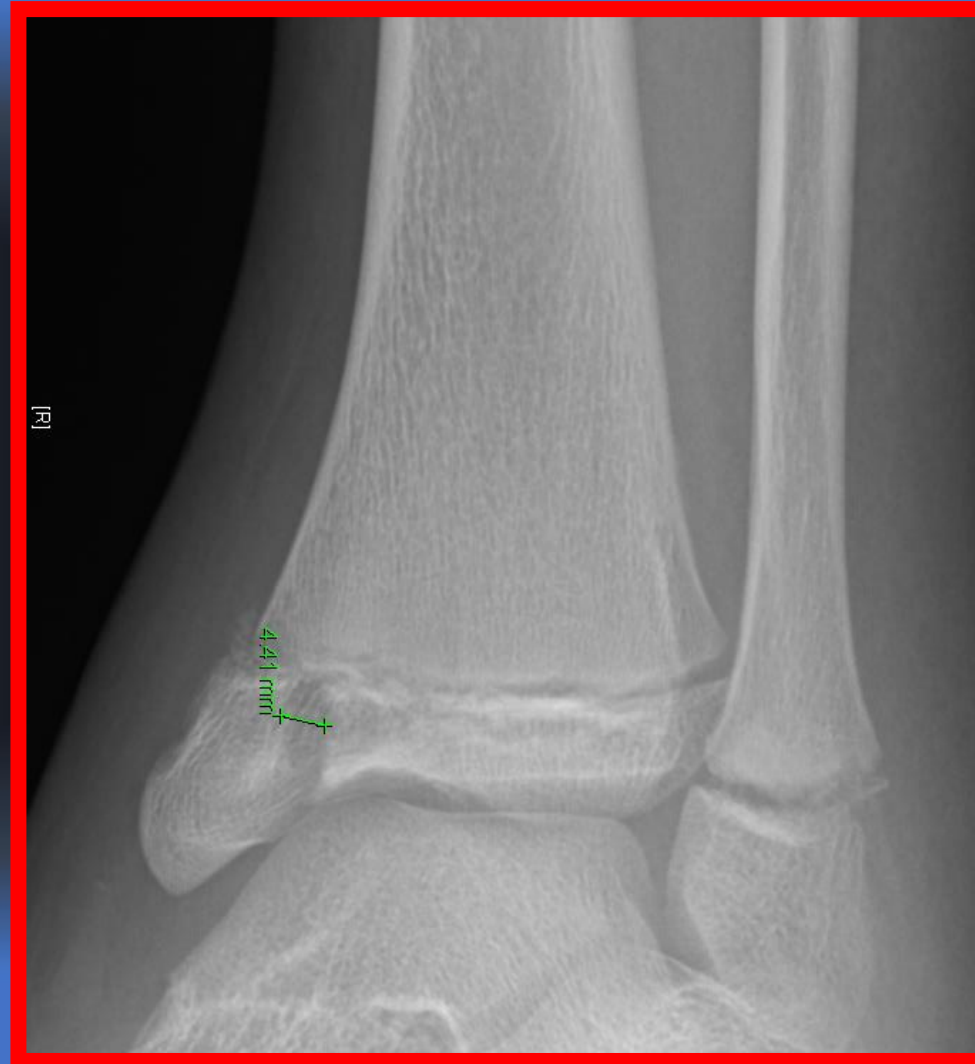
# MULTIPLE HEREDITARY EXOSTOSIS

- Hereditary In Nature
- Multiple Osteochondromas
- Chondrosarcoma In Third Or Fourth Decade

