

Patient Education



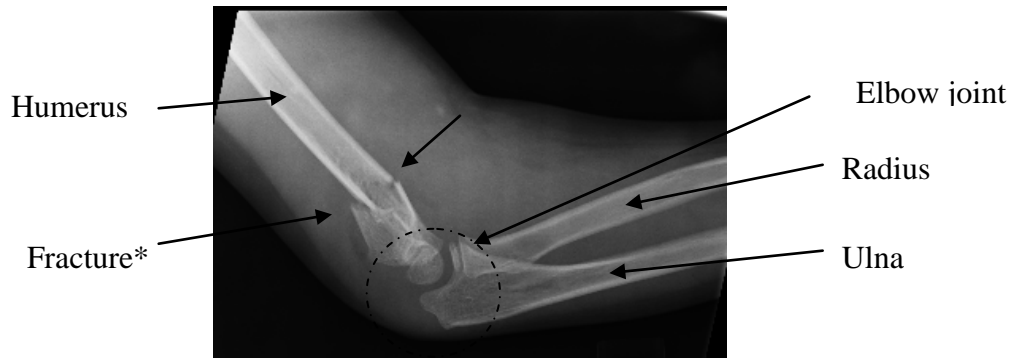
ARNOLD PALMER HOSPITAL
For Children
Supported by Arnold Palmer Medical Center Foundation

The Pediatric Orthopaedic Center
at Arnold Palmer Hospital
83 W. Columbia St. Orlando, FL 32806
321-841-3040 f:321-841-3049

Supracondylar Humerus Fractures

This is the most common fracture requiring surgery in children age 3-10. It can happen in younger and older kids as well.

*Remember!
"Fracture",
"crack", "break"
= all the same
thing!



The humerus is the bone within the upper arm. It meets the radius and ulna bones of the forearm to form the elbow joint. Rarely does this fracture involve the actual elbow joint itself. Rather, the fracture occurs in the area of the bone which is thinnest immediately above the elbow joint.

When we talk about supracondylar humerus fractures, we term fractures which have not displaced or moved at all as type I fractures.

Fractures that have displaced slightly but are close to normal (near-anatomic) are termed type II. Some doctors will recommend surgery for these while others will attempt a "closed reduction" (no pins or incisions) and an attempt at casting.

Fractures that have displaced significantly are termed type III fractures. These all require an intervention to return the elbow to normal. In the past, patients would have tight casts applied or be hung in traction (by a pin through the arm and weights from the ceiling) and hospitalized for several weeks. These options both had high complication rates and very long treatment times.

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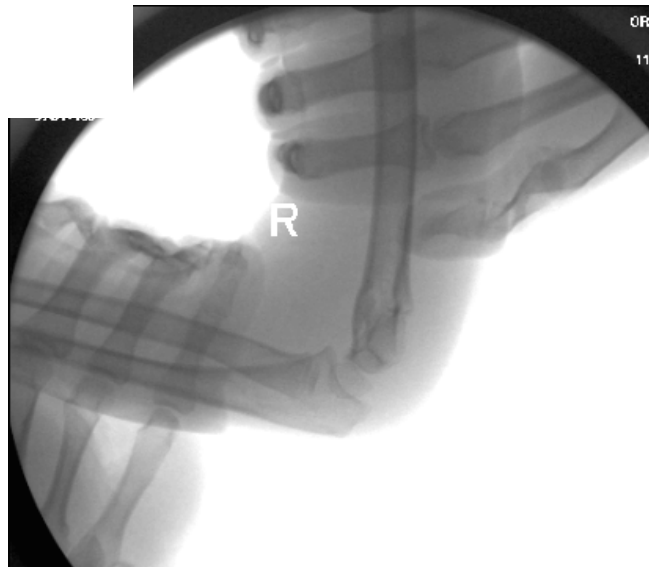
WHAT IS THE TREATMENT?

Currently, we perform what's called Closed Reduction and Percutaneous Pinning.

This is a procedure performed in the operating room while your child is comfortable and asleep under general anesthesia. General anesthesia is necessary to allow muscle relaxation to aid in the procedure.

WHAT ACTUALLY HAPPENS DURING "SURGERY"?

"Closed reduction" means the humerus is put back into place without the use of an incision. This is done by manipulating the arm with the use of live x-ray guidance.



Note the surgeon's hands pushing the bone back in place under x-ray

Once the bone is back in a normal position, the surgeon pokes 2-4 pins through the skin near the elbow and these are placed across the fracture holding it in place. Your child's arm will then be placed in a long-arm splint or cast.

