

Clavicle Fractures What I do....

Steve Kane, MD
Chairman, AMC Ortho Residency

Clavicle

Clavicular fractures account for 5% to 10% of all fractures and 35% to 45% of shoulder girdle injuries

Traditionally, this was a non op case unless open or with vascular issues

New rules cite greater than 2 cm shortened and 100% displaced or Z configuration

Floating shoulder

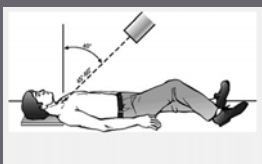


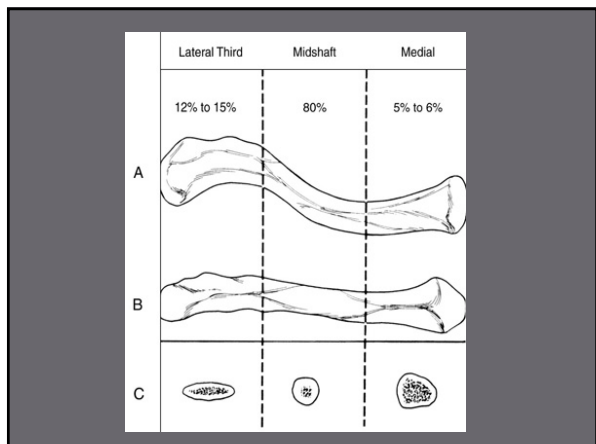
Standard Views

AP view of the clavicle

45° cephalic tilt view to evaluate superior/inferior or displacement

45° caudal tilt view to better evaluate displacement in the AP plane





Clavicle Classification

- ▣ 1. Classification of **lateral-third** clavicular fractures is based on the integrity of the **coracoclavicular** ligament complex.
- ▣ 2. Midshaft fractures present with varying amounts of displacement and comminution.
- ▣ 3. Medial fractures are classified according to displacement and involvement of the SC joint

- Medial clavicular fractures
 - ▣ **Nonsurgical** – Most medial clavicular fractures are nondisplaced or minimally displaced and can be treated nonsurgically.
 - ▣ **Surgical** – Significant displacement of medial clavicular fractures, particularly **posterior displacement** into the lower neck or mediastinum, warrants consideration of ORIF.

Complications are the same as for posterior SC joint dislocation and **if you are going in there, you might want to do it in a place where a thoracic surgeon can bail you out.**

Lateral-third clavicular fractures

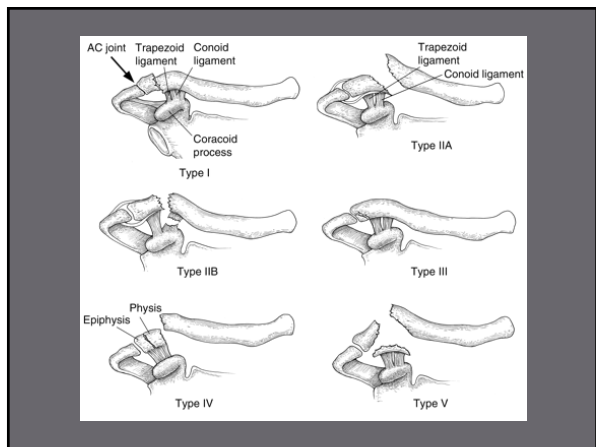
Nonsurgical

- Nonsurgical treatment is appropriate for all nondisplaced or minimally displaced fractures.
- Complications – **Nonunion** is common with nonsurgical treatment **if dissociated from coracoid**.

Surgical

- Indications – Surgical treatment is considered for **displaced** type II fractures because there is a high incidence of nonunion.

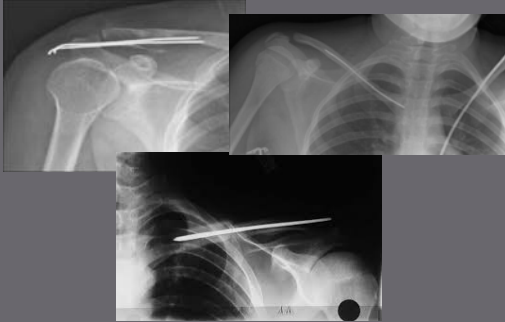
Contraindications – Surgery is contraindicated for patients who are poor surgical candidates. Asymptomatic non-unions do exist.