# CASE FOUR

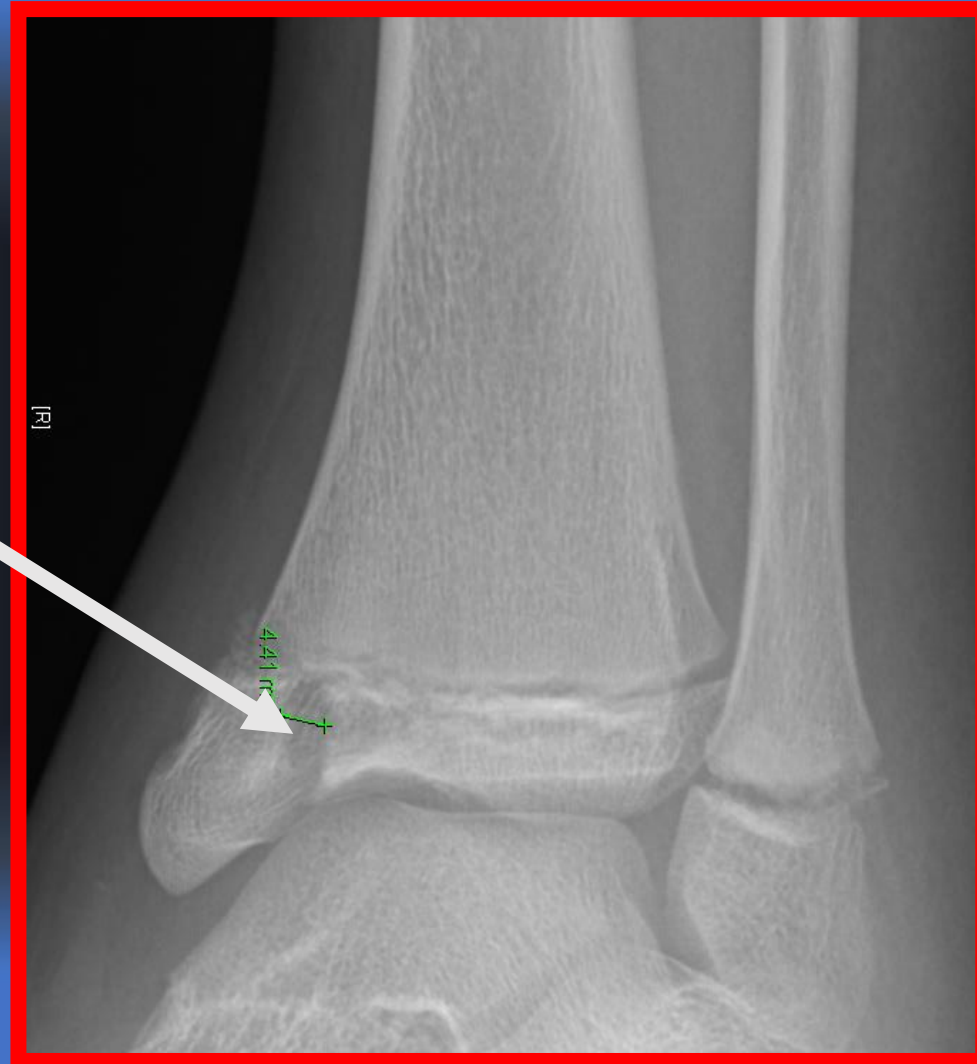
- A twelve year old premenarchal female drops from a height and injures her ankle
- She was seen in the emergency room
- There is severe edema but no fracture blisters
- She was placed in a posterior splint
- She was instructed on ice, elevation and analgesics

# CASE FOUR



# CASE FOUR

Gap Is 3 mm



# CASE FOUR

- Tibial Fracture Salter-Harris III Intraarticular

# CASE FIVE

- A thirteen year old male is playing basketball and suffers a left ankle injury
- He is seen in the ER
- Ankle fracture is diagnosed, and he is placed in a posterior splint

# CASE FIVE

What Is This?



2:1 JPE6LOSSLESSPROOFIRSTORDEREDICT

# CASE FIVE

What Is This?



