PAEDIATRIC ACUTE CARE GUIDELINE	
Fractures – Humerus, Proximal and Shaft	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Fractures – Humerus, Proximal and Shaft

This guideline is specific for the assessment and management of proximal and shaft fractures of the humerus

Background

- Proximal humerus fractures are more common than mid-shaft fractures
- Humerus fractures in children rarely need reduction and undergo remarkable remodelling

Assessment

- Be wary of non-accidental injury in toddlers and younger children, particularly with spiral fractures
- Check the integrity of the radial nerve with humeral shaft fractures and the axillary nerve with proximal humerus fractures

History

- The most common mechanism of injury is a fall or direct trauma to the proximal humerus
- Spiral fractures are the result of a twisting injury and may be secondary to a non-accidental injury – a detailed history of the injury must be taken in these cases, especially in the younger age group. Complete the Injury Proforma form in all children < 2 years (A3 folded sheet located in the Doctor's offices).

Examination

- There is usually swelling and mild tenderness of the upper arm with reluctance to move the shoulder
- Obvious deformity and shortening may be present with displaced fractures
- Assess motor and sensory radial nerve function with distal third humeral shaft fractures
    - Look for motor deficit in fingers and wrist extension and sensory loss in the web space between thumb and index finger

Investigations

Radiology:

- Antero-posterior and lateral views of the humerus should be sufficient to detect the majority of humerus fractures. See Radiological Requests – Limb X-Rays.
- For description of the types of fractures see Fractures – Overview

Management

- Very few humeral fractures need reduction
- All require Orthopaedic Fracture clinic follow up

Initial management

- Analgesia
- Examine for neurovascular injury (if deficits evident manage immediately) – urgent Orthopaedic Team referral
- Ice the affected limb
- Immobilise suspected fracture before X-Rays
- Consider tetanus and antibiotics for compound/open fractures
- If referring children to the Orthopaedic Team, keep fasted

Further management

Proximal Humerus Fractures (metaphysis, growth plate, epiphysis)

- Younger children are prone to buckle fractures of the proximal humerus
- Adolescents are more likely to have Salter-Harris fractures around the physis
- The degree of angulation is usually not an issue. This will correct itself under the influence of gravity and with bone remodelling.
- Conservative management in a collar and cuff with the elbow at 90 degrees and Orthopaedic Fracture clinic follow up is sufficient for most proximal humerus fractures. See Outpatient Clinics.

- Proximal humerus fractures with greater than 50% displacement should be discussed with the Orthopaedic Team for further management

Buckle fracture of proximal humerus	Proximal humerus fracture with 40 degrees of angulation	Salter-Harris II fracture of proximal humerus

Shaft Fractures

- Shaft fractures of the humerus are less common than proximal or distal (supracondylar) fractures
- Transverse fractures generally occur from a direct blow and spiral fractures from a twisting mechanism
- Consider non-accidental injury in younger children with spiral fractures
- Shaft fractures with minimal angulation (< 10 degrees in adolescents and up to 20 degrees in younger children) even if displaced, are managed in a collar and cuff with the elbow at 90 degrees
- A U-slab is an alternative to protect the fracture site
- Shaft fractures with > 10 degrees of angulation, completely displaced or radial nerve deficits should be discussed urgently with the Orthopaedic Team for further management

Complete fracture of shaft of humerus with mild displacement	Spiral fracture of shaft of humerus

Fractures Requiring Urgent Orthopaedic Referral

- Compound fractures, completely displaced and/or significantly angulated (> 10 degrees) shaft fractures and radial nerve deficits should be discussed with the Orthopaedic Team for further management

Completely displaced proximal humerus fracture

Referrals and follow-up

- All humeral fractures require Orthopaedic Fracture clinic follow up in 1 week. See Outpatient Clinics.
- All children who have a plaster placed should have a plaster check at 24 hours. They

can return to the Emergency Department to be assessed by the triage nurse.

Health information (for carers)

- Pain Management Health Fact Sheet
- Collar and cuff care
- Patients With Plasters Health Fact Sheet

Tags

collar, fracture, fractures, humerus, shaft, shoulder, sling, spiral, U slab

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