SAJEM EMERGENCY MEDICINE JOURNAL

Image in ER

Metaphyseal Fracture of the Radius with Torus Fracture of Ulna

Nausheen Siddiqui[1], Adeela Irfan[2]

Authors Affiliation

Consultant Radiologist, Atlanta Georgia[1]

Emergency Department, Shifa International Hospital, Islamabad, Pakistan [2]

Correspondence to

Adeela Irfan
dr.adeelairfan@yahoo.com

CASE SUMMARY

A 10-year-old male complaining of wrist pain after road bike accident. On examination there was soft tissue swelling, tenderness and deformity of the wrist with limited range of motion in the wrist and hand. Radiographic evaluation of right wrist and distal forearm in AP, Lateral and Oblique projections (Figure 1-2) demonstrated the following findings: Mild lateral bowing of distal ulna at meta-diaphyseal junction representing buccal/torus fracture. Intra-articular avulsion fracture of lateral metaphysis of the radius with posterolateral displacement of the epiphysis. Moderate soft tissue swelling at the wrist. Successful reduction was performed in the emergency department under local anesthesia. Post reduction images demonstrate near complete anatomical alignment of the radial epiphysis. Better anatomical alignment is seen of metaphyseal radial fracture and bowing of the ulna. Cast was applied and patient was discharged with advice to follow up visit in the orthopedic clinic within 7 days with follow-up x-ray in the cast.

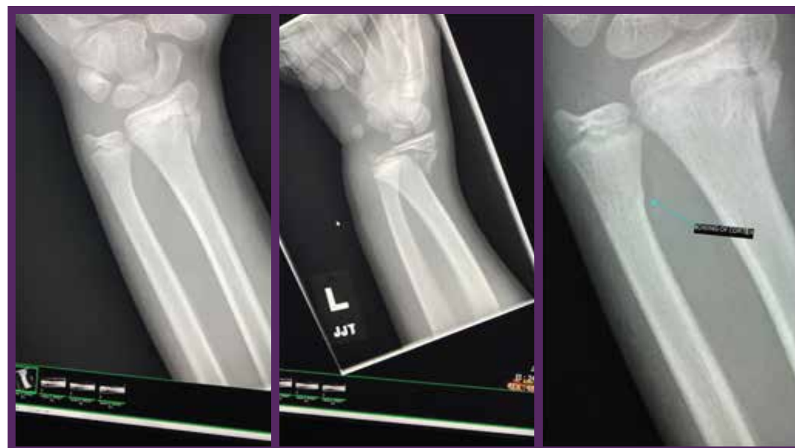

Figure 1: Pre-reduction

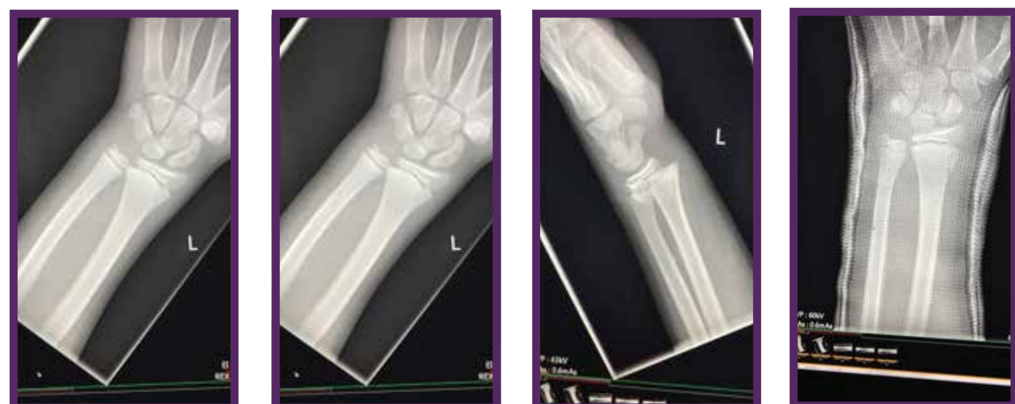

Figure 2 (a) Post Reduction: First Set

Figure 2 (b) Post Reduction: Second Set

Figure 2 (c) Post Reduction: Third Set

Figure 2 (d) Post Reduction: Final

DISCUSSION

The Peak incidence of metaphyseal fracture is commonly seen at the adolescent growth spurt between 11-13 years secondary to weakening through the metaphysis with rapid growth. [1] The usual mechanism of injury is fall on an outstretched hand with extension of the wrist leading to posterior displacement of the distal fracture fragment versus fall on the flexed wrist resulting in anterior displacement of the distal fracture fragment. [2] Investigation of choice is the X-ray wrist and distal hand with AP and lateral views. Optional oblique view can be obtained for further evaluation. There is a good prognosis of these fractures as remodeling occurs due to proximity to the growth plate.

The classification and emergency management are as follows

1. BUCCAL / TORUS FRACTURE

Often radiographically subtle, lateral view is best to detect buccal injuries. Cortical bulging/bowing can be unicortical or bicortical without definite fracture line displacement. It is a stable fracture and no reduction is required. Fracture can be managed in the emergency department with wrist splint, back slab, or cast for 3 weeks. A recent meta-analysis showed that splint is more effective clinically as compared to back slab in managing wrist torus injuries. [3]

2. UN-DISPLACED OR MINIMALLY DISPLACED METAPHYSEAL FRACTURES

Fracture line extending through both cortices/complete fracture. Reduction is usually not required. Below elbow cast for at least 6 weeks. Orthopedic clinic within 7 days with follow up x-ray in cast.

3. DISPLACED FRACTURES

Closed reduction under local anesthesia in the emergency department. Post reduction x-ray in AP and lateral view. Below elbow cast for at least 6 weeks. Orthopedic clinic within 7 days with follow up x-ray in cast.

REFERENCES

1. Handoll HH, Elliott J, Iheozor-Ejiofor Z, Hunter J, Karantana A. Interventions for treating wrist fractures in children. *Cochrane Database of Systematic Reviews*. 2018 (12).

2. Pannu GS, Herman M. Distal radius-ulna fractures in children. *Orthopedic Clinics*. 2015;46(2):235-48.

3. Alsawadi A, Abbas M. Comparison of splint and conventional cast for treating wrist torus fractures in children (systematic review). *Advanced Emergency Medicine*. 2017;6(4).

* ———————— *