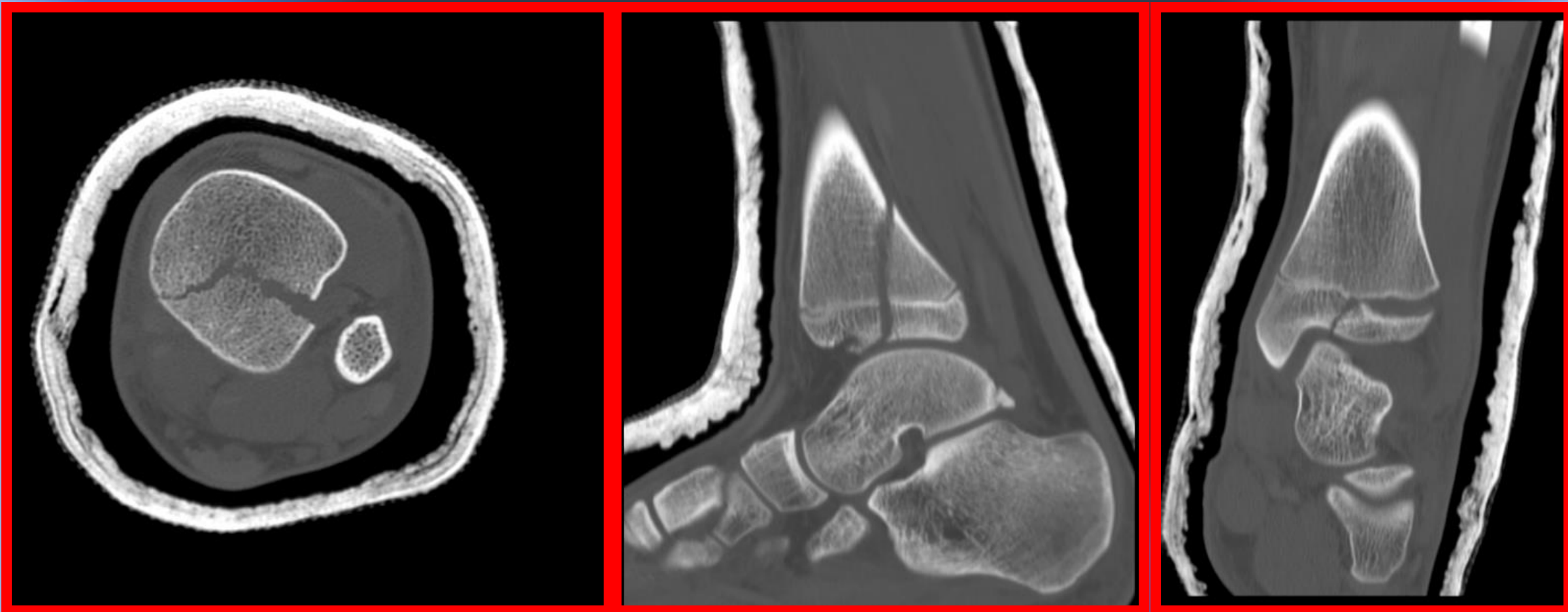
# CASE FIVE

What Is This?



2:1 JPEGLOSSLESSPROCFIRSTORDERREDICT

# CASE FIVE



# CASE FIVE

- Triplane Fracture Tibia
- Appears As A Salter-Harris III On AP
- Appears As A Salter-Harris II On Lateral

# CASE FIVE

- Complication?

