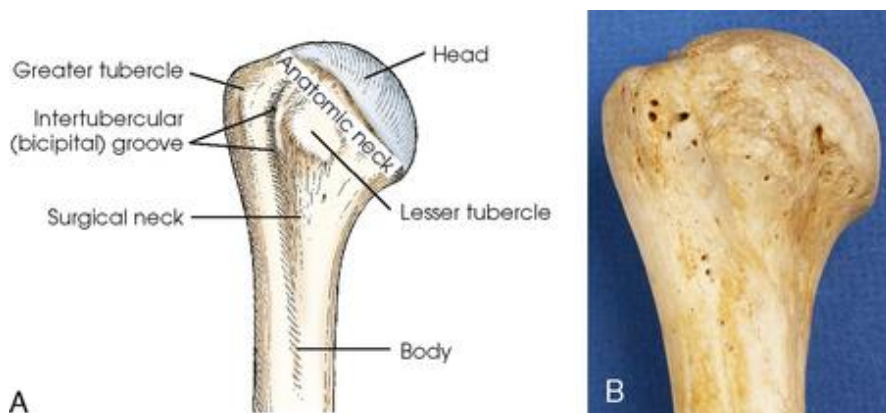


Proximal Humerus Fractures

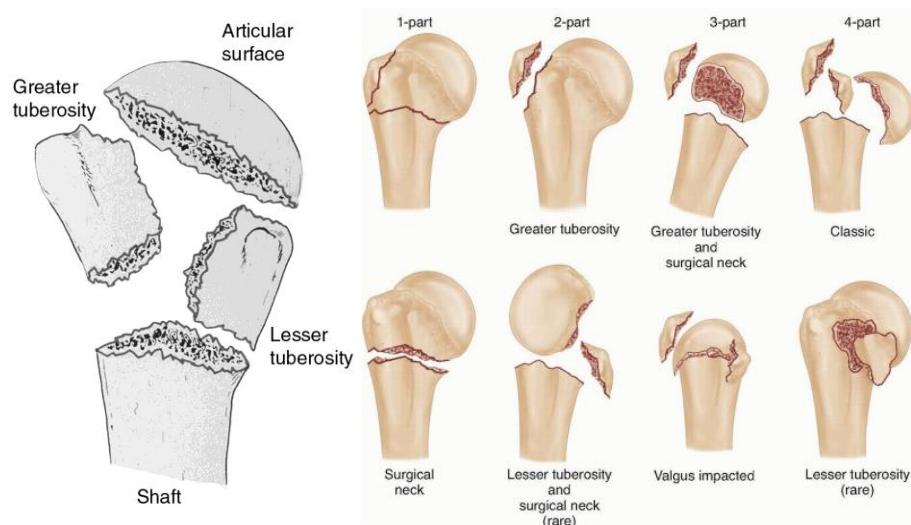
Jeff Horinek, MD

Symptoms & Anatomy

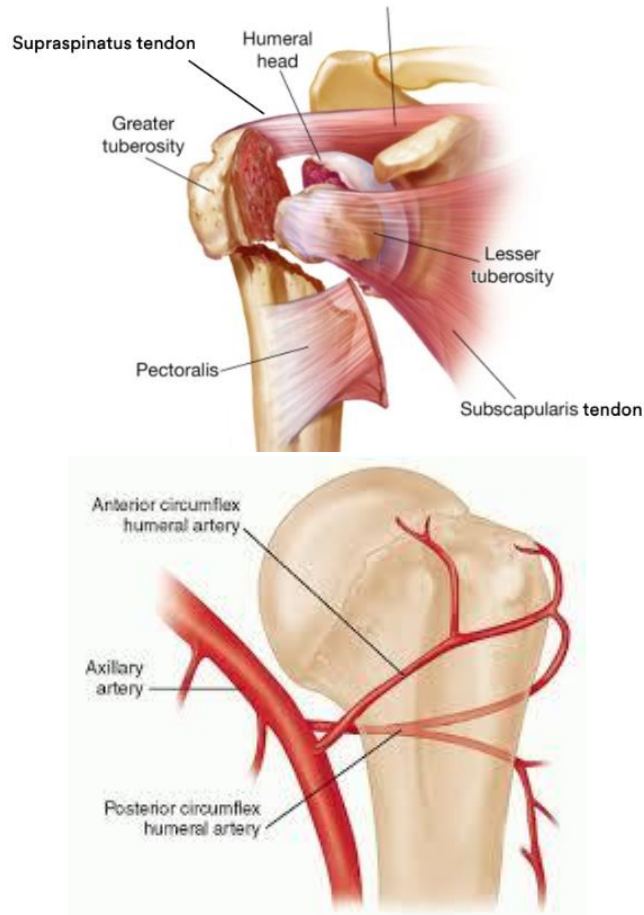
Proximal humerus fractures are a common traumatic shoulder injury, particularly in older people. They account for 5% of fractures in adults. Proximal means closer to the body. Humerus refers to the arm bone. A fracture is a broken bone. So, a proximal humerus fracture is a broken bone affecting the ball of the shoulder. The proximal humerus is often divided into 4 “parts”: the head, the shaft (body in the picture below), the greater tuberosity, and the lesser tuberosity.



