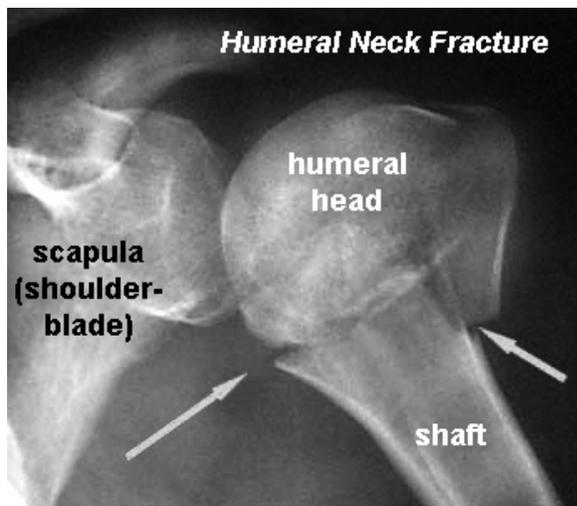


InfoSheet – Proximal Humerus Fractures

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WHAT IS A PROXIMAL HUMERUS FRACTURE?



A proximal humerus fracture is the most common *fracture of the shoulder*, lying at the upper end of the *humerus*, or *arm bone*. Fractures of this region are common both with high-energy injuries in people of all ages, as well as with simple falls in older people with osteoporosis.

WHY DID I BREAK MY SHOULDER?

Like any other bone in the body, the proximal end of the humerus will break if sufficient force is directed towards it. In younger people, fractures of the shoulder usually occur from high-energy trauma or from a fall from a height. As people get older and their bones get weaker, a proximal humerus fracture can easily occur from a simple fall from a standing position. *Osteoporosis* is a frequent contributor to fractures of the proximal humerus, which is why they are known as "*fragility fractures*".

HOW IS A PROXIMAL HUMERUS FRACTURE TREATED?

The vast majority of proximal humerus fractures will heal in a

satisfactory position if you keep the arm loosely immobilized at your side and spend most of your time in an upright position, including when you sleep. This will allow gravity to align the pieces of the fracture. After the fragments start to heal, at about 3 to 6 weeks, you can be freer with motions of your arm.

Other types of proximal humerus fractures are better treated with surgery. Depending upon the type of fracture, surgical treatment can be directed towards repairing the fracture fragments, or replacing the broken pieces with a metal proximal humerus replacement, also known as a *hemiarthroplasty*. A hemiarthroplasty is often chosen for a fracture that has a high likelihood of collapsing even after it heals, or of *not healing* at all.

HOW LONG DO PROXIMAL HUMERUS FRACTURES TAKE TO HEAL?

In adults of almost any age, proximal humerus fractures take four to eight weeks to heal well enough that they do not need any external support. Good strength is achieved by 12 weeks, but full healing with remodeling of the underlying bone may take 6 to 12 months. Children heal faster, and may be solid enough to go without immobilization at 3 to 4 weeks.

WHAT ARE THE TYPES OF PROXIMAL HUMERUS FRACTURES?

The number and type of *major fragments* provide the name for these fractures. The most common '*two-part*' fracture is a humeral neck fracture, separating the head of the humerus from the shaft of the humerus (shown in the picture above to the left). Another '*two-part*' fracture is a *greater tuberosity*

fracture, which is a type of bony rotator cuff injury. More complicated fractures are 'three-part' and 'four-part' fractures. Four-part fractures, involving the head, lesser tuberosity, greater tuberosity, and shaft are the most common fractures treated with a metal replacement piece (*hemiarthroplasty*).

WHAT IS THE MEANING OF THE WORD "PART" WITH RESPECT TO A PROXIMAL HUMERUS FRACTURE?

An often used fracture classification scheme uses the word "*part*" to represent a displaced segment. Even if there are multiple fracture lines through the proximal humerus, the fracture is considered a 'one-part' fracture (which does not need surgery) unless the segments are displaced. Only when the segments are *displaced* or significantly *angulated* do they count as separate 'parts'.

WHAT DOES IT MEAN TO NEED A 'REDUCTION'?

If the position of a fracture is significantly out of place, the fracture will need to be put back into place to achieve a good result. The act of placing a fracture back into place is called a "reduction". For fractures of the proximal humerus, reductions do not usually hold unless they are maintained in place by fixation devices, such as sutures, pins, plates, or screws. If a reduction is needed for a proximal humerus fracture, it is usually done in the operating room.

WHY DO SOME PROXIMAL HUMERUS FRACTURES "SLIP"?

Even if the fragments of the proximal humerus are satisfactorily aligned, the fracture may not stay in this position. Loss of alignment is known as having the fracture "*slip*". Several characteristics make a fracture more

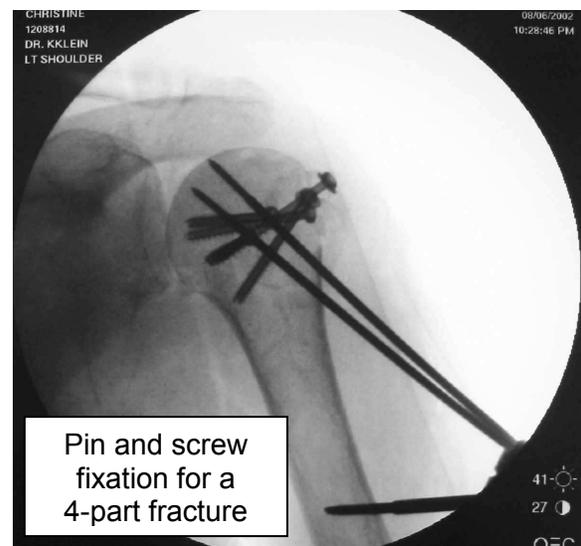
likely to slip: unstable patterns, osteoporotic or otherwise poor quality bone, improper use of the sling, and excessive activity by the person with the fracture.

