Princess Margaret Hospital for Children Emergency Department Guideline

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 <u>Radiological Requests - Limb X-Rays</u>.
- 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

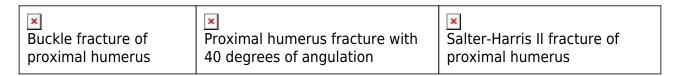
- Analgesia
- Examine for neurovascular injury (if deficits evident manage immediately) urgent Orthopaedic Team referral
- Ice the affected limb
- Immobilise suspected fracture before X-Rays
- Consider tetanus and antibiotics for compound/open fractures
- If referring children to the Orthopaedic Team,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

Further management

Proximal Humerus Fractures (metaphysis, growth plate, epiphysis)

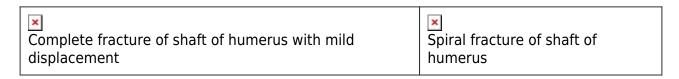
- Younger children are prone to buckle fractures of the proximal humerus
- Adolescents are more likely to have Salter-Harris fractures around the physis
- The degree of angulation is usually not an issue. This will correct itself under the influence of gravity and with bone remodelling.
- Conservative 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 <u>Outpatient Clinics</u>.

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



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



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 <u>Outpatient Clinics</u>.
- 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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