Fractures of the proximal humerus occur in a variety of patterns that can be described by these “parts.”



The tuberosity pieces are important because these serve as the attachment sites of the rotator cuff. The rotator cuff is made up of four muscles (subscapularis, supraspinatus, infraspinatus, and teres minor). The rotator cuff surrounds the ball and socket joint (glenohumeral joint) and provides stability to the joint as well as movement. Because of this, we tolerate very little displacement or malposition of tuberosities.



The headpiece is important because fractures of the proximal humerus often affect the blood supply to the head. The blood supply to the head comes from distal to proximal, or far to near. Because of this, a fracture of the proximal humerus, particularly one affecting the head close to the “anatomic neck” has a high risk of compromise to the blood supply. Loss of blood supply to the head can lead to “Avascular Necrosis” or collapse of the ball due to a lack of blood supply. This is a risk that is based on the initial injury and can occur even if the “parts” are put back together surgically.

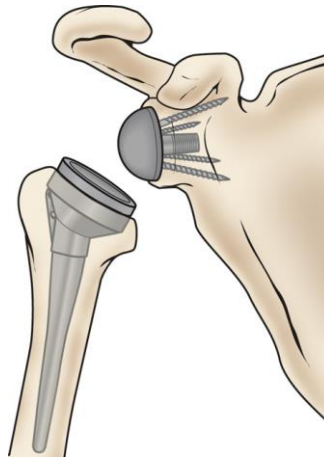
Treatment Options

Treatment for proximal humerus fractures is based on age, health, and fracture displacement. About 75% of the fractures are only mildly displaced meaning that the fragments are well-aligned. These fractures are treated without surgery. Fractures that are displaced, or not well-aligned, may benefit from surgery. Surgery most commonly consists of either open reduction and internal fixation (ORIF) or shoulder replacement.

ORIF means an incision is made, the fragments are aligned, and then the fragments are held in place with a plate and screws or rod. This procedure takes 1-2 hours, and the patient can usually go home the same day.



ORIF



Shoulder Replacement

If the fragments are displaced such that they have a poor chance of healing or the blood supply is likely to be severely compromised, a **shoulder replacement** can be considered. This is also a 1-2 hour procedure and usually requires one night in the hospital.

Rehab/What to expect for Function

Rehab/follow-up for nonsurgical fractures is as follows:

Phase 1: Rest

- Sling x 4-6 weeks with immediate hand/wrist/elbow motion to help reduce swelling
- The goal is pain control and reduction of swelling
- The goal is to be off narcotic pain meds by 3 weeks after injury
- Take stool softeners while taking narcotic pain meds
- It is ok to remove the sling and shower, hanging the arm by the side

Phase 2: Early Motion

- Repeat evaluation 2-3 weeks after injury with repeat x-rays
- The goal here is to confirm alignment and start early motion to reduce the chance of stiffness
- Begin pendulums and table slide exercises at 3 weeks

