

Treating Unstable Elbow Injuries

Physical Therapy in Fremont and Carbon Counties for Elbow

The elbow is normally a very stable, solid joint. It doesn't dislocate easily. But when a traumatic injury occurs and enough force is placed on it, fracture and dislocation can be the result. In this continuing medical education (CME) article, orthopedic surgeons from the Hand and Upper Extremity Service at Massachusetts General Hospital in Boston present an update on the surgical repair of traumatic elbow instability.

The key anatomical feature of elbow dislocations is the lateral collateral ligament (LCL). When this important stabilizing structure is torn or damaged as a result of injury, elbow instability is often the result. Instability means the joint keeps slipping out of place. There can be a partial dislocation called subluxation or a full, recurrent (repeated) dislocation.

Other important anatomical features of the elbow needed for joint stability include the capsule and surrounding ligaments, tendons, and muscles. The joint capsule is a fibrous covering much like the gristle at the end of a chicken bone. Injuries from a sudden fall that result in a simple dislocation can damage any of these soft tissue structure. "Simple" means there is no bone fracture.

More complex elbow dislocations involve fractures of any of the bones that make up the joint. This can include either of the bones in the forearm (radius, ulna) or the bottom of the humerus (upper arm bone) where it joins the forearm bones to form the elbow. The exact type of elbow dislocation and which soft tissues or bones are affected depends on the force(s) placed on the elbow at the time of the injury.

Simple elbow dislocations can often be reduced (put back in place) without surgery. More complex dislocations require a surgical procedure to reduce the joint and repair the damage. Nonsurgical relocation is followed by wearing a splint for a few weeks (two to three weeks) while the soft tissues are healing. Patients are advised to avoid moving the arm away from the body as this puts too much force on the healing elbow.

Dislocations that involve fracture of the radius where it connects to the elbow and the coronoid process are called the terrible triad. The coronoid process is the bottom lip of the ulna at the elbow. The "triad" (meaning three) refers to the dislocation itself plus fractures of the two forearm bones.

Modern treatment of this injury involves repairing (or replacing) the broken radial head, wiring the broken pieces of the coronoid together, and reattaching the torn lateral collateral ligament (LCL). Sometimes a long plate is attached (with screws) to the broken bones to hold them together until bone union takes place. The authors provide specific details about the type and location of the surgical incision and sutures for this procedure.

The decision about just what type of surgery to do depends on the extent of the damage. The surgeon may not know in advance what will be done exactly. Once the arm is opened up and the area can be examined, then the choices for repair and reconstruction become much clearer. If the radial head is broken into too many pieces (especially many small pieces), then repair isn't possible and that portion of the radius is replaced with a prosthesis (implant).

After reduction or after surgery, the patient with a repaired elbow dislocation is watched closely for elbow

instability. Surveillance (observation) is especially important during the recovery period for those who have had surgery and throughout the rehab process for everyone. Failure to maintain a stable joint may be a sign that further surgery is needed.

Long-term problems that can occur after a traumatic elbow injury include chronic, recurrent elbow dislocations, joint stiffness, and/or eventually degenerative changes in and around the joint. The goal of treatment is to restore joint stability and prevent these kinds of problems. According to the authors, the bottom is that a stiff but located (in place) joint is easier to save than one that is so damaged that the joint surface has been disrupted.

In summary, the surgeon who understands elbow anatomy and the patterns of elbow instability that occur from trauma will know how to manage these injuries. Patients who are throwing athletes are especially susceptible to traumatic elbow injuries and also in great need of proper counsel and advice. Regaining stability and motion require time for adequate healing before returning to sports activity. Avoiding lateral (side-to-side) stress on the joint is a key element to recovery.

Reference: Mohamed H. Ebrahimzadeh, MD, et al. Traumatic Elbow Instability. In *The Journal of Hand Surgery*. July 2010. Vol. 35-A. No. 7. Pp. 1220-1225.