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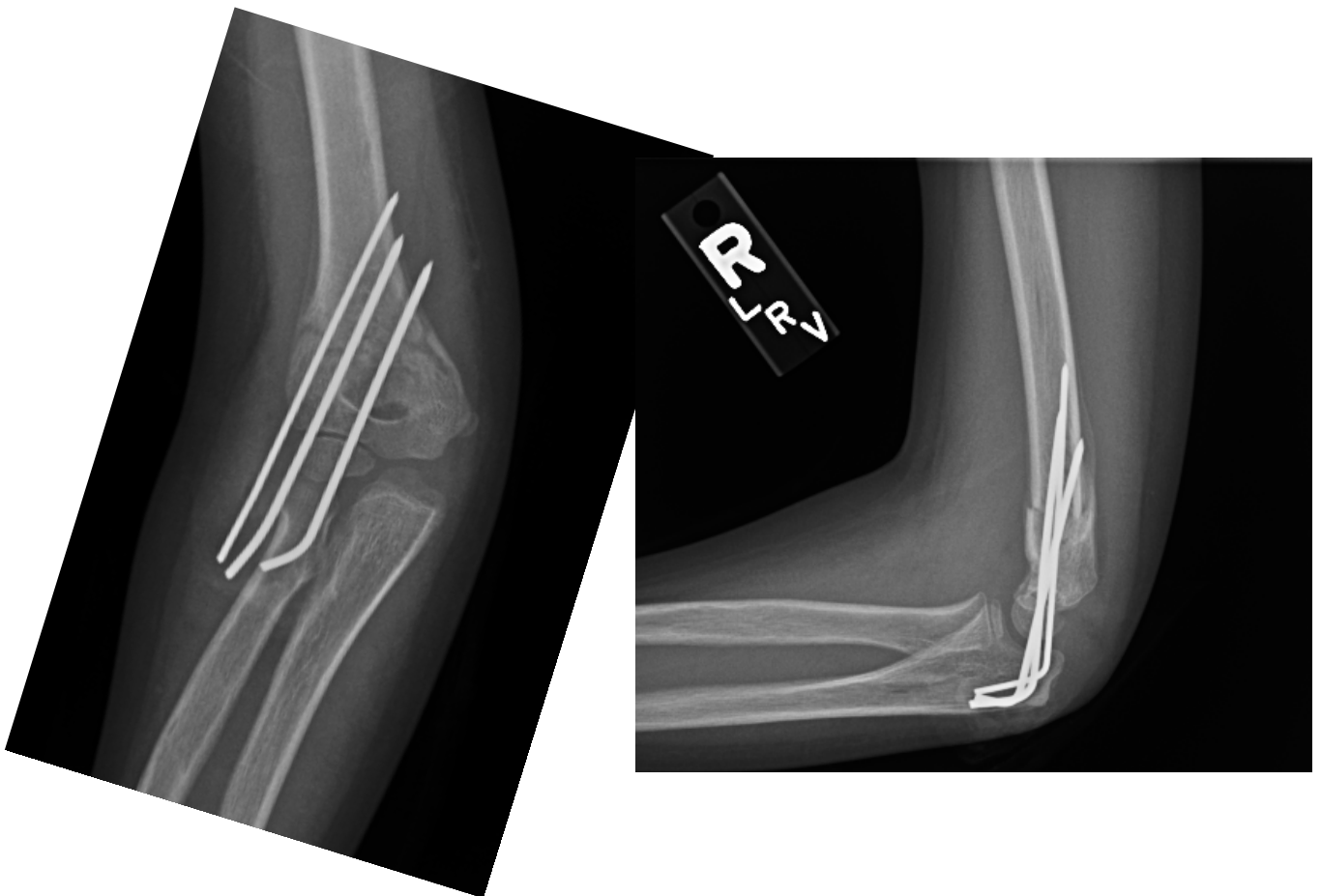
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WHAT ABOUT THESE PINS?

The pins are smooth stainless steel “wires” which have sharp tips to poke through skin and bone. They are usually 1-2 mm in diameter, about the size of a ballpoint pen tip.

In general, the pins are left out of the skin during the surgery, so that they can safely be removed in the office without the need for a second anesthesia procedure. They are essentially hidden under the cast so that your child will not see them or pull them out.

The pins are usually left in for 3-4 weeks prior to being removed in the office. There is no need for anesthesia or numbing medicine. There may be some slight discomfort but older children who can verbalize tell us “it feels funny” or “it feels weird” but generally does not hurt. Younger children will have some natural fear and anxiety which is best helped by parents remaining calm and acting as if this is routine.



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WHAT TO EXPECT AFTER SURGERY

Your child will be moved to a hospital bed after they recover in the PACU (post-anesthesia care unit). Most children are able to go home within 24 hours of the procedure after they have been observed for swelling.