# CASE FIVE



Partial Plate Closure

# CASE FIVE

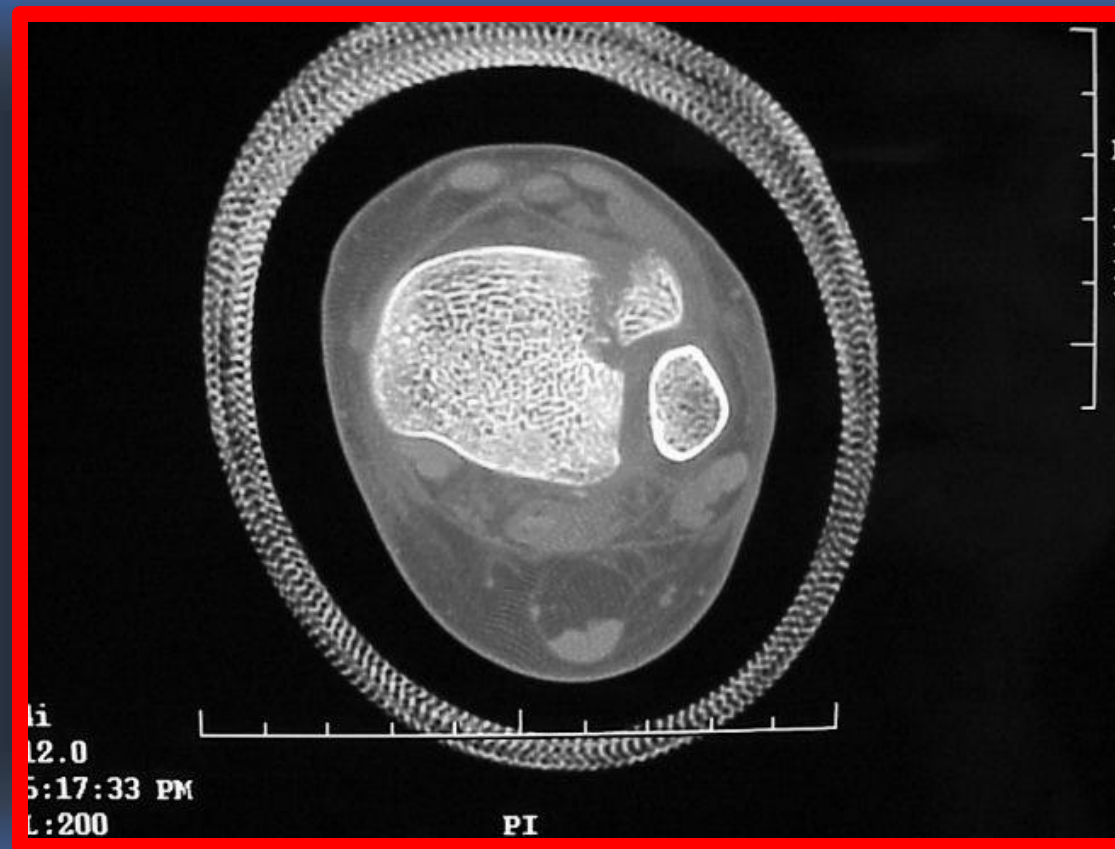
- A fourteen year old male is pinning to the ground and has an ankle injury



# CASE SIX



# CASE SIX



# CASE SIX

- Juvenile Tillaux Fracture

# CASE SEVEN

- A fifteen year old male has pain in the medial gutter of the left ankle
- No history of trauma
- Pain on ankle range of motion
- Mild edema
- Pain relieved with Naproxen