Because of the tendency for proximal humerus fractures to slip, we closely follow patients with x-rays for the first several weeks. That way, if the fracture does slip, surgical treatment can be discussed.

WHAT TYPES OF FRACTURES OF THE PROXIMAL HUMERUS ARE MORE LIKELY TO NEED SURGICAL TREATMENT?

The *least likely* fractures to require surgical treatment are humeral neck fractures. Most of these will line up satisfactorily through the aid of gravity alone. The *most likely* proximal humerus fractures to require surgical treatment are displaced greater tuberosity fractures, as well as three- and four-part fractures.

WHY ARE SOME OF THE DIFFERENT SURGICAL TREATMENTS CHOSEN?



In some cases, the fragments of a proximal humerus fracture are amenable to fixation. Fixation is achieved using suture material, wires,

pins, or plate and screws. In other cases, the fracture fragments are too thin and too fragile to hold fixation. In fractures with these characteristics, especially three-part and four-part fractures, the choice is often to replace the fracture fragments with a metal *hemiarthroplasty* rather than to attempt fixation.



Hemiarthroplasty
(shoulder replacement
for fracture)

WHAT ARE SOME OF THE ASSOCIATED PROBLEMS THAT FOLLOW A PROXIMAL HUMERUS FRACTURE?

Proximal humerus fractures sometimes result in stiffness of the shoulder, elbow, or hand. Such stiffness often requires physical therapy to help get back to normal motion. Additionally, fractures of the shoulder can bring about nerve injuries or other nerve conditions such as carpal tunnel syndrome. In some cases, a fracture of

the shoulder can be associated with a soft tissue injury such as a rotator cuff tear.

WHY IS MY ARM SO DARK AND SWOLLEN?

When you break your shoulder, the broken bones bleed internally for a few days. Driven downhill by gravity, this blood will slowly percolate through your arm and forearm, all the way to your fingers. The swelling and the 'black and blue' color that you associate with a bruise progresses just the same. Most people are quite surprised by how swollen their arm gets, and they often think that perhaps they have a 'missed injury' at the elbow or the forearm. While this is rarely the case, the swelling itself can cause stiffness at the elbow and hand. Additionally, depending upon the fracture, some of the blood will fall to the near side of the armpit, and work its way down through the chest wall. For this reason, it is common with proximal humerus fractures to develop 'black and blue' areas of the breast and chest wall.

WILL I NEED THERAPY TO GET BETTER?

Not everyone needs formal therapy following a shoulder fracture, though it is commonly used. Those that do need therapy often have much stiffness, and are having difficulty getting back their range of motion and function of their hand and fingers.

WHAT ABOUT THE SLING? SHOULD I USE MY ARM WHILE IT'S IN THE SLING?

When the sling is in place, it should be loosely fitted, allowing the arm to hang down under the effect of gravity. ***The arm should not be 'cinched-up' against the chest.***

It is very important to use your hand and fingers even while you are wearing a sling. While we do not recommend that you lift anything heavier than a coffee cup or a telephone receiver, use of your fingers and hand will help prevent stiffness. Additionally, make sure that you take your arm out of the sling at *least twice daily* to allow the elbow to completely straighten. This is very important to prevent *permanent* stiffness to your elbow.

AM I NOW MORE LIKELY TO GET ARTHRITIS?

Unless the proximal humerus fracture has cracks that involve the joint itself, or unless the fracture heals in such a position to significantly change the alignment of the shoulder, you are not likely to get arthritis in the shoulder after healing of the fracture.

WHEN WILL MY SHOULDER STOP HURTING?

Most shoulder fractures will hurt *severely* for the first two weeks. After that, the pain lessens until healing occurs. At about one to three months, the pain is often low-level, worse with activity and with changes in the weather. It may stay this way for one to two years.

WHY ARE MY FINGERS SO STIFF?

When the humerus is broken, the rest of the shoulder usually swells. This restricts blood flow back from the hand and arm to the heart, much as an accident on the highway in one lane will block flow of traffic past the area. This leads to swelling and stiffness. Additionally, blood and fluid from the fracture migrates towards the fingers, until the body reabsorbs it.

Compounding the stiffness from the swelling, some people have arthritic

joints in their fingers, even if they have never had any pain or dysfunction. Anybody with arthritis in the fingers is far more likely to develop *permanent* stiffness if he or she does not keep moving. This is only one reason why we are so insistent that you work on the motion of your fingers.

WHAT CAN I EXPECT WHILE MY FRACTURE IS HEALING?

For the first one to two weeks, your shoulder will be very painful, and you may even feel “like the bones are moving”. Your arm and hand will likely become swollen, and it may become difficult to move your fingers. Working on elbow, wrist, finger, and thumb motion is key for a good result. Expect your fingers to be cool, and even bluish in color, but they should always retain sensation, and not become “numb”. We advise **sleeping upright in a chair or on the couch**, keeping the sling loose so that the arm ‘hangs’ from the shoulder. As time passes, the pain will go down. Once out of a sling, you can work on more motion, including that at your shoulder itself, and you will have *different* pains, both at rest and with activity. As you continue to heal, you will slowly get your strength back. Most people with shoulder fractures, both those treated with surgery and those without surgery, do work with a physical therapist. You should postpone contact sports and impact activities until 4-6 months after the fracture. It may be a year or more before the swelling is down to a minimum, and the “ache” is gone. Even so, expect pain with weather changes for 1-3 years after the fracture. The shoulder may always look a little bigger, and have less motion than the “normal” shoulder.