

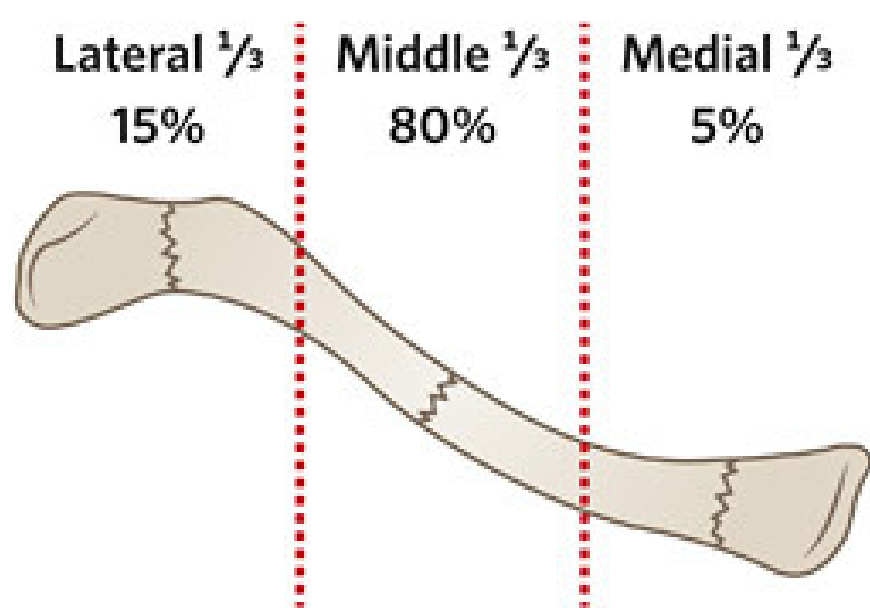
Mid Shaft Clavicle Fractures:

What are indication for operative management?

Mechanism of Injury: Fall onto outstretched hand or direct fall onto shoulder

Associated injuries: Brachial Plexus Injuries, Rib fractures, Pneumothorax, Scapula Fractures

Note: Clavicle fractures are a debated topic, and management guidelines vary between specialists.



- Clavicle fractures are categorized as medial third, middle third and lateral third
- Lateral Clavicle fractures are categorised with AC joint injuries. They have a higher non-union rate and often require surgery or a surgical opinion (further information will be presented in an upcoming ULQ newsletter on AC joint injuries)

Considerations for Primary Care Clinicians

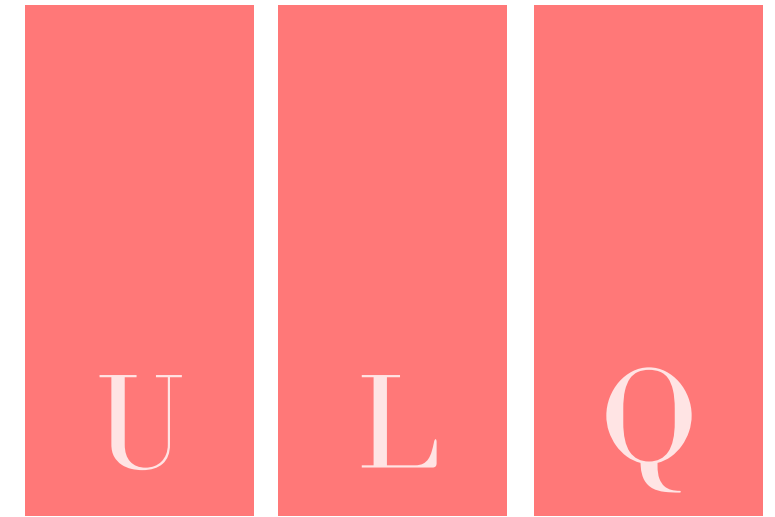
- Thorough assesment ofthe skin overlying the clavicle
- Assessment of co-existing injuries
 - ribs, scapula
 - brachial plexus
- Some patients with rib fractures or pneuothorasis may require admission for pain and respiratory management

Indication for Surgical Management

- Compound fracture
- Threatening of skin (visible pressure on the skin from the fracture)
- All other indications are relative (see case study below)
- Considerations:
 - displacement - especially shortening (some evidence of >2cm has a less desirable outcome)
 - Patient factors (age, activity level, co-morbidities)



