Shoulder Girdle Fractures (Clavicle and Proximal Humerus)

Objectives
1. Understand the relevant anatomy
2. Perform a focused clinical evaluation
3. Know the appropriate radiographic studies
4. Appreciate the various management options and potential indications
5. Comprehend different techniques for surgical treatment

Anatomy
- **Clavicle**
  S-shaped with one apex anteromedial and one posterolateral
  Bordered by the acromioclavicular joint lateral and sternoclavicular medially
  Fractures can be classified as midshaft (80%), lateral-third (15%), and medial-third (5%)

- **Proximal humerus**
  Four parts: humeral head, humeral shaft, greater tuberosity, lesser tuberosity
  Main deforming forces include rotator cuff, deltoïd, and pectoralis major

Clinical Evaluation
- **History**: mechanism of injury, association injuries, neurologic symptoms, activity level, comorbidities
- **Physical Exam**: open wounds, skin at risk, deformity, neurovascular status

Imaging Evaluation
- **Clavicle**
  Radiographs should be obtained with patient in upright position and arm at the side
  Views should include anteroposterior view and 30° cephalad tilt

- **Proximal humerus**
  Radiographs should include anteroposterior, scapular-Y, and axillary lateral views
  CT scans are useful to assess comminuted fracture patterns, determine articular involvement, and plan for operative intervention

Treatments
- Indications for non-operative versus operative treatment are controversial and largely dependent on fracture pattern and displacement, associated injuries, and functional status
- Non-operative: sling for comfort with early passive range of motion followed by active range of motion

Surgical Techniques
- **Clavicle**
  Fixation implants generally used include plates and intramedullary nails
  Plate positions can vary from superior to anteroinferior with considerations including implant prominence and stability

- **Proximal humerus**
  Two main surgical approaches for ORIF include deltopectoral and anterolateral deltoid split
  Anatomic locking plates are often used; intramedullary nails are options with certain fracture patterns
  Hemiarthroplasty and reverse total shoulder arthroplasty can be surgical options in rare cases

References