# CASE SEVEN

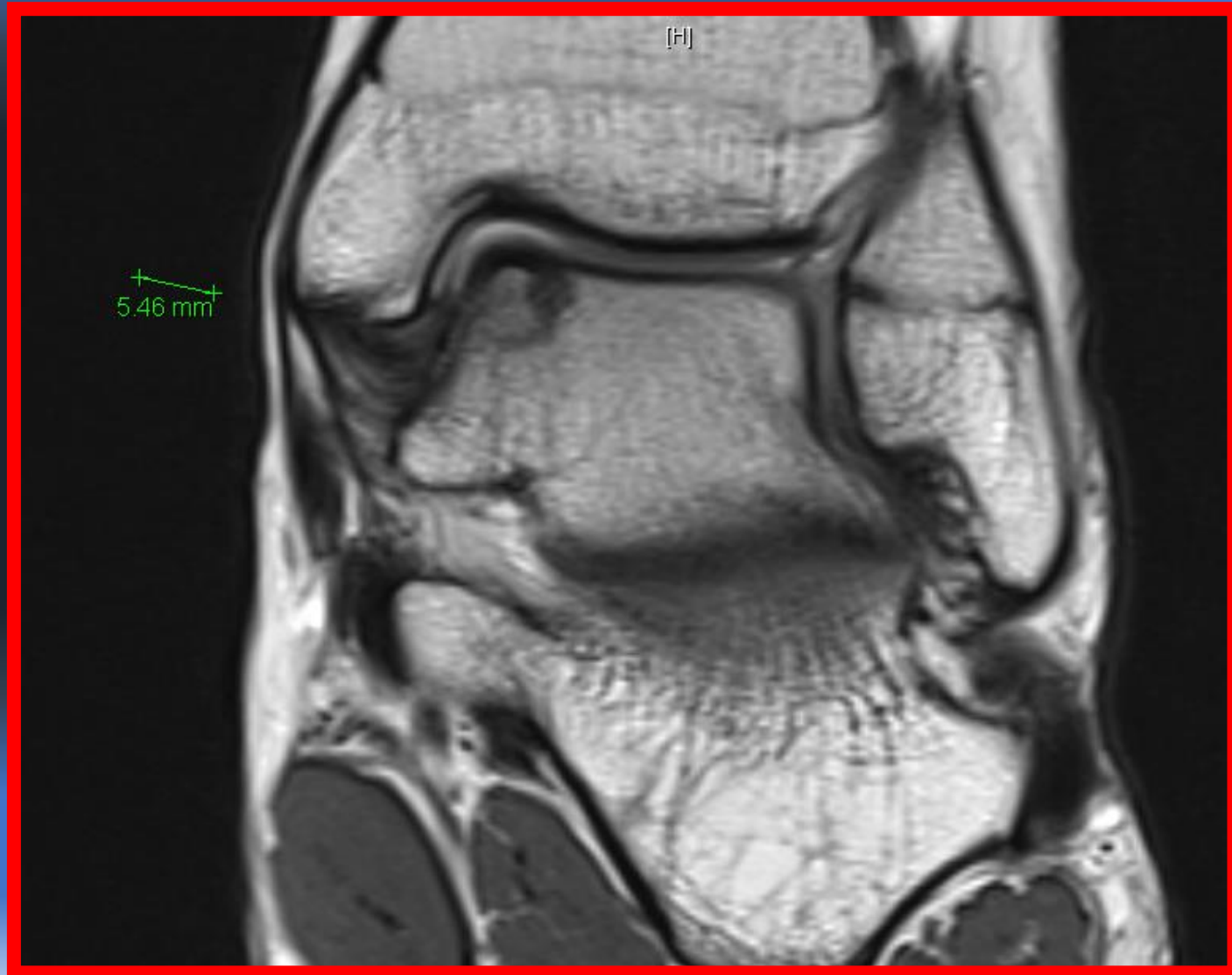


# CASE SEVEN

NoteThe Lesion



# CASE SEVEN



# CASE EIGHT

- An eleven year old male is being evaluated for a pronated left foot
- Subtalar range of motion is 20 degrees of inversion and fifteen degrees of eversion
- Ankle range of motion is 15 degrees in all knee positions
- No history of injury or physical disease

