

Imaging Evaluation of Congenital Vertical Talus

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Congenital Vertical Talus (CVT)

- Rare foot deformity
- Rigid planovalgus and dorsal talonavicular joint dislocation
- Idiopathic or secondary to musculoskeletal or genetic abnormalities
- Severe cases evident clinically
- Milder cases difficult to diagnose and differentiate from Oblique Talus (OT)

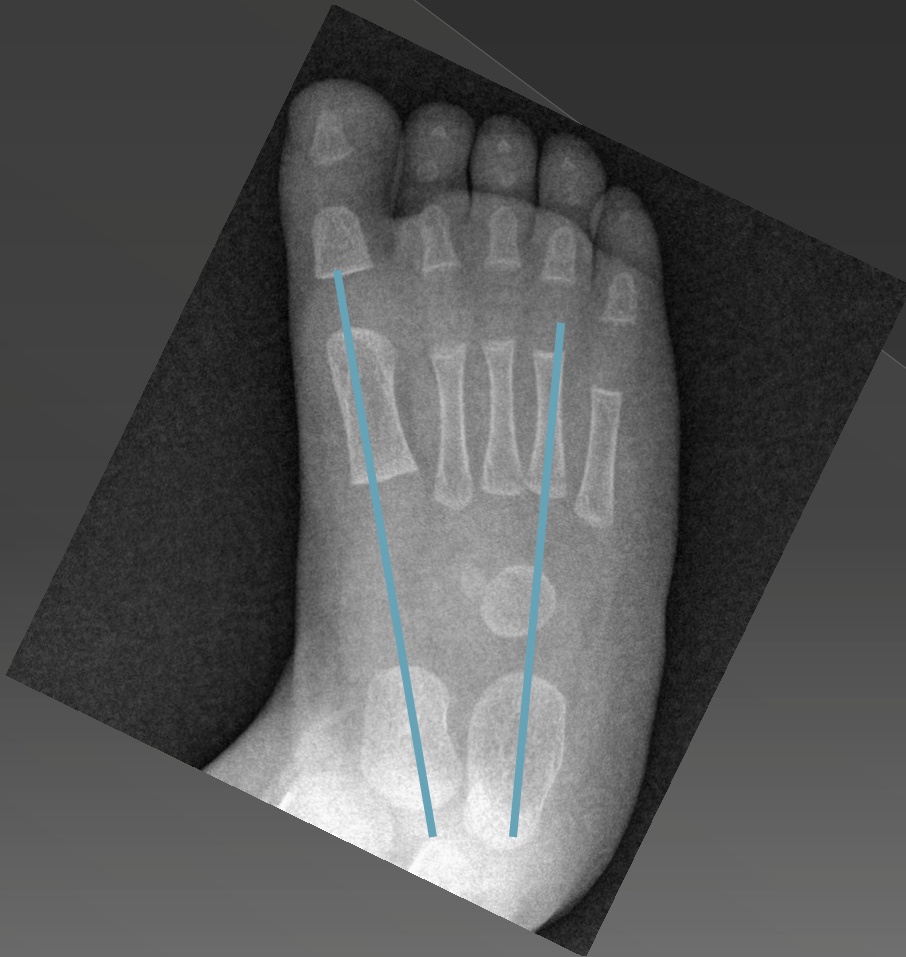
CVT vs. OT

- CVT - Fixed dorsal talonavicular dislocation
- OT – Reducible dorsal talonavicular dislocation with forced plantarflexion
- Important distinction for treatment
 - > CVT – Casting and surgical fixation
 - > OT – Serial casting

Radiography

- Evaluate orientation of talus and calcaneus
- Assume navicular position based on ossified cuboid or first metatarsal long axis
- Limitations
 - > Non-ossified navicular (9 months – 5 years)
 - > Early round talar ossification center may not accurately indicate the true long axis of the cartilaginous talus
 - > Ionizing radiation

