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.

John SD et al. (1997). Radiographics 17:367–376
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

Cuboid Fracture in Children and Adults

• Functional division of the foot originating at the midtarsal joint by *Lambrinudi*:
  – Medial column: navicular, cuneiforms, 1\textsuperscript{st} and 2\textsuperscript{nd} rays
  – Lateral column: cuboid, 4\textsuperscript{th} and 5\textsuperscript{th} 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