

### Explanation of Procedure and/or Diagnosis

The lateral ulnar collateral ligament (LUCL) is an important stabilizing ligament of the elbow. It is involved in many functions of everyday life such as lifting and pushing one's self out of a chair. This ligament is usually injured by way of a traumatic injury as opposed to overuse and wear. Occasionally, severe injuries such as elbow dislocations and fractures can also involve this ligament but commonly it is a milder injury that sparks symptoms which can include pain, locking or clicking, and a sense of instability.

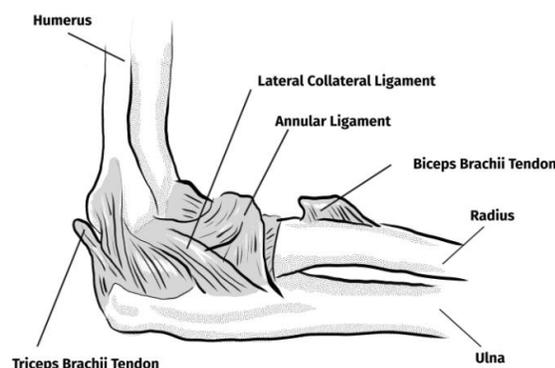
The injury resulting in damage to the LUCL can be a major, dramatic injury but more typically is the result of a minor injury which may have caused a mild amount of elbow pain for several weeks. One of the more common injuries associated with LUCL damage is a radial head fracture which is a relatively mild fracture of one of the small bones in the elbow. These fractures often heal uneventfully but can result in later development of elbow instability in some people.

### **Anatomy**

The elbow joint consists of three bones; the arm bone or humerus, the ulna (the larger bone of the forearm) and the radius (the smaller bone of the forearm).

There are several important ligaments in the elbow. Ligaments are soft tissue structures that connect bones to bones. Ligaments keep joints stable.

In the elbow, two of the major stabilizing ligaments are the ulnar collateral ligament (UCL) and the lateral ulnar collateral ligament (LUCL). The UCL is also known as the medial collateral ligament or "Tommy John Ligament". The LUCL is located on the lateral or outside part of the elbow. It runs from the outer humerus, around the radial head and attaches to the ulna. It essentially forms a soft-tissue sling that keeps the radial head in place on the humerus.



### **Causes**

The lateral ulnar collateral ligament is usually damaged by trauma that can be as dramatic as a severe fracture or dislocation of the elbow or as subtle as a minor fall onto the outstretched hand.

### **Symptoms**

- Pain on the outside of the elbow with a sense of instability or locking when you try to push against something with your hand or lean on the elbow.
- Pain or clicking when pushing out of a chair or pushing with the palm facing behind you is a common problem with LUCL instability. These symptoms are most noticeable with the elbow in a fully straightened position.

### **Diagnosis**

Your orthopedic surgeon will review the results of your evaluation with you and discuss whether lateral ulnar collateral ligament reconstruction is the best method to relieve your pain and improve your function. Other treatment options such as bracing, physical therapy, or other types of surgery also may be considered. The orthopedic evaluation will typically include:

- A medical history, in which your orthopedic surgeon gathers information about your general health and asks questions about the extent of your elbow pain and dysfunction, and how it affects your ability to perform your activity or sport
- A physical examination to assess elbow mobility, strength, alignment, and stability
- X-rays show your elbow bones and is useful in ruling out other potential diagnoses (fractures, arthritis). X-rays cannot directly show a LUCL tear, however your surgeon would be able to see if there was a problem with the radial head being held appropriately on the humerus or other bony abnormalities such as old fractures on the outer part of the elbow.
- MRIs are better at looking at soft tissues, i.e. ligaments, tendons, and can pick up injury to the LUCL, either partial or full thickness tears. An MRI arthrogram is the most sensitive imaging study to detect elbow ligament tears. This is where a special dye is injected into the elbow, and then an MRI is done. The injected dye helps detect tears in the ligament.
- Fluoroscopy: If imaging is inconclusive, your surgeon may elect to evaluate your elbow with a live x-ray in the operating room. As LUCL instability is occasionally subtle, evaluating the bony anatomy while actively moving the elbow is often useful

### Treatments

#### Non-operative:

- Non-operative treatment is the first line treatment for LUCL injuries that are not complete tears. This treatment involves activity modification, avoidance of vigorous activities that aggravate symptoms, and physical therapy, which can take several months. Occasionally, use of a brace may also be recommended during this period.