Hook Plate vs pins vs CC ligament reconstruction



A word on pins



Pins can work



That quoted case

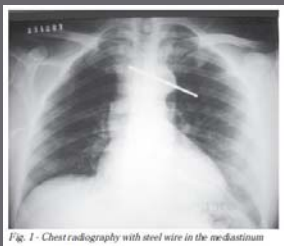
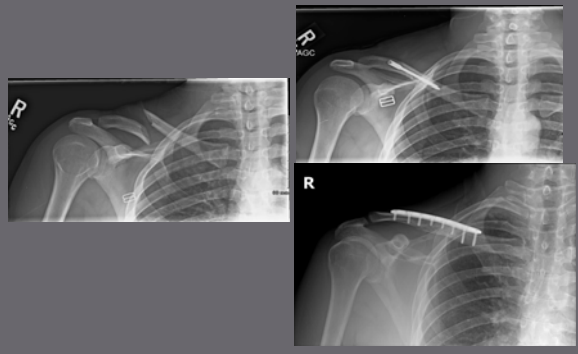


Fig. 1 - Chest radiography with steel wire in the mediastinum

Midshaft Clavicle

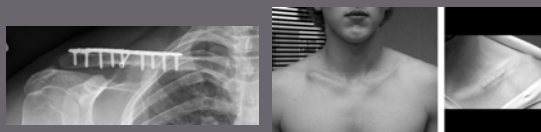
- ❑ Surgery is indicated for **open** midshaft clavicular fractures or fractures with subclavian neurovascular injuries. Relative indications for surgery include **skin compromise** or tenting, and a displaced midshaft clavicular fracture associated with a scapular neck fracture or double disruption of the shoulder suspensory mechanism.
- ❑ Displacement of midshaft clavicular fractures correlates with healing rate. **Recent studies show that fractures with 100% displacement and 2 cm of shortening do better with ORIF.**
- ❑ For displaced midshaft clavicular fractures associated with flail chest, surgery facilitates pulmonary care.

Plate vs screw



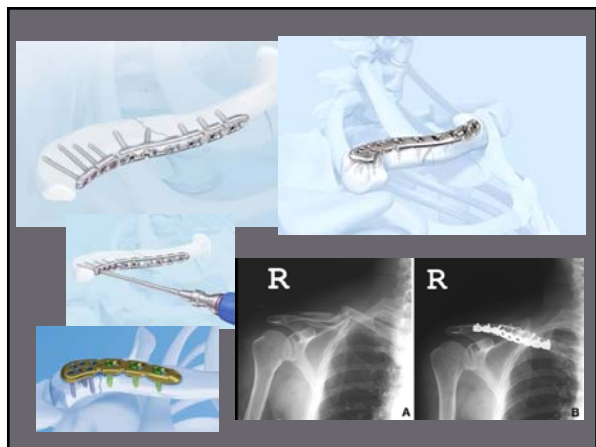
Plates

- ❑ More stable
- ❑ Comminution OK (lag in small fragments)
- ❑ Thin females hate their scars and plate prominence (**30-40 % request removal**)
- ❑ Infections are a nightmare (5%)



Top or Front Clavicle Plating

- Front to back safer for drilling around the subclavian artery and plexus
- Top plates are **mechanically stronger**
- Locking plates helpful for the poor bone quality found laterally
- **Lag screw** very effective when it can be employed.
- Plates best for comminuted patterns....**in my opinion**



The Rockwood Nail



Effective and Expensive



Clavicle Screws
The more cosmetic option



Not sure I can fully recommend
the screws for comminuted
patterns



I know what I cannot recommend



Leave Alone



Probably Should Fix



Operate?...probably





The Odd Case
C spine fractures in Halo



Rehabilitation concerns led us to fix
both clavicles

Final Points

- ▣ Have a **defendable** and well thought out reason to fix which includes comorbidities, expectations and risks
- ▣ Discuss scars with patient, particularly women
- ▣ Non unions (1-2%) are not uncommon and once you go down that road, it isn't an easy recovery
- ▣ Beware of adhesive capsulitis, pneumothorax.
- ▣ **Neurological injury is 3%**

Thanks