WHAT SHOULD WE LOOK OUT FOR WHEN WE GO HOME?

Please do feel free to call with any questions or concerns. 321-841-3040.

It is normal for your child to have a fever within the first 48 hours following surgery. If they develop a fever of 101 or greater 3 days or more after surgery, let us know.

Your child should feel more comfortable once the pins and cast are in place. If they have pain which is worsening or increasing when you get home, and is not relieved at all by pain medicine, you should call or return to the ER immediately. (Remember they will still have some pain, the medicine will not make it a “zero”). Sometimes this is as simple as a tight ACE wrap, but is best to be evaluated if they are very uncomfortable.

Some children are able to return to school when comfortable within 3-4 days from surgery. They should use a sling when they are out and about to help carry the heavy cast.

THE FIRST OFFICE VISIT

We would like to see your child back within 5-10 days following surgery. This will allow us to take x-rays to ensure that the fracture has not shifted or moved. This is an uncommon thing to happen. However, if it does and is caught within the first 10 days, there is still time to fix the problem.

After you have x-rays at the first visit, your doctor will visit with you. Your doctor may choose to check the pin sites and may choose to switch you into a new cast. Sometimes we will simply “overwrap” your current splint or cast by wrapping new cast material around the existing cast. This is the time to pick a color!

THE NEXT VISIT

In general, we will see you back 3-4 weeks after your surgery. We will usually remove your cast at that visit. (Cast saws are loud and noisy and do tend to scare some young children – they

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work by vibrating on the cast but do not cut the skin). We will obtain x-rays out of the cast to be able to visualize the new healing bone and most of the time, the pins will come out after that visit.

WILL MY CHILD NEED PHYSICAL THERAPY?

No. Or at least not likely. The vast majority of children with this injury will not need any formal physical therapy. You can expect your child's elbow to be stiff for several weeks and they may be hesitant to use the arm for several days or weeks, however, most children get most or all of their range of motion back. Range of motion of the elbow has been shown in research studies to improve for 12 months after the injury!

HOW ABOUT RETURN TO PE, SPORTS, OR THE PLAYGROUND?

This depends somewhat on the age of the child and the severity of the injury, but in general, we would advise a minimum of 6 weeks before returning to these activities. Please ask your doctor if you have specific questions.

WHAT ARE THE POSSIBLE COMPLICATIONS OF THIS INJURY AND SURGERY?

About 1 out of 20 patients with a type III (very displaced) supracondylar humerus fracture will have injury to a nerve. This usually results in some numbness in the finger tips and difficulty moving certain muscles of the hand and/or forearm. The vast majority (~90%) of these will improve on their own, although they can sometimes take 6-12 weeks to return.

Occasionally, a muscle, nerve or blood vessel can become trapped within the fracture so that the surgeon cannot perform a "closed reduction" or is unable to get the bones lined up. This will sometimes require an incision to help put the bone back in place.

One of the most concerning complications relates to the injury and not the surgery. "Compartment syndrome" occurs when too much swelling happens within the arm. The muscles begin to bulge but have nowhere to go and can lose their blood supply. When this occurs, the diagnosis is usually made when a child has too much pain that is not relieved by typical doses of pain medicine. Compartment syndrome is an emergency, and unfortunately, the only treatment is a surgery to open the muscle compartments and relieve the swelling. This does require two large incisions on the front and back of the forearm and more surgery later to

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close the incisions. Luckily, this is very rare, and this is the reason we will keep your child in the hospital for several

Infections can occur with any surgery. Your child will be given an iv antibiotic immediately before the surgery to minimize any chance of infection. Pin track infections do occur about 5-10% of the time and are usually treated with oral (by mouth) antibiotics. The risk of a deep infection (down to bone) is very rare and occurs about 1% of the time. If this happens, it can require surgery to clean out the infection and antibiotics for several weeks.

There is a small risk (<1% of the time) to the nerves around the elbow when a surgeon puts pins in the arm. If the pin is poked too close to a nerve, this can irritate the nerve which can lead to pain, numbness and tingling, or loss of hand muscle function. When this occurs, it is usually temporary, but can be permanent.

One other risk of the surgery occurs if the fracture shifts or moves despite the pins and cast. This can require a second procedure to realign the bone and insert new pins.

If the bone heals in a crooked position, we call this a malunion (literally, a bad union) and this can sometimes lead to a cosmetic deformity or a slight limitation in range of motion of the elbow.

Some children will have some persistent stiffness and can lose a few degrees of elbow range of motion: either elbow extension (arm out straight position) or flexion (hand touching the shoulder position). This is hard to predict but it is rarely a functional problem.

A healed elbow fracture 2 months after surgery

With nearly full range of motion already

See the new
bone? →

This ma
Version

