



35-month-old girl with left foot pain after fall. Able to stand.





Toddler's Cuboid Fracture

- *Compression fracture* postulated to occur due to compression of the cuboid between the calcaneus and the bases of MT4 and MT5 in the *plantar-flexed* or *abducted foot*.
 - “Nutcracker fracture”
- Radiographs reveal a subchondral, linear band of sclerosis in the proximal base of the cuboid
 - Senaran et al (2006) reports that the sclerosis may occur distally or in the midportion of the cuboid.

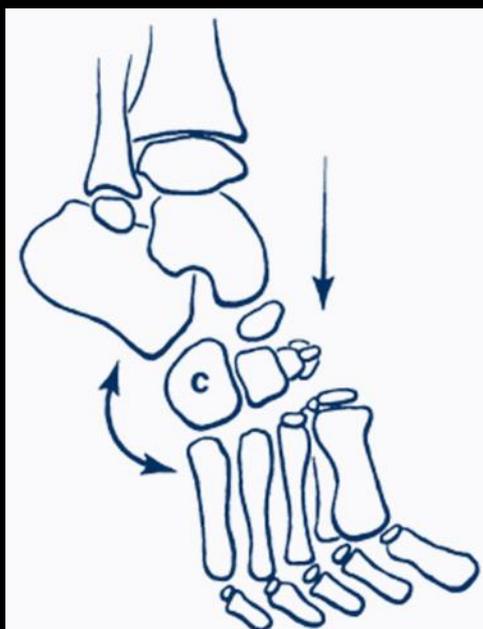


Figure 16. Diagram shows the cuboid fracture mechanism. Forced plantar flexion compresses the cuboid (C) between the calcaneus and the metatarsals.

Toddler's Cuboid Fracture

- Caregivers may or may not recall an episode of injury (tripping and falling on plantar-flexed foot)
 - One case report of a “stress” fracture in a child with abnormal gait learning to walk (Nicastro and Haupt JBJS 1984 Sep;66(7):1106-8.)
- Presentation: Antalgic gait, refusal to bear weight
- Diagnosis:
 - Pain and refusal to bear weight laterally
 - Positive “nutcracker” maneuver
 - Radiographs initially negative in as many as 2/3 of cases
 - obtain follow-up radiographs in 1-2 weeks to visualize sclerosis
 - Other modalities: MR, ultrasound, bone scan

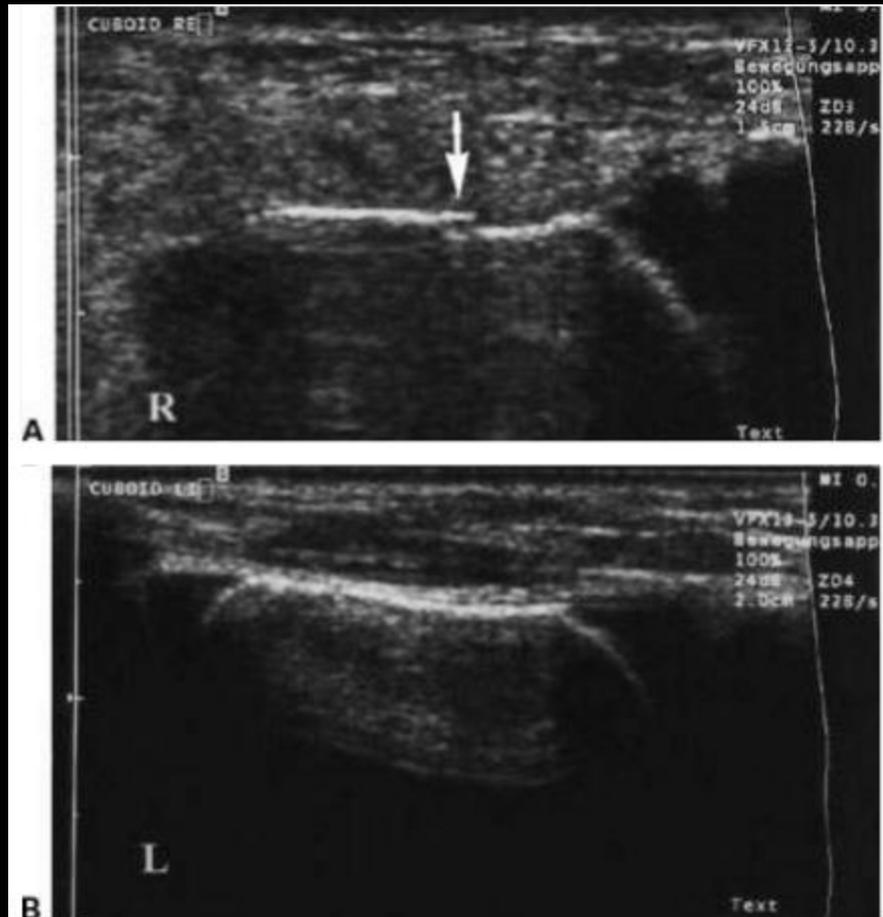
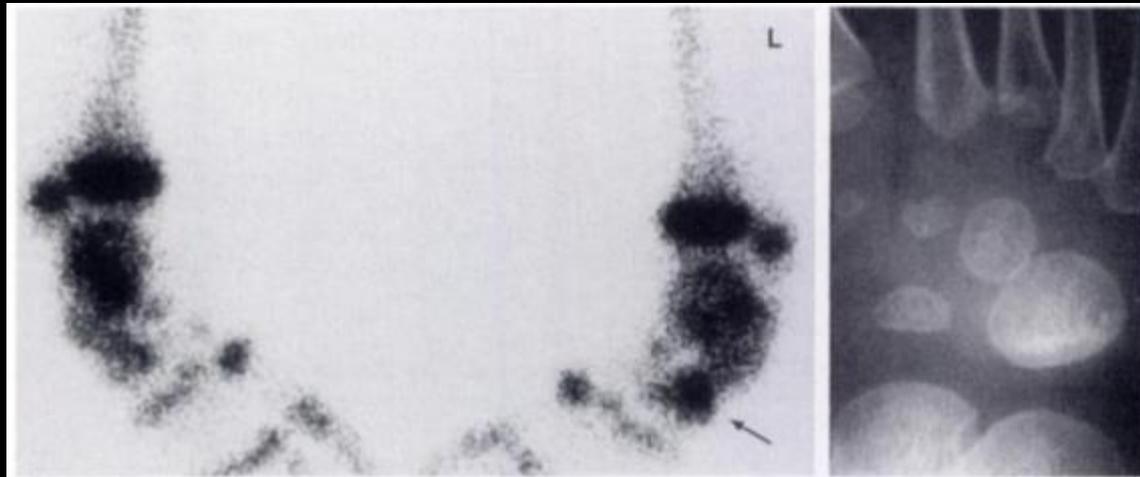