Radiography – Normal Foot

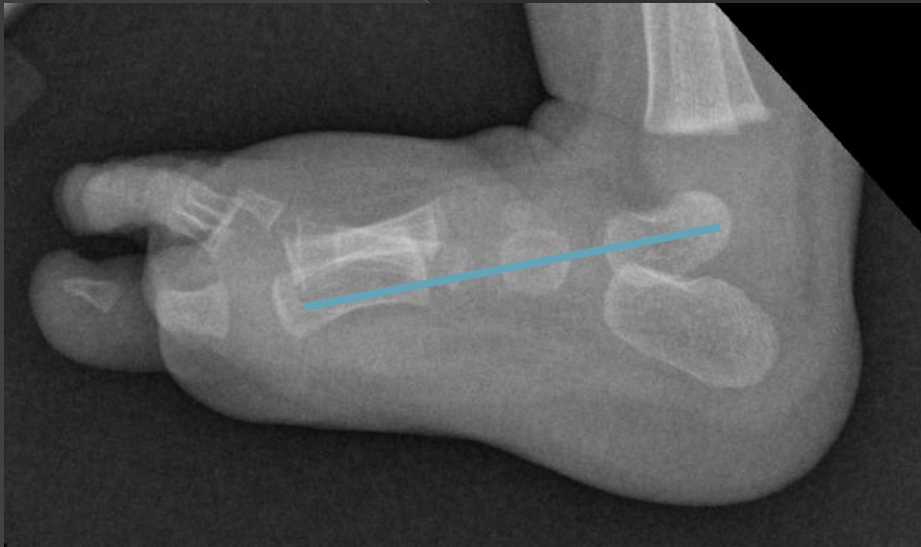


- AP View

- > Talus – 1st MT

- > Calcaneus – 4th MT

Radiography – Normal Foot



- Lat View

- Talus – Cuboid or 1st MT



Radiography – CVT



- AP View
 - > Hindfoot Valgus

Radiography – CVT



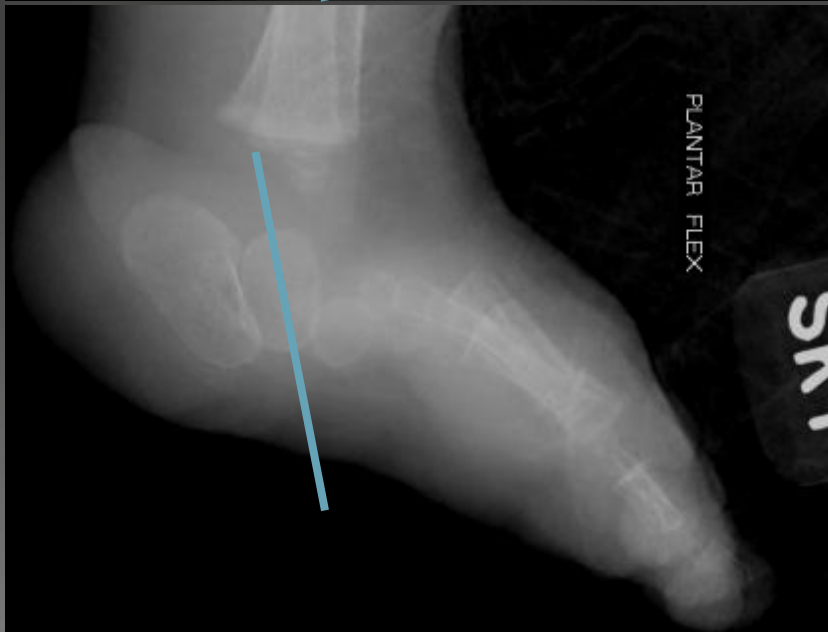
- Lat View
 - > Vertical talus
 - > Calcaneus in equinus