#### Operative:

- In patients in whom the symptoms don't resolve with therapy or bracing (or in those who cannot tolerate using the brace), surgical repair becomes an option. This is typically necessary in people who have physical jobs or lifestyle.
- This typically involves reconstruction of the LUCL. There are instances where the ligament may be simply repaired, but if this is not adequate, the ligament must be reconstructed using a tissue graft. Frequently that tissue is taken from you (autograft) either from a tendon in your wrist or your knee. In some cases, it may be more appropriate to use donor tissue (allograft) to reconstruct your ligament.
- Bone tunnels are made where the LUCL inserts on the humerus (arm bone) and ulna (forearm bone). The graft used is passed through these bone tunnels to take the place of the torn ligament.

### Preparing for Surgery

Patients who are scheduled for elbow ligament reconstruction should discontinue all anti-inflammatory (Advil, Aleve, Ibuprofen, Naprosyn, meloxicam, etc.) 7-10 days prior to surgery to decrease intra-operative bleeding. Medications that thin the blood need to be discontinued as well (aspirin, warfarin, Plavix), please consult with your primary care physician prior to stopping these medications. Many vitamins and supplements have blood thinning properties and should be stopped 7-10 days prior to surgery, as well.

Do not schedule minor procedures such as dental procedures (e.g. teeth cleaning, crowns, repairs) urologic or gastrointestinal procedures within two weeks of your elbow surgery. These procedures increase the risk of developing an elbow infection when performed near the time of your elbow surgery. If you have any questions, ask your orthopedic surgeon.

If you develop a sore throat, significant cough or the flu within a week of your planned elbow surgery, please inform your orthopedic surgeon. These conditions may make your anesthesia more complicated and increase your operative and anesthesia risks and as such, require your surgery to be rescheduled.

Dentures and contact lenses cannot be worn in the operating room. Please make sure to bring your container and solutions with you to the hospital so that they may be kept safe until the completion of your surgery.

You should have **nothing** to eat or drink after midnight the night prior to your surgery, except medications that you are instructed to take by our surgical team with a sip of water. We recommend you wear loose fitting clothing that is easy for you to dress into after surgery. Please leave all jewelry at home, no jewelry will be allowed on the operative arm due to risks with swelling.

### **What to Expect at Surgery**

You will be instructed by the surgical scheduler what time to arrive to surgery, typically this is 2 hours prior to your surgery. This is important to prepare you for surgery. Nurses will prepare the surgical site and administer any medications that have been ordered. An intravenous (IV) line will be started. You will receive pre-operative antibiotics to help prevent infection. The IV will remain in until you have recovered or until you no longer need intravenous support.

Before any surgery requiring anesthesia, a short pre-operative exam will be done by an anesthesiologist. During this exam your anesthesiologist will be assessing whether you have any conditions that may affect the course of your anesthesia. You will be asked questions pertaining to any allergies you may have and medications you may be taking. The anesthesiologist will also ask about any prior anesthetics that you have had and your reaction to them. Your anesthesiologist will also ask about any previous or current health conditions as well as physical symptoms you currently have. A brief physical exam will include assessment of your heart and lungs. The anesthesiologist will also perform an exam of your airway to assure you will not have any breathing difficulty during your surgery.

Surgery typically will last 1-2 hours as patient anatomy and disease processes vary. The surgeon will speak with your family or friends that are present after surgery to give them a brief overview of the procedures that took place.

### **Care After Surgery**

- Ice is applied immediately after surgery and thereafter intermittently for 20-30 minutes at a time over the first seven days. This reduces swelling and relieves pain.
- Posterior splint is placed on the elbow and left in place until first follow-up appointment
- After the splint is removed, a hinged elbow brace is put in place to protect the ligament while it is healing for 6 weeks.
- Avoidance of complete extension (straightening) of the elbow is recommended for the first 4 weeks.
- Physical therapy is started 2-3 week after surgery and some form of therapeutic exercise will be necessary for 4-6 months.
- Return to vigorous pushing and lifting activities with the arm is started around 6 months after surgery.

### **Medications**

Take as prescribed. Narcotic pain medications such as hydrocodone (Norco) or oxycodone are used for severe pain. They can be taken up to every four hours as necessary. Most patients only require these medications for the first week.

Once pain is better controlled, you may simply take acetaminophen (Tylenol) every four to six hours, not to exceed 3000 mg in one day. Take these medications with food. If you have any problems taking the medications, please stop them immediately and notify the clinic.

### **Possible Complications and Instructions**

Every surgery has risks associated, as with any invasive procedure the risks associated with elbow replacement are:

- Bleeding
- Infection - common signs of infection include increasing pain after surgery, increased redness around the incision, swelling, and drainage
- Complications from anesthesia, including death
- Permanent or temporary nerve or blood vessel injury
- Failure of fixation
- Need for further surgery
- Damage to other tissues or fracture
- Loss of limb or function
- Recurrent instability is possible though uncommon
- Stiffness
- Elbow fracture

### **Questions**

The CORE Institute is dedicated to your outcome. If any questions or concerns arise, please call The CORE Institute at 1.866.974.2673.