Phase 3: Progressive Motion

- 4-6 weeks after injury the sling is removed, and motion is progressed.
- Physical therapy with a therapist can be started at this point
- Ok for driving when out of the sling

Phase 4: Strengthening/Return to Activity

- 8-12 weeks after injury strengthening is allowed depending on the fracture.
- Total recovery may take 6-12 months

Loss of motion and partial loss of function can occur after a proximal humerus fracture, particularly for displaced fractures. The surgical options can lead to improvement in outcome, but I try to tell people with injuries severe enough to require surgery our goal is to get as close to normal as possible, but the shoulder will not likely be 100% again. In most cases, for a fracture requiring surgery 80% of normal is a good goal.

I also try to tell people over the age of 60, particularly women that they should have a bone density evaluation (with a DEXA scan) if not already done previously. Studies have shown that women with a proximal humerus fracture are at increased risk of a hip fracture. Many people are Vitamin D deficient and should consider taking Vitamin D daily. One study demonstrated that people over the age of 65 who took 800 IU of Vitamin D daily reduced their risk of hip fracture.

Medications

Anti-inflammatories such as ibuprofen (Motrin or Advil) and naproxen (Aleve) and Aspirin are used to reduce pain and inflammation. However, they can inhibit fracture healing. Therefore, they should be avoided for 6 weeks after the fracture. After 6 weeks they can usually be used for pain. The max dose for ibuprofen is 800 mg three times per day. The max dose for naproxen is 500 mg twice daily. Prolonged usage should be avoided,

and these should be taken with food since they can affect the stomach lining. If one experiences an upset stomach these should be stopped.

Tylenol may be used for pain and does not alter fracture healing. The max dose is 1000mg three times per day. Narcotics can be used as above for the first few weeks following surgery. However, narcotics have more side-effects (nausea, constipation, and addiction) and should be avoided long-term.

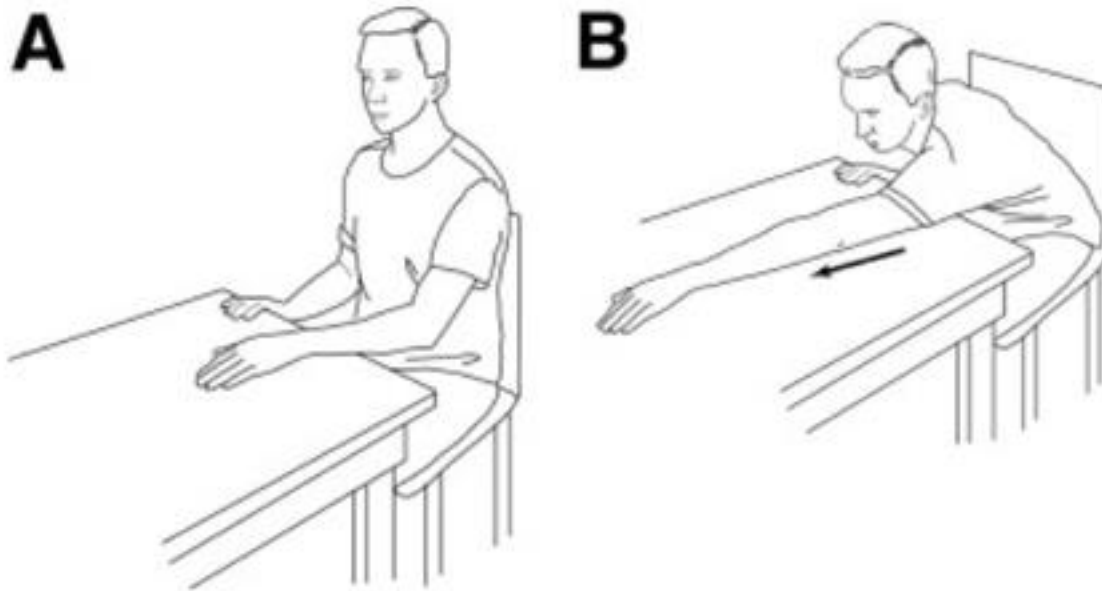


Table Slides (Pictured Above)

Pendulums (Pictured Below)

