Top Ten Things To Know About Pediatric Fracture Care

Gerad Montgomery, M.S.N., FNP-C, shared the Top Ten Things to Know about Pediatric Fracture Care with attendees at the March "Coffee, Kids and Sports Medicine" lecture in Frisco. This free, monthly educational series is open to all health care providers who work with children and young athletes.

#10 You're treating the patient AND the parents!

Majority of second opinions are requested to provide clarity, not necessarily a different treatment. Here are suggestions to optimize the conversations at the first visit:

- Spend extra time with the family. This may reduce frustration and duration of subsequent visits.
- Discuss expectations and timelines for both treatment and healing.
- Map out what to expect at subsequent visits.

Identify and address questions or complications right away. Pediatric injuries are not always straight forward and you must be able to explain things in ways that parents will understand and trust your diagnosis and treatment.

#9 A Methodical exam is your best tool

Methodical exam – it's not always obvious:

- X-rays and history should augment a good physical exam.
- Always examine the joint above and below.

#8 Missed non-accidental trauma (NAT) can result in fatality

Red flags:

- Inconsistent history
- Unwitnessed trauma
- Fracture doesn't match story (i.e. femur fracture in non-ambulatory child)
- Multiple fractures in various stages of healing – skeletal survey
- Skin stigmata – bruises, burns

Know your resources and obligations.

#7 Check the skin!

Fracture + bleeding/wound is open fracture until proven otherwise

- A small "puncture" can signify an open fracture
- The bone does not have to be sticking out!
- Fracture + bleeding at or around nail = open fracture

#6 Splints/casts are NOT benign

- Key messages for patient education to prevent complications like skin breakdown:
  - Elevate the extremity for the first three days after the splint/cast is applied.
  - Never place anything inside of the splint.
  - DO NOT attempt to remove and re-apply a splint without help from a health care provider.
  - Monitor for signs and symptoms of neurovascular compromise.
  - Teach them how to check this and what to do should an issue occur (cap refill, sensation changes, increasing pain, proper elevation)
- Do not get your splint or cast wet. Call your health care provider immediate if it does.

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#5 Not all fractures require a cast

Don't let the treatment be worse than the injury.

#4 Most Pediatric Fractures can be managed without surgery

The Pediatric Orthopaedic Society of North America (POSNA) states on its website, "The standard of care for the treatment of pediatric forearm fractures remains non-operative treatment with closed reduction and casting. An acceptable functional outcome with closed treatment is the rule in a majority of fractures."

#3 Physeal Fractures

Know the pediatric bony anatomy. Here is a quick way to remember the "Salter-Harris Classification" for fractures at and through the growth plates.

S: same level
A: above
L: lower
T: through
ER: extensive crush injury

#2 Not all Fractures need an ER visit

What are your resources to manage?

- Safely immobilize with sling/boot/splint/crutches
- Educate Family:
  - Pain control – warning signs - elevation
  - Immobilization (+ education)
  - Referral to ortho

Know what can't wait:

- These are some orthopedic emergencies (non-inclusive)
- Open fractures
- Neurovascular concerns
- Severe swelling
- Severe clinical deformity
- Slipped Capital Femoral Epiphysis (SCFE)
- Femur Fractures
- Pain uncontrolled with PO meds

#1 Pediatric Bone Remodeling is Pretty Remarkable

Pediatric bone is structurally different than adult bone:

- Less dense/more porous
- Increased elasticity
- Tend to break in "patterns" (greenstick, torus/buckle, plastic deformation, complete, etc.)
- Thick periosteum
- Potential to Remodel

The basic principals of remodeling – greater potential with:

- Younger age
- Proximity to the physis
- Activity of the adjacent physis