# CASE EIGHT



# CASE EIGHT

- Idiopathic ankle valgus

# CASE NINE

- 13 year old female has a unilateral left “flatfoot

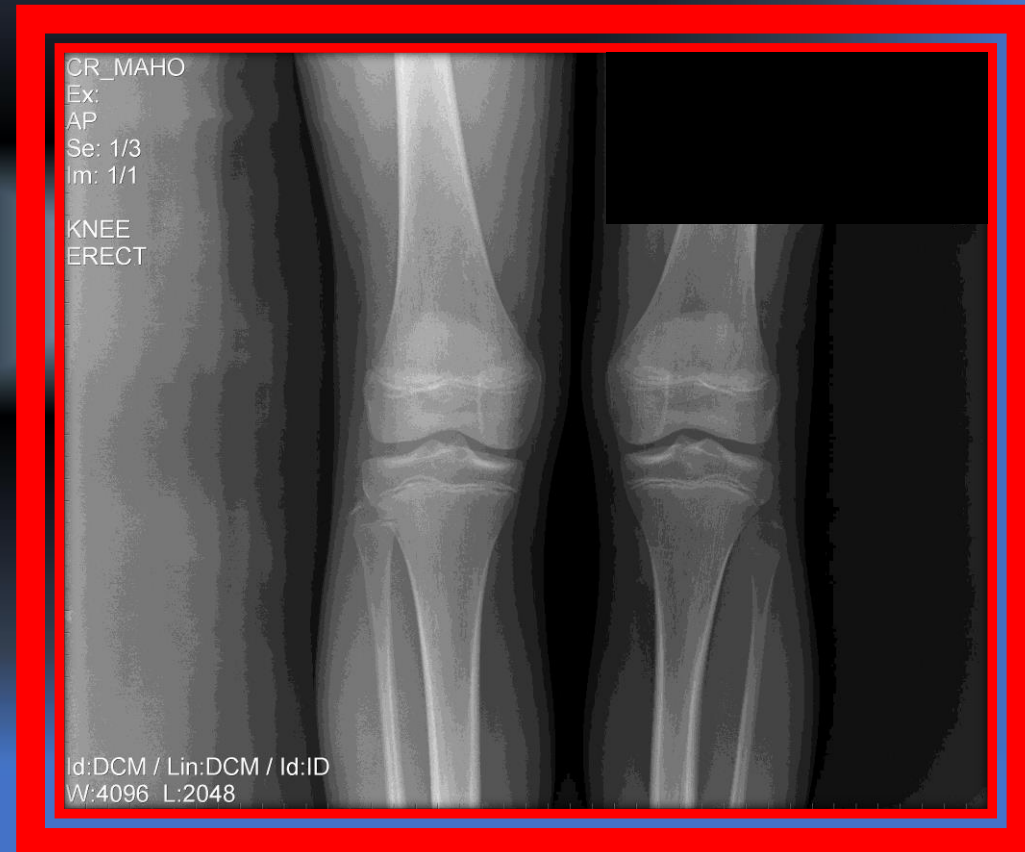


# CASE NINE



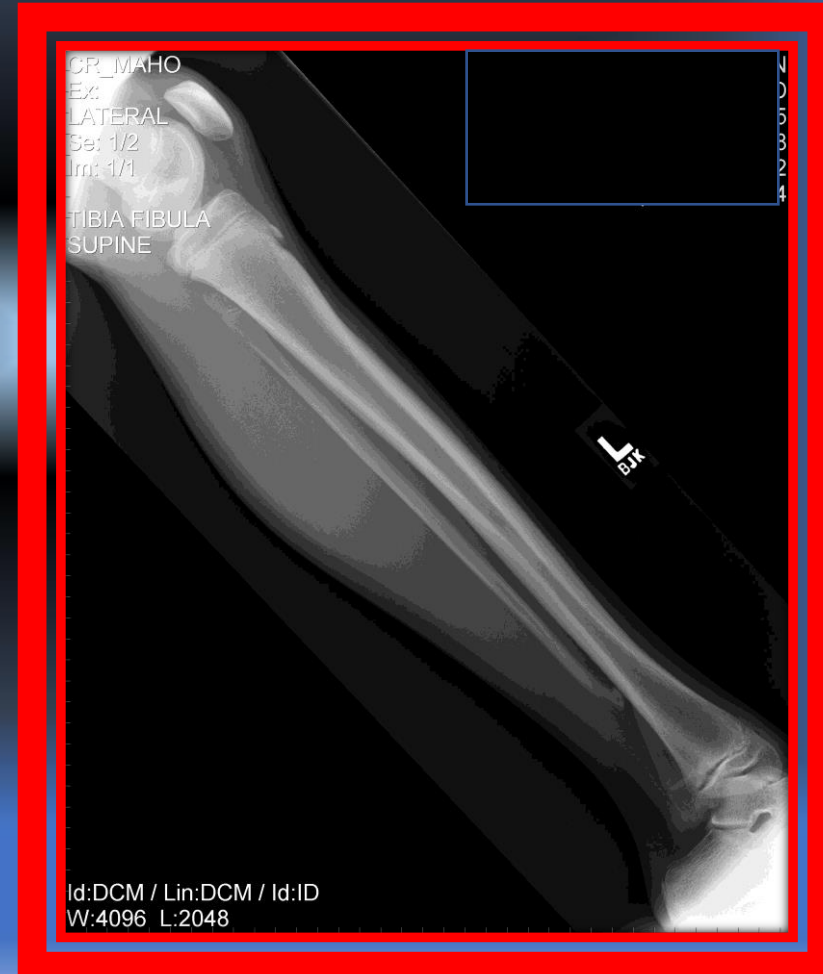
# MORE IMAGING

- Both knees
  - Low-lying upper fibula
  - Thin gracile left fibula



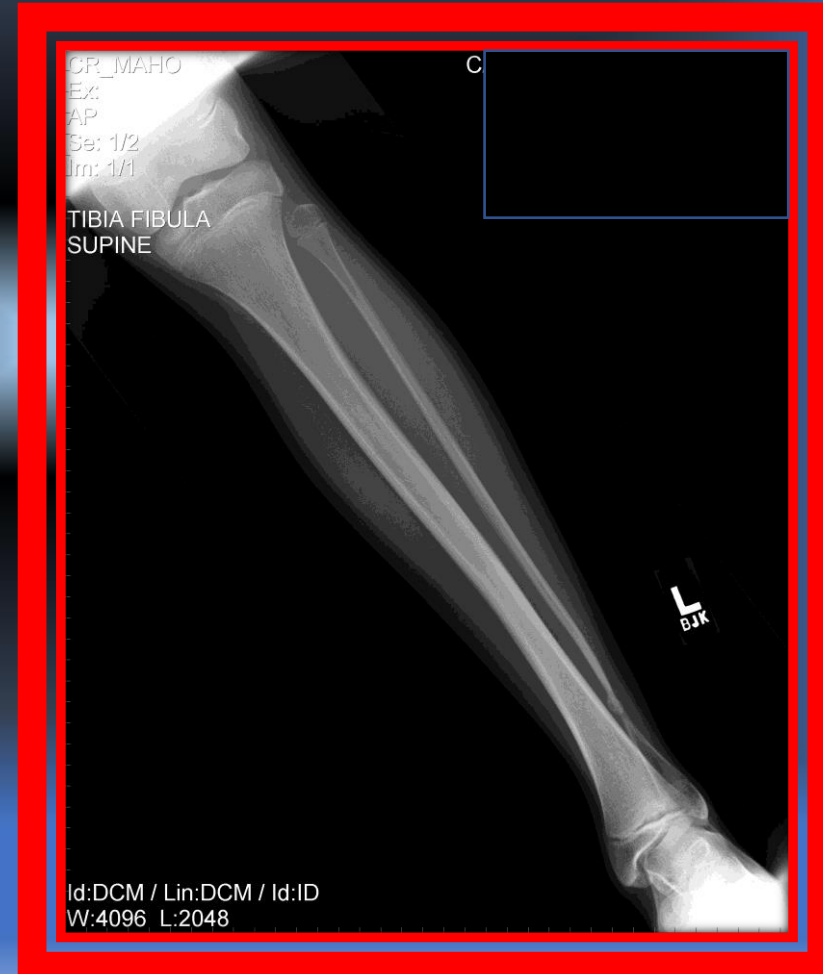
# MORE IMAGING

- Abnormal tibia
  - Narrowed medullary canal
  - Mild anterior bowing



# MORE IMAGING

- Abnormal tibia
  - Narrow diaphysis
  - Mild lateral bow



# MORE IMAGING

- Of course, the elephant in the parlor
  - The funky fibula
  - The valgus ankle
  - Mild anterolateral bowed tibia



# CUTANEOUS LESIONS

**Café-au-lait spots**



**Axillary freckles**



# CASE NINE

- Neurofibromatosis I (VonRecklinghausen's Disease)

# CASE TEN

- A twelve year old male undergoes radiographs of the ankle
- No other information is available



# CASE TEN



# CASE TEN



Note The Lesion

# CASE TEN

- Fibrous Cortical Defect



# CASE TEN

- Larger lesion with similar histopathology

# CASE TEN



# CASE TEN

- Non-ossifying Fibroma



# CASE TEN

- Treatment?

# CASE TEN

- Potential complication: Fracture

# CASE TEN

Fracture



# CASE TEN

Fracture



# CASE TEN

Fracture



THANK YOU