Accurate Reporting of Pediatric Fractures
A Guide for Orthopedic Consultation
Kapi'olani Medical Center For Women And Children’s Emergency Department
Children’s Orthopaedics of Hawaii, LLC

Accurate description of the fracture is the most important factor in determining the need for immediate orthopedic care. In describing the fracture to the orthopedic surgeon, please include the following:

Site of injury: Which bone(s) are affected?
What part is broken? Proximal / Midshaft / Distal
Fracture pattern: Transverse (broken straight across) Oblique (slanted or diagonal break) Spiral (“twisted” break) Comminuted (shattered)

Angulation present? (i.e. is the fracture bent?)
Degrees and direction of angulation: Non-displaced, angulated 5 degrees, apex points to the left
Displacement present? (i.e. Has the fracture shifted?)
Approximate percentage of displacement: Non-displaced 50% to the right, displaced 80%

Other views are needed to determine angulation in other planes.

Displaced lateral condyle fracture (radial side; capitellum) are intra-articular injuries since they involve the joint surface. These commonly require surgery if displaced, but the urgency of the orthopedic referral is based on the patient’s neurovascular status.

Avoid giving predictions to the family about what the orthopedic management will be once the orthopedist is involved. Delayed surgical intervention or delayed casting is sometimes the preferred management option. Parents may be unhappy with this if they are initially led to expect immediate intervention.

Splinting an extremity is an easy office skill

Early casting may have a higher complication rate compared to later casting. Splinting provides excellent initial care until orthopedic surgery can see the patient.

1. Obtain splinting material such as plaster, Ortho-glass, Scotchcast, Sam splint, or even an IV board.
2. Cut an appropriate length of splinting material.
3. Pull out the padding to cover the sharp edges of the fiberglass.
4. Lay the fiberglass out and apply water.
5. Then roll it in a dry towel to remove moisture.
6. Here is an example of a simple volar forearm splint. Hold the splinting material on the volar surface of the forearm rolling the distal end in the palm.
7. Roll an elastic wrap over the forearm and splint. The splint material will mold to fit the extremity nicely.

DONE!!

Other splint types: Apply splint material, then roll an elastic bandage over this. The splint material will mold nicely to fit the extremity.

Other views are needed to determine angulation in other planes.

Casts

Non-displaced distal ulna fracture with 20 degrees of angulation. The apex of the angulation points toward the radial side of the forearm. Salter-Harris type II fracture of the distal ulna involving the metaphysis into the physeal plate. There is a slight degree of angulation with the apex point toward the radial side of the forearm.

Elbow ossification centers can resemble fracture fragments. This X-ray shows all the ossification centers in the elbow which ossify in the sequence CRITIDE: (O) capitellum (R) radial head (I) internal epicondyle (T) trochlea (D) olecranon (E) external epicondyle

Salter-Harris fractures involve the physeal plate (growth plate) of long bones. Types 1, 2, 3, 4, 5 are diagramed here. Since the physeal is not ossified, a fracture through the physeal cannot be visualized on X-ray easily.

Transverse fracture of the distal radius which is 100% displaced, shortened (even riding) approximately 2 cm, and angulated with the apex of the angulation pointed toward the ulnar side of the forearm. The distal ulna is fractured in three pieces. The metaphysis of the ulna (arrow) is displaced (behind the radius on the lateral view). There is also a “greenstick” fracture of the distal 1/4 of the ulna which is angulated approximately 20 degrees with the apex pointing toward the ulnar and dorsal sides of the forearm.

Medial epicondyle fracture: Partially displaced, non-displaced ulna epicondyle fracture. This is not as serious and can be placed in a splint and referred to orthopedics electively.

Mid-ula fracture. Approximately 20 degrees angulation. The apex is pointing toward the volar side (confirm the apex clinically). No displacement. Radial head (R) is dislocated (it should be aligned with the capitellum (C)). Ulna fractures are frequently associated with radial head dislocation (the Monteggia injury).

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