

ORTHOPAEDICS



FOR PRIMARY
HEALTH CARE



LION

LEARNING INNOVATION VIA
ORTHOPAEDIC NETWORKS

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Injuries of the shoulder girdle

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Learning objectives

1. Red flags in the outpatient setting: infection, malignancy and spinal disorders.
2. Red flags in the Orthopaedics ward: fat embolism, compartment syndrome.
Paediatrics: Non-accidental injury.

Introduction

The shoulder girdle consists of three anatomical joints, the sternoclavicular, acromioclavicular and glenohumeral joints. Acute injuries to the shoulder girdle may result in a traumatic dislocation of one of the joints or a fracture. These injuries are usually due to either high energy impact (fall, road traffic accidents, sports injuries and so on) or low energy fall in patients with weak bones.

Sternoclavicular dislocations

This is a rare injury and can be divided into anterior or posterior dislocations. Compared to an anterior dislocation, a posterior dislocation has a higher risk of damage to retrosternal structures such as the subclavian vessels. The patient may present with a hoarse voice, stridor, or compromised neurovascular status of the upper limb due to pressure on vital structures by the retrosternally positioned clavicle. Dedicated sternoclavicular joint radiographic views of both joints must be obtained and will show the dislocation.

Management

In the acute setting, anterior dislocations are treated with a simple arm sling or a collar and cuff for two weeks and early return to function.

Posterior dislocations pose a risk of injury to vital structures behind the sternum and under the clavicle. Therefore, all patients with posterior sternoclavicular joint dislocation must be admitted to the trauma ward and prepared for surgery. A closed reduction manoeuvre must be attempted by a team of cardiothoracic and orthopaedic surgeons. If the closed reduction method fails, the team will proceed to an open reduction and surgical stabilisation of the joint.

Acromioclavicular dislocations

This is a common injury affecting young adults, often resulting from falls from heights or contact sports injuries.

A threatened skin overlying the clavicle and neurovascular compromise is a red flag for urgent referral. After the initial assessment, the treatment will depend mainly on the severity of the displacement of the clavicle. Patients with a prominent step deformity with up to 100% displacement on radiographs should be immobilised in a sling and referred for orthopaedic review. Patients with >100% displacement usually warrant surgical management.



X-ray shows an acromioclavicular dislocation with more than 100% displacement.

Shoulder dislocations

The glenohumeral shoulder dislocation is the most common in the human body. Patients younger than 30y may develop recurrent instability, and those older than 40 are likely to present with an acute cuff tear or avulsion fracture of the greater tuberosity.

Assessment

A clinical examination must exclude brachial plexus, axillary nerve and vascular injury. On X-rays of anterior dislocations, the humeral head displaces medially and inferiorly.

Posterior dislocations can be easily missed because only physicians aware of the ‘light bulb’ sign can make the correct diagnosis on AP radiographs. Besides AP and Y-view (lateral X-ray of the shoulder), a modified axillary view is essential to assess this injury.

Management

Inline traction (Hippocratic method) under conscious sedation should be used to relocate the shoulder. The neurovascular assessment must be repeated and documented after the relocation.

Fracture-dislocations should have orthopaedic input before attempted reduction.

At two weeks, patients should be reassessed for residual instability or, most importantly, a traumatic cuff tear (ideally with ultrasound or MRI) which should be urgently addressed surgically.

Other rare forms of shoulder dislocations involve acute traumatic inferior dislocation and multidirectional instability, often because of generalised ligamentous laxity.



AP X-ray of acute shoulder dislocation with an associated fracture of the greater trochanter.

All acute dislocations are treated initially with an emergency room or sports field relocation followed by a course of physical therapy. Patients presenting with recurrent dislocations or patients younger than 20 years of age and involved in contact sports, should be referred to an orthopaedic surgeon for reassessment and further treatment.

Clavicle fractures

Most clavicle fractures will respond well to immobilisation in an arm sling for 4 to 6 weeks and an early gradual return to function. Full healing is to be expected in 8–12 weeks.

Absolute indications for surgery are open fracture, skin tenting, neurovascular injury requiring repair and symptomatic non-unions after conservative treatment.

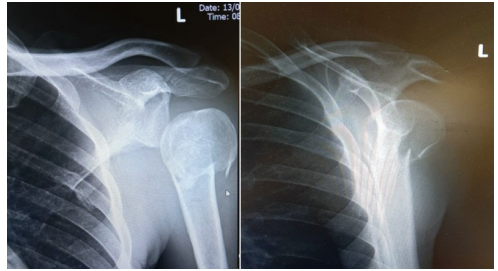
Relative indications for surgery are multiple fractures, and patients' work or leisure requirements.



X-Ray showing a midshaft clavicle fracture with 100% displacement and shortening.

Proximal humerus fractures These are fractures proximal to the surgical neckline. The majority of these injuries can be treated conservatively in an arm sling or collar and cuff. **Surgical indications** include open fractures, fracture-dislocation, displaced articular segment split fractures, pathological fractures and fractures which have failed conservative treatment (100% displacement, less than 50% apposition),

valgus or varus deformity of more than 30 degrees).



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Editor: Michael Held

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(Creative Waves Brand Design)

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ABOUT THE BOOK

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study* with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritised. Acute primary care for fractures and dislocations ranked high.

Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritised.

* Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):e10.

THE LION

The Learning Innovation via Orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

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ACKNOWLEDGEMENTS

This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada. Thanks to Johan Fagan, Michelle Willmers and Glenda Cox for their mentorship and support.