Threatening of Skin



Mid-Shaft Clavicle Fracture Case Study:

Non-operative management of a mid-shaft clavicle fracture

Patient: 16 year old male, no pre-existing conditions, very active/athletic

Mechanism of Injury : Patient came off his bike during the Noosa Triathlon

- Initial x-rays showed a displaced middle third clavicle fracture
- Clavicle was shortened by 1.0cm
 - measured using a measuring tape from the sternal notch and lateral acromium as *x-rays are unreliable when assessing clavicle shortening*
- A ULQ specialist discussed both operative and non-operative management with the patient (see below)

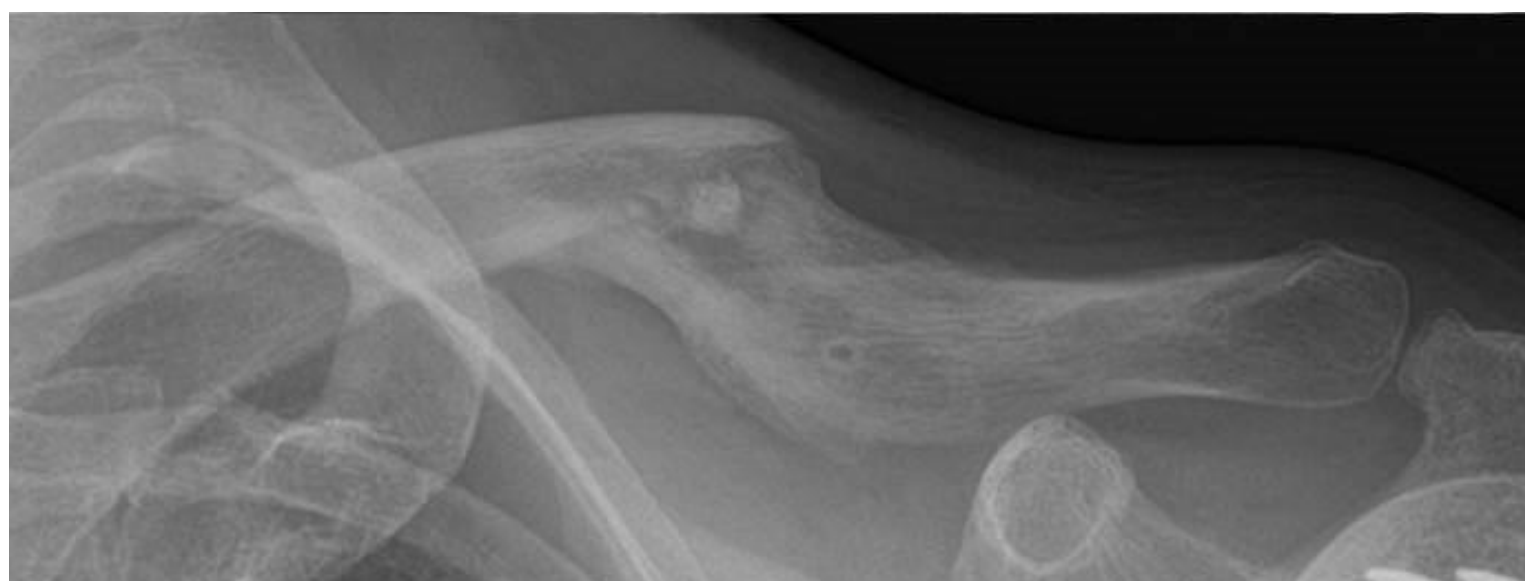


Non-operative management:

- 80-85% chance of union
- 100% chance of malunion
 - A lump over the clavicle
 - Risk of shoulder dysfunction
 - Some patient complain of difficulty carrying backpacks due to the lump being uncomfortable against pressure
- 15% will go on to non-union and require surgical management
 - protracted recovery due to delay in surgical management

Operative Management:

- 99% chance of union
- Restores near-anatomical alignment
- Surgery would lead to a numb patch of scar
- Risk of infection
- Risk associated with a GA
- Risk of damage to brachial plexus
- Risk of death due to vascular injury from surgical drill
- Possible need to remove metal wear due to prominence and discomfort
- Recovery times are more predictable (and faster in some cases)



The patient chose to proceed with non-operative management due to the risks associated with operative management

This x-ray was taken 1 year post injury and the patient has a lump on his right shoulder, but has returned to normal function + triathlon training