FIGURE 2. Sonographic examination of the foot reveals the fracture of the cuboid bone. **(A)** Sonogram of the patient's right foot shows a cortical "step" (arrow) representing the fracture site. **(B)** Sonogram of the patient's left foot shows a smooth, uninterrupted cortical surface.

Toddler's Cuboid Fracture

- Excellent prognosis
- Conservative management
- Symptoms resolve after an average of 1 month, heal without sequelae
 - Duration may be slightly shorter with casting and immobilization



Cuboid Fracture in Children and Adults

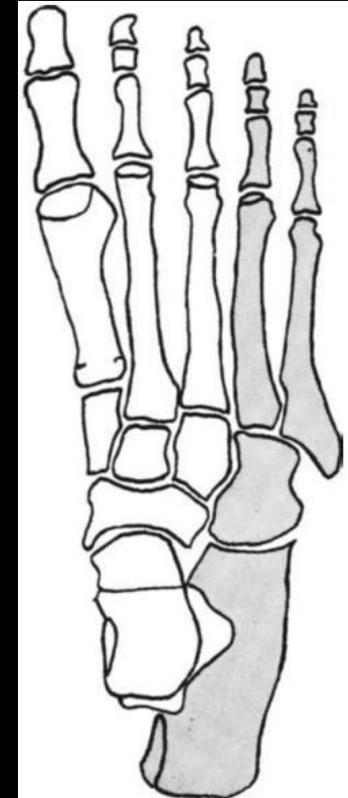
- Uncommon
- More severe trauma
- Direct or indirect injury
- Compression or avulsion fractures
- May be impacted, displaced, or disrupt articular surface
- Often associated with other fractures and dislocations
 - Anterior process of the calcaneus
 - MT4, MT5
 - Navicular
- Soft tissue complications
 - Distraction-type injuries of medial soft tissues (PTT)
 - Peroneus longus tendon fibrosis



Ceroni et al. J Pediatr Orthop.
2007 Jul-Aug;27(5):557-61.

Cuboid Fracture in Children and Adults

- Functional division of the foot originating at the midtarsal joint by *Lambrinudi*:
 - Medial column: navicular, cuneiforms, 1st and 2nd rays
 - Lateral column: cuboid, 4th and 5th rays
- Impacted cuboid fracture leads to foreshortening of the lateral column.
- Surgery (fixation, fusion, calcaneal lengthening) indicated to restore anatomic alignment of the foot and prevent development of pes planovalgus
 - More tenuous blood supply and growth potential of midfoot bones in children



References

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