Radiography – CVT



- Lat Dorsiflexion View
 - > Calcaneus in fixed equinus

Radiography – CVT



- Lat Plantarflexion View
 - > Non-reducible talonavicular dislocation

Radiography – OT



- Lat Dorsiflexion
 - > Calcaneus equinus
 - > Vertical talus

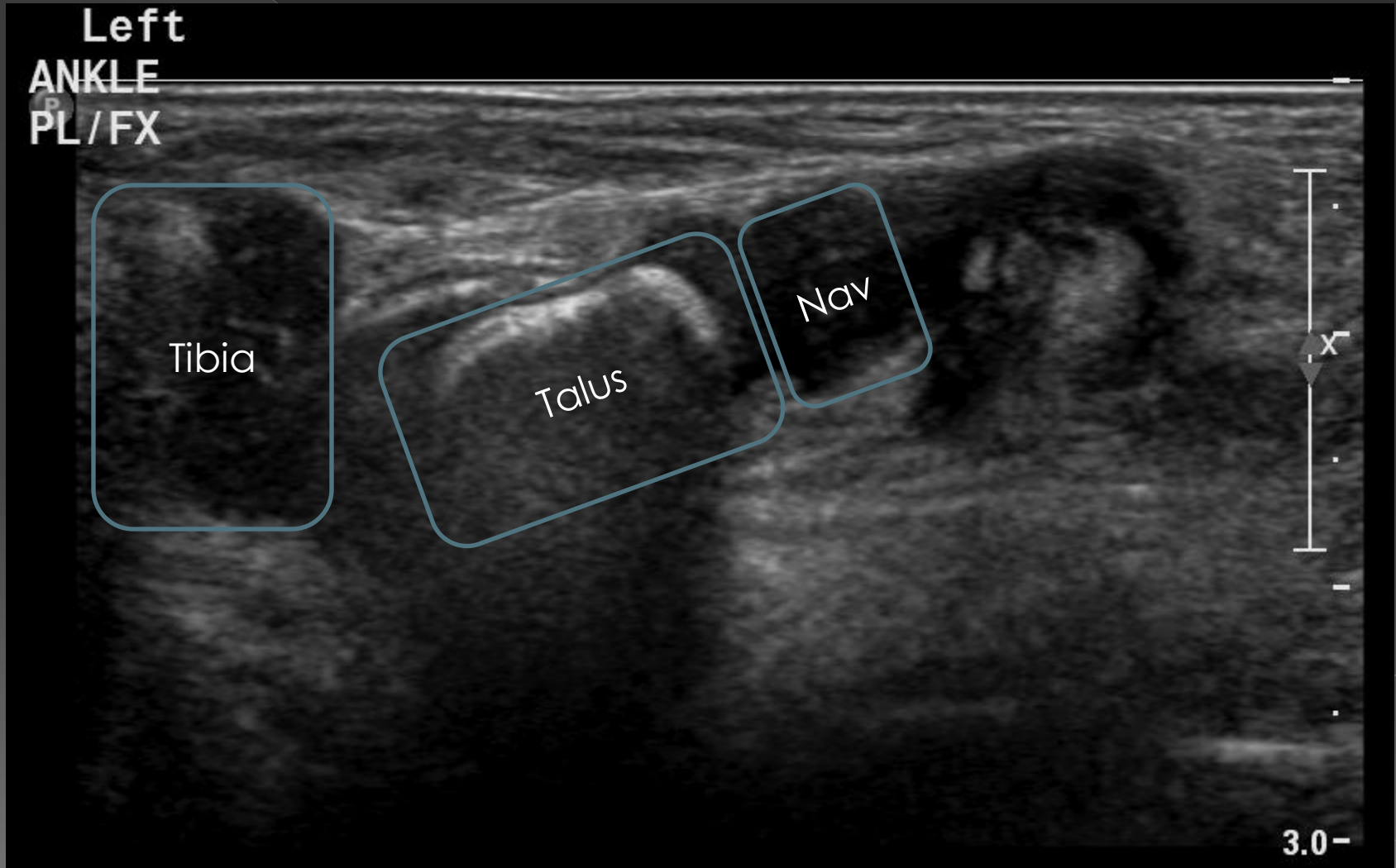


- Lat Plantarflexion
 - > Reducible talonavicular dislocation with max plantar flexion

