

Proximal Humeral Fracture Non-Surgical Protocol

Proximal Humerus Fractures:

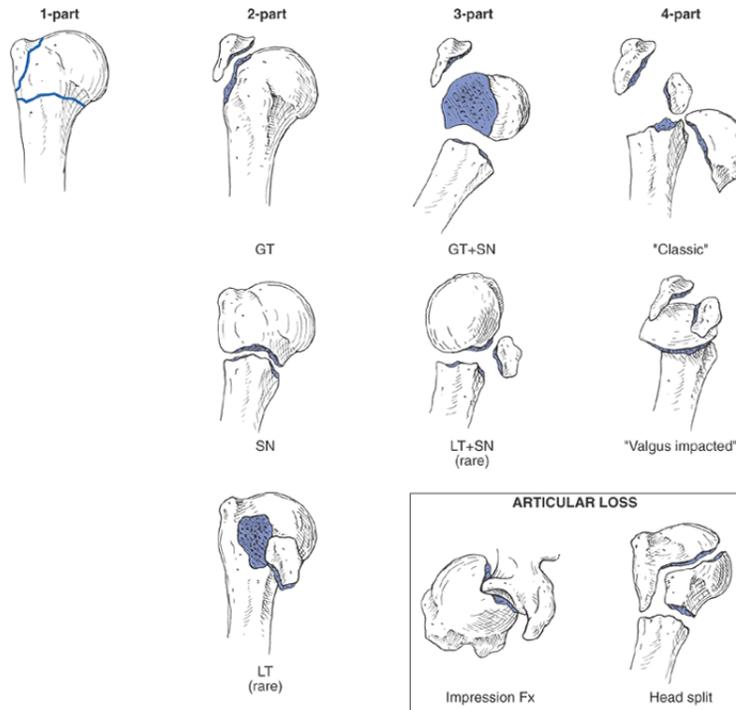
Proximal (or near the shoulder) humeral fractures are the third most common fracture in the body (after wrists and hips). The proximal humerus acts as the attachment of the rotator cuff which affects shoulder motion. Any disruption of the proximal humerus can put your shoulder at risk for future impingement and pain. Fractures occur at four primary landmarks of the humerus: greater tuberosity, lesser tuberosity, surgical neck, anatomical neck or any combination. Severity of the injury can be determined by whether the fracture is non or minimally displaced (simple) or significantly displaced (complex). Surgery is often not needed unless fractured pieces are displaced more than 5-10 millimeters.

The mechanism of injury can differ based on age. In younger patients, proximal humeral fractures are commonly caused by a high-energy trauma, while older patients with softer bone may fracture with low-energy traumas, such as a fall on an outstretched arm.

There are four common classifications of proximal humeral fractures based on the four main segments.

One-part fractures: No fracture is displaced more than 5-10 mm or angulated over 45 degrees (simple)

Two, three, and four-part fracture: have one or multiple pieces displaced more than 5-10mm or angulated over 45 degrees. See illustration below.



Fractures that split the humeral head have a worse prognosis. These fractures can compromise the blood supply to the bone and result in avascular necrosis or death of the bone tissue. Conservative treatment, attached has the best outcomes in non-smokers who have fewer health complications to help optimize the healing environment for bone. Typical treatment involves a short period of immobilization (2-3 weeks) with early passive motion and progression is based on bone healing. Aggressive passive rotational mobility is restricted due to stress on the healing bone.

NON-OPERATIVE REHABILITATION FOR PROXIMAL HUMERAL FRACTURES

PHASE ONE: Protection & Early Mobilization (Start at MD discretion, often 2 weeks after injury)

Goals: Understand precautions
Allow early healing of the fracture
Increase PROM of the shoulder and AROM of the elbow/wrist/hand
Minimize shoulder pain
Learn HEP

Treatments:

Sling per MD (approximately 6 weeks) removed for bathing and exercise
Pendulum Exercises (4x per day)
Gentle Passive Range of Motion
Flexion 0-75 degrees
Scaption 0-50 degrees
ER to neutral
Table slide flexion and scaption (Avoid ER past neutral)
Elbow/Wrist/Hand ROM
Gripping Exercise for Hand
Ice (4x per day, 20 min each) & Modalities
NO lifting arm or weight bearing through arm

PHASE TWO: Active Assisted Motion (week 4-week 6)

Goals: Decreased pain and fear of movement
Slow muscular atrophy and prevent RTC inhibition
Regain active motion, prevent abnormal movement patterns
Initiate scapular activation

Treatments:

As above
Sling per MD (approximately 6 weeks) removed for bathing and exercise
Passive Range of Motion (to tolerance within guidelines)
Flexion 0-120 degrees
Scaption 0-100 degrees
ER 50% contralateral side
IR as tolerated
Wand flexion and ER
Pulley flexion and ABD/scaption
Supine Active Assisted ROM
Scapular retractions/depressions
Scapular PNF
Gravity minimized IR/ER when out of sling
No resistance supine active flexion over 45 degrees flexion
No weight bearing through arm

PHASE THREE: Progressive Strengthening and Motion (week 6- week 10)

Goals: Minimal pain with motion
Increase resistance training and strengthening to tolerance
Improve dynamic stabilization
Proper scapulohumeral rhythm
Increase functional activities
Achieve phase two motion prior to strengthening

Treatments:

As above
Sub-max isometrics week 6
Initiate passive UBE
Regain motion to tolerance, no restrictions with passive motion
*Note - full motion may not be obtainable depending on severity of fracture
Eccentric pulley flexion
Side lying external rotation
Rhythmic stabilization
Prone row, extension and T's
Progress supine motion to standing forward and lateral raises based on quality of movement
Scapular stabilization
Posterior capsule stretching week 8
Initiate isometric T-band exercise using side-step with arm by side week 8 (quality over strength)
No weight bearing through arm

PHASE FOUR: Return to Function (week 10+)

Goals: Strengthen rotator cuff, deltoid and scapula
Neuromuscular control of shoulder complex
Full return to functional activities

Treatments:

As above
Regain maximum motion
Active T-band exercises
Progression of RC and deltoid strengthening
Progression to functional and recreational activities
HEP 3-4x per week