Biceps Tendon Pathology in a Minor League Baseball Pitcher

Lexa Smith, ATS
Faculty Advisor: Jason C. Craddick, EdD, ATC, LAT, CSCS
Florida Gulf Coast University, Department of Rehabilitation Sciences, Fort Myers, FL, USA

Abstract

Background: Athlete is a 24-year-old (183 cm and 99 kg) male minor league baseball pitcher with previous medical history of right knee ACL, medial and lateral meniscus tear that was surgically repaired and right shoulder pain that was treated conservatively. The athlete’s chief complaint during the examination was right anterior and lateral shoulder pain over the biceps tendon similar to the pain he experienced previously. Upon arrival to the athletic training facility, the athlete was evaluated by the athletic trainer. The athlete’s previous medical history includes a right knee ACL, medial and lateral meniscus tear that was surgically repaired and right shoulder pain that was treated conservatively. Athlete stated that his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing. The athlete reported decreased symptoms after warming up and his pain is a 10/10 while he is warming up and in the late cocking to acceleration phases of throwing.}

Case Report

The athlete received a biceps tendon transfer to the conjoint tendon as a part of the surgical plan. The procedures used an arthroscopic approach via the sub-acromial space which allows for better access to the anterior shoulder. The athlete is currently going through the post-operation rehabilitation process. The biceps tendon was transferred to the conjoint tendon. This case is unique because the athlete chose to proceed with the more invasive surgery to treat his shoulder pain.

Mechanism of Injury: Shoulder pain is one of the most common complaints of both minor league and major league baseball pitchers. The mechanism of injury involves a hyperextension of the shoulder and forceful motion of pitching. The axis of motion is parallel to the vertebral column, with the moment arm running through the shoulder girdle, arm, forearm and hand to the ball. As a sidearm pitcher, the athlete's shoulder range of motion was normal other than shoulder flexion which was greater than 180 degrees bilaterally. In addition, it has been shown to have increased biomechanical advantages when compared to the biceps tenodesis. The biceps tendon is inserted into the coracoid process of the scapula and the shoulder girdle.

Overhand Three Quarters Side-arm Submaximum

Short head Long head

Rehabilitation and Results

The athlete chose surgical intervention of a biceps tendon transfer to the conjoint tendon. The biceps tendon transfer to the conjoint tendon is a relatively newer technique that has shown to have increased biomechanical advantages when compared to the biceps tenodesis. In this arthroscopic procedure, the long head of the biceps brachii tendon is released from its anatomical origin and is reattached to the conjoint tendon through the subdeltoid space. The long head of the biceps is fixed to the conjoint tendon using sutures and arthroscopic knot-tying techniques. The procedure, the long head of the biceps brachii tendon is released from its anatomical origin and is reattached to the conjoint tendon through the subdeltoid space. The long head of the biceps is fixed to the conjoint tendon using sutures and arthroscopic knot-tying techniques. There are many benefits to the biceps tendon transfer, including increased range of motion and decreased pain.

Discussion and Summary

The motion of pitching is a coordinated effort of muscle units from the entire body, beginning in the lower body and ending in the upper extremity. The synchronous use of selective muscle groups maximizes the efficiency of the kinetic chain (Seayery, et al., 2010). Shoulder pain is one of the most common complaints of both minor league and major league baseball pitchers. The evidence has indicated that pathology of the biceps tendon is often a factor to consider when a baseball pitcher is experiencing shoulder pain. Conservative treatment and management of a biceps tendon pathology includes activity modification, rehabilitation exercises, local steroid injections and oral anti-inflammatory medication. If conservative treatments fail to relieve shoulder symptoms, surgical intervention should be considered. Surgical intervention options could include a biceps tenodesis and a biceps tendon transfer to the conjoint tendon. This case highlighted the unique surgical procedure of an arthroscopic biceps tendon transfer to the conjoint tendon in a minor league baseball pitcher. This case provides as an instance of failure of conservative treatment for a biceps tendon pathology and evaluates the possible advantages when compared to the biceps tenodesis. In this arthroscopic procedure, the long head of the biceps brachii tendon is released from its anatomical origin and is reattached to the conjoint tendon through the subdeltoid space. The long head of the biceps is fixed to the conjoint tendon using sutures and arthroscopic knot-tying techniques. There are many benefits to the biceps tendon transfer, including increased range of motion and decreased pain.

References


Understanding the anatomy of the biceps tendon and the glenohumeral joint is essential in understanding the injury, radiographic findings and surgical intervention. The glenohumeral joint is a typical hip joint, which is not directly involved in the motion of pitching. The athlete will then begin to pitch in games and return to full activity.