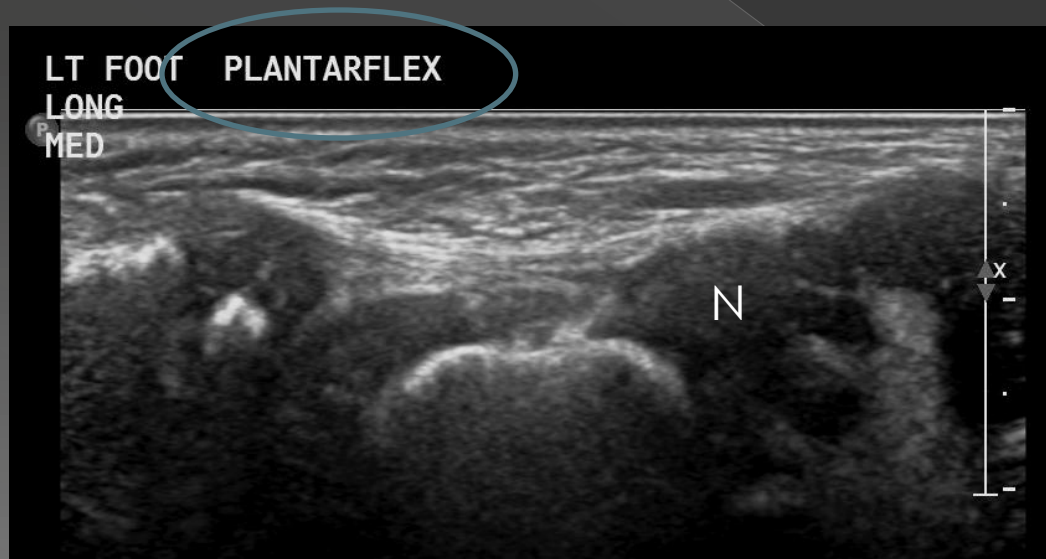
US Evaluation of CVT/OT

- Visualization of cartilaginous structures
- Dynamic
- No ionizing radiation
- Linear high resolution transducer or small footprint curved transducer

Ultrasound – Normal Foot



Ultrasound – CVT

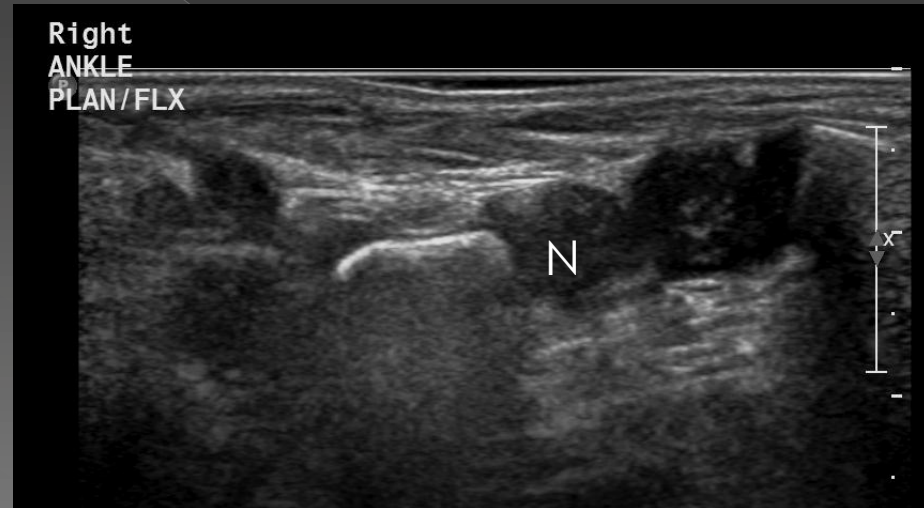
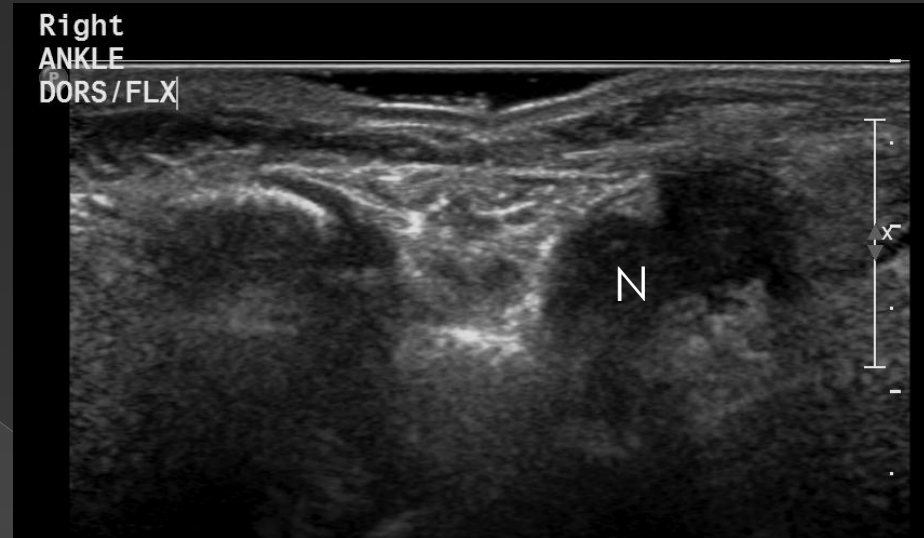
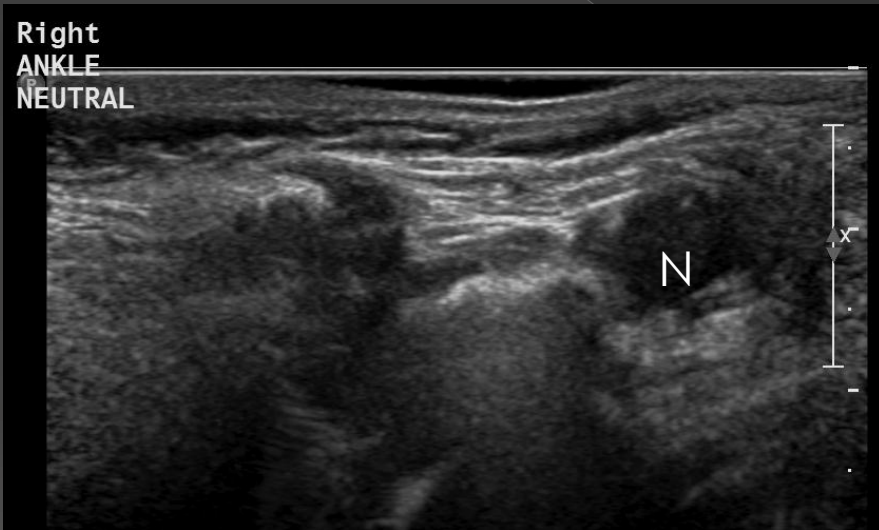


