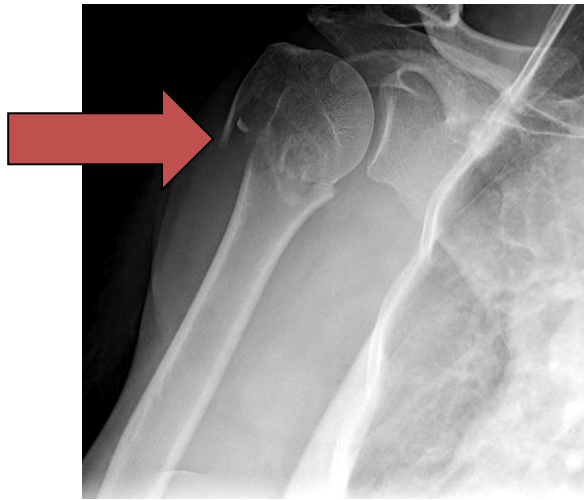


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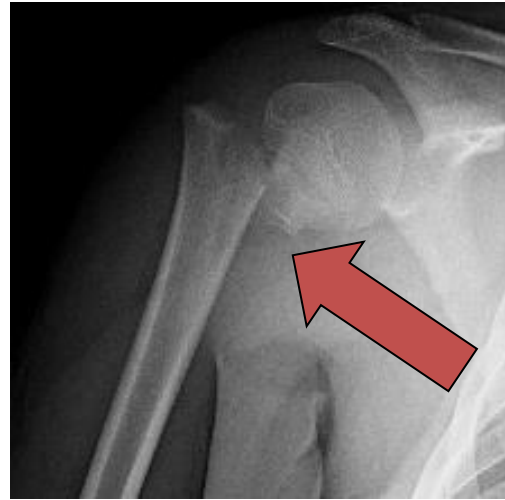
SHOULDER, KNEE & SPORTS MEDICINE

Proximal Humerus Fracture

A proximal humerus fracture is a broken bone (fracture) of the shoulder at the ball (humeral head) of the shoulder. These fractures of the humerus typically involve the neck and/or one or both of the attachments (greater or lesser tuberosity) of the rotator cuff muscles.



X-ray of proximal humerus fracture in adult



X-ray of pediatric proximal humerus fracture

Frequent Signs and Symptoms

- Severe arm pain at the time of injury
- Tenderness, swelling, and delayed bruising of the arm or chest
- Later, swelling and bruising move to the elbow and hand
- Visible deformity if the fracture is complete and bone fragments separate enough to distort normal body contours
- Numbness, coldness, or paralysis below the fracture involving the forearm or hand from pressure on or stretching of blood vessels or nerves (rare)
- Pain with attempted motion of the shoulder, such as lifting or rotation of the arm

Etiology (Causes)

- Indirect force due to falling on an outstretched hand or bent elbow
- Violent muscle contraction
- Uncommonly, a direct blow to the shoulder



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Risk Factors

- Contact sports such as football, soccer, hockey, and rugby
- Sports in which falling is possible (snowboarding, volleyball, basketball)
- History of bone or joint disease, or previous immobilization of the arm
- Poor physical conditioning (strength and flexibility)

Prevention

- Appropriately warm up and stretch before activities
- Maintain appropriate conditioning:
 - Cardiovascular fitness
 - Shoulder strength
 - Endurance, flexibility, and agility
- Wear proper protective equipment and ensure correct fit

Outcomes

With appropriate treatment and normal alignment of the fracture fragments, healing can be expected. Average healing time is six to eight weeks in adults and four to six weeks in children. Surgery may be necessary to realign fractures that are displaced, or to treat fractures that do not heal properly. Full recovery, including rehabilitation, can require four to six months.



Post-operative X-ray of adult patient



Post-operative X-ray following pediatric percutaneous pinning procedure (pins to be removed once initial healing is completed at about three weeks)



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Potential Complications

- Nonunion (fracture does not heal)
- Malunion (fracture heals in a bad position)
- Chronic pain, stiffness, loss of motion, or swelling of the shoulder
- Excessive bleeding in the arm after injury to surrounding tissue, causing pressure and injury to nerves and blood vessels (uncommon)
- Heterotopic ossification (calcification of the soft tissues)
- Injury to the nerves due to stretching from the injury, causing numbness, weakness, or paralysis
- Arthritis of the shoulder
- Arrest of normal bone growth in children (rare)
- Interruption of blood supply to the ball of the shoulder (humeral head) due to fracture displacement causing avascular necrosis

Treatment Considerations

If the fracture fragments are in appropriate alignment (position), the initial treatment consists of ice and medications to help relieve pain. Immobilization with a sling or shoulder immobilizer for up to six weeks is recommended to allow the bones to heal along with physical therapy to maintain passive range of motion. Displaced fractures (not in appropriate alignment) require surgery to restore and maintain the fracture in its normal position. Surgery usually involves repositioning the fracture fragments and maintaining their position with sutures, wires, rods, plates, screws, or pins. Fracture stability is necessary to allow early protected motion to prevent stiffness and functional loss of motion.

Following initial healing, moving proximate joints and stretching/strengthening muscles is important. Physical therapists often assist with the rehabilitation process. Rehabilitation often requires four to six months following injury and/or surgery.

Possible Medications

Strong pain relievers may be prescribed as necessary. Use only as directed.

Modalities (Cold Therapy)

Cold is used to relieve pain and reduce inflammation. Cold should be applied for 10 to 15 minutes every two to three hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage with a cloth between the ice and your skin to prevent burning /freezing your skin.

Notify My Office If Symptoms Worsen



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Physical Therapy Prescription

Diagnosis: S/P (Right/Left)

Nonoperative Treatment of Proximal Humerus Fracture

Name: _____ **Date of Injury:** _____

_____ **If checked, please have the patient perform gentle passive pendulums and A/AROM of the elbow, wrist, and hand for two weeks before starting the program below.**

Please instruct patients on safe methods of dressing, bathing, and personal care.

WEEKS 0 through 6

- Wear sling at all times
- PROM supine flexion in scapular plane
- PROM ER to _____degrees
- No IR beyond resting arm position
- A/AROM elbow, wrist and hand
- Gripping exercises

WEEKS 7 and 8

- A/AROM shoulder flexion, abduction, IR, ER without limits
- AAROM shoulder flexion using a pulley
- Begin AROM IR/ER exercises
- Upper body ergometer
- Isometric strengthening exercises for the deltoid and rotator cuff

WEEKS 9 through 12

- Restore ROM, passive stretching
- Rotator cuff and periscapular strengthening
- Begin resistive exercises with TheraBand®
- Upper extremity PRE's as appropriate



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Frequency: Two to three times per week

Rehabilitation exercises should be performed by the patient for at least one year

Therapist Note:

- Dr. Chudik ONLY signs physical therapy prescriptions at patient visits and will return them with the patient.
- Please send physical therapy progress notes/prescription renewals with patient or at least three days prior to the patient's visit so that we can internally process it for the visit.
- Please send notes by Fax to 630-920-2382 or email *contactus@chudikmd.com/*.


Steven C. Chudik, MD

Date: _____



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