Nonoperative Treatment of Pediatric Tibial Shaft Fractures (Shaft)-- Dr. Trueblood

**Indications:** Most pediatric tibia fractures may be treated nonoperatively and healing is much more predictable in children than it is in adults. The potential for remodeling also allows for more latitude in opting for nonoperative treatment. Goal is <10 degrees of angulation in any plane, less than 15 degrees of ER, 50% apposition, and no more than one centimeter of shortening. Absolute contraindications to nonoperative treatment of tibia fractures include open fractures, dysvascular limb, and compartment syndrome.

**Index evaluation--**

- XR tib-fib if no x-ray within 48 hours and original films are nondisplaced. If displaced at all or if interval is greater than 48 hours, then repeat AP/ Lat tib/ fib in splint.
- Skin and soft tissue assessment to detect soft tissue wounds/ embarrassment.
- Everyone gets checked with PROM of toes... try to do this with the patient otherwise distracted so that you can distinguish between a response from anxiety and a response from pain.
- Pain assessment. Pain med prescriptions as needed. Encourage family to transition to children’s motrin and tylenol as quickly as possible with narcotics used primarily at night to facilitate sleep.
- Casting: Long leg cast with knee flexed 10 degrees and a walking pad on plantar surface.
- Weight bearing. Patient may bear weight as tolerated in cast with crutch or walker assistance.
- School note: no gym or recess. Must keep cast clean and dry. Elevate leg for 15 minutes every 2 hours.
- Follow-up in office at 1 week after injury.

A note about wedging: Angulation between 10-20 degrees after casting or in the first three weeks of follow-up may be corrected by wedging the cast. Shortening and rotational deformities do not respond to wedging. If deformity persists after wedging, then Dr. Trueblood needs to see this patient within the next 3-5 days to discuss surgical treatment of the fracture.

**1st return visit--**

- XR tib-fib in plaster
- Pain assessment. Refills if necessary. Encourage transition to NSAIDs as appropriate.
- School note: no gym or recess. Must keep cast clean and dry. Elevate leg for 15 minutes every 2 hours.
- Follow-up at three weeks after injury.
2nd return visit--
- XR tib-fib in plaster. Should begin to see early callus formation at this time.
- Pain assessment. Refills if necessary. Encourage transition to NSAIDs as appropriate.
- Cast: Cut cast down to a patellar bearing cast. Encourage knee range of motion.
- School note: no gym or recess. Must keep cast clean and dry. Elevate leg for 15 minutes every 2 hours.
- Follow-up at six weeks after injury.

3rd return visit--
- XR tib-fib out of plaster.
- Pain assessment. Patient should be on NSAIDs if anything at this point. Dr. Trueblood needs to be notified if this is not the case.
- Advancement:
  - If patient has 3+ bridging cortices on x-ray and is nontender over their fracture site, then may advance to Phase 2.
  - If <3 bridging cortices or still focally tender at fracture, re-apply a weight bearing, patellar bearing cast and return to office in 2 weeks.
- Phase 2:
  - Weight bearing as tolerated out of cast.
  - School note: May return to sport/ gym class 2 weeks after removal of cast.
  - Counsel family on the risk of refracture.
- Follow-up at three months after injury.

4th follow-up visit--
- XR tib-fib, final.
- Functional assessment
- School note: no restrictions.
- Follow-up prn