

Ulnar collateral ligament injury: scenario, treatment, and rehab essay

[Business](#), [Career](#)



The subject is a 25 year-old, right-handed, MLB pitcher who has played baseball since Little League. He sustained an injury to his right arm while throwing an overhand curveball during the fifth inning of the first Major League game of the season. Upon my reaching the mound, the pitcher was favoring the affected arm and in obvious pain. I asked him where the pain was located and how bad it was.

He pointed to his right medial elbow, near the medial epicondyle, and said the pain was moderate and he did not feel he could continue to pitch in the game. Next, I asked him if the pain came suddenly or gradually. He said it was a sudden pain and felt a “ pop” or “ snapping” sound. I then asked the athlete if he had sustained any previous injury to the right arm/elbow. He said he has dealt with chronic elbow inflammation throughout the course of his career but has never sustained any other injury or had surgery on the arm.

Lastly, I asked the pitcher if he had any associated symptoms with the inflammation of the elbow or if there was any swelling or numbness. He replied that he sometimes feels tingling in his right “ pinky” and “ ring” finger when swelling is present in the elbow. Following the history, I noted no signs of deformity or discoloration to the elbow joint. However, there was some apparent swelling on the medial side of the right elbow when compared bilaterally, and the fourth and fifth digits of the right hand twitched slightly as the muscles of the hand displayed some spasm. I began palpating at the flexor digitorum superficialis and the flexor carpi ulnaris.

No swelling was present and there was no pain reaction from the pitcher. I continued to the flexor carpi radialis and the palmaris longus. There was some mild pain presentation while palpating these muscles. But the pain reaction was most intolerable while palpating the medial aspect of the pronator teres and medial epicondyle of the humerus. Following palpation of the affected area, I asked the pitcher if he felt comfortable moving the elbow. After he obliged, I had him perform active range of motion of both elbows beginning with the left arm. These movements included flexion, extension, supination and pronation.

Next, I tested passive range of motion using the same movements and noticed some capsular limitation, as elbow flexion was significantly less painful and traveled further than elbow extension. Lastly, I tested resistive range of motion where, again, elbow flexion was found to be the most painful movement. Suspecting an injury to one of the soft tissues of the elbow, I performed a valgus stress test.

The elbow was held in place to prevent external rotation and in about 30 degrees of flexion. This allowed the olecranon process and olecranon fossa to separate, thereby applying the greatest amount of stress to the UCL. There was a significant amount of laxity in the joint, so I also palpated the ulnohumeral joint and, again, found a significant amount of laxity in the joint. The athlete described his pain as “ moderate to severe” throughout both procedures. Lastly, I performed a neurological assessment to address the athlete’s complaint of some tingling in the right fourth and fifth digit by

palpating the ulnar nerve. This caused the athlete a lot of pain and increased muscle spasm to the right hand.

The right elbow was immobilized and we headed to the training room. The injury to the elbow presented with moderate to severe pain, swelling, and inflammation. Injury to bone was ruled out during the initial assessment of the injury.

Therefore, I felt the injury would likely be to a soft tissue (muscle or ligament of the elbow) with some secondary damage to either the ulnar or median nerve. As a result, I employed RICE as part of the initial onsite treatment. The right arm was immobilized and all weight bearing activity involving the right arm was seized immediately. Ice was applied for 10 minutes with the arm elevated above the heart, followed by the application of an ACE bandage to apply compression. My initial treatment instructions for the athlete were to continue resting, icing, compressing and elevating the injury for the first 48 hours. I advised him that he should ice the affected area a minimum of 4 times per day throughout the first 2 days of rehabilitation. This should help reduce the pain, swelling and inflammation as a result of the injury. I also recommended he take an over the counter anti-inflammatory medication if he felt he needed to.

Due to the valgus stress test being positive, I referred the pitcher to a doctor for an MRI. The MRI later revealed a grade 2 tear of the ulnar collateral ligament with impingement of the ulnar nerve causing the tingling sensation in the fourth and fifth fingers of the right hand. Due to the injury occurring at

the beginning of the season and the age of the pitcher, and taking into the account the average 12-month recovery period, he opted for surgery to repair the torn ulnar collateral ligament. Immediately after the successful surgery, rehabilitation began with gripping exercises to strengthen the muscle of the hand and forearm and active range of motion exercises of the wrist (wrist extension and flexion). The external rotation of the shoulder would not be allowed and the arm would be in a brace maintaining 90 degrees of elbow flexion.

In addition, no resistance training exercises would be introduced until about 4 weeks after surgery. Rehabilitation sessions would be followed by ice to control any swelling and STIM to assist in the relearning of the ulnar nerve. After 2 weeks of rehabilitation, light elbow flexion and extension exercises would be introduced in addition to the gripping and wrist exercises performed on the first day of rehab. Furthermore, biceps, shoulder, and wrist isometrics would be performed as well, as long as little to no pain was present throughout the exercise. Towards the end of the rehabilitation process, I would have the athlete participate in some easy tossing or lobbing, and throwing exercises, while limiting the speed, duration, and distance of the exercises.

Taking into consideration that the distance between the pitcher's mound and home plate is 60 feet and 6 inches, a possible throwing schedule for a rehabilitating player could proceed as follows: -Week 1 oPitcher will lightly toss a baseball from 30-45 feet with no wind-up for 10-15 minutes, 3 times weekly. -Week 2 oPitcher will lightly toss a baseball from 45-60 feet with no

wind-up for 10-15 minutes, 3 times weekly. -Week 3 oPitcher will lightly toss a baseball with an easy wind-up about 40-50 feet with no wind-up for 10-15 minutes, 3 times weekly.

-Week 4 Pitcher will begin throwing at about half speed for 20-25 minutes and at a distance of 60 feet, 3 times a week. -1st 12-day cycle: throw 2 days and rest one; repeat 4 times oPitcher will attempt to throw 100 feet for 20-25 minutes; the ball will be allowed to bounce and roll to a stop. -2nd 12-day cycle oPitcher will attempt to throw 150 feet on a bounce for 25-30 minutes; again, the ball will be allowed to bounce and roll to a stop. -3rd 12-day cycle oPitcher will throw 60. 6 feet at ? speed for 30-45 minutes -4th 12-day cycle oPitcher will throw 60. 6 feet at full speed for 45-60 minutes