Non-reducible

Ultrasound – CVT

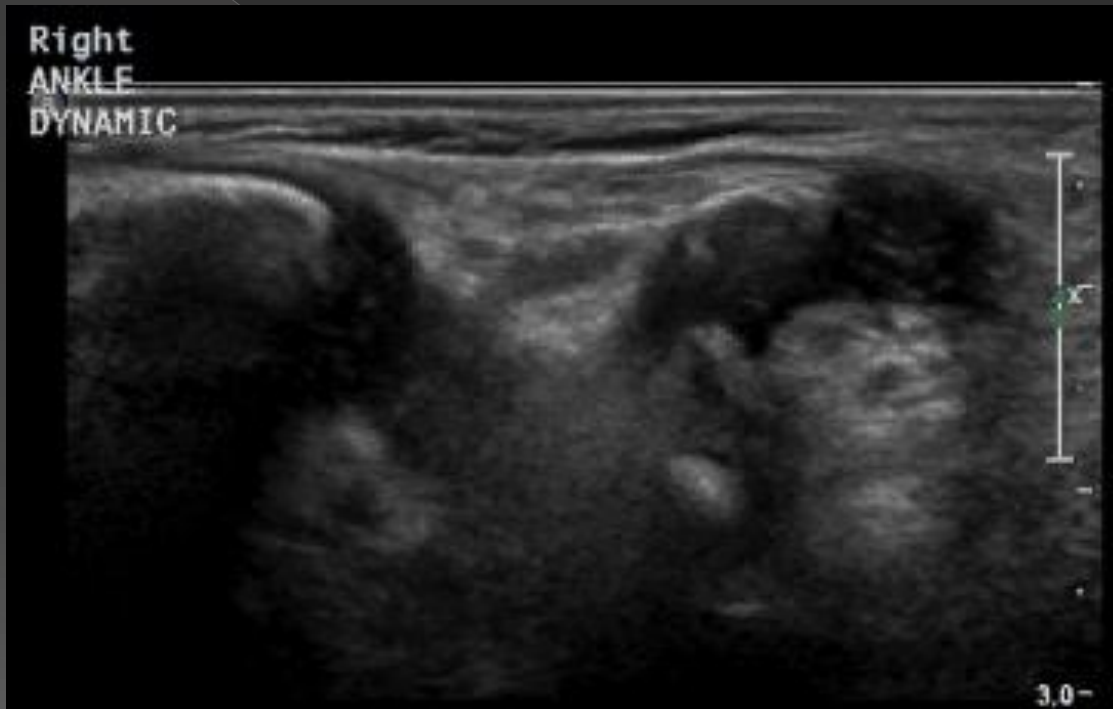


Ultrasound – OT



Reducible

Ultrasound – OT



Conclusion

- While severe CVT diagnosed clinically
- Milder forms need imaging
 - > CVT vs. OT
- Radiography limitations
 - > Skeletal immaturity
 - > Ionizing radiation
- US powerful tool
 - > Accurate visualization (cartilage)
 - > Dynamic

Thank you!