

Long head of the biceps tendon—the rotator cuff’s partner in crime

Chronic shoulder pain is a significant musculoskeletal burden on society, and rotator cuff pathology is the most common cause of shoulder disability. Between 2015 and 2019, over 1400 surgeries were performed on BC workers for rotator cuff pathology. The prevalence of rotator cuff disease increases with age, but it is often not alone in generating shoulder pain. Patients—and sometimes physicians—may question why surgery for a rotator cuff tear involves a procedure addressing the long head of the biceps (LHB) tendon.

Concomitant LHB tendon pathology is a common occurrence, with an incidence between 36% and 83% in patients who have rotator cuff tears. That the LHB tendon and rotator cuff are often partners in shoulder pain is understandable when you look at the anatomy and function of the structures.

The LHB tendon passes through the bicipital tunnel before turning around 30 to 40 degrees and heading intra-articularly to its attachment on the superior labrum and supraglenoid tubercle. The bicipital tunnel is composed of the bony bicipital groove between the tuberosities, and a soft tissue sling/pulley. The soft tissues involved include the supraspinatus and subscapularis from the rotator cuff, as well as the coracohumeral and superior glenohumeral ligaments. Previously, the transverse humeral ligament was thought to play a significant role in tunnel stability, but most authors now feel this is a continuation of fibres from the subscapularis, supraspinatus, and coracohumeral ligament. Rotator cuff pathology involving the supraspinatus and/or subscapularis can result in

LHB tendon pathology (and vice versa) due to this intimate anatomical relationship.

Functionally, the rotator cuff muscles are dynamic stabilizers of the glenohumeral joint. The LHB is generally considered a dynamic stabilizer as well, acting as a humeral head depressor similar to the supraspinatus, infraspinatus, and teres minor. Because of this shared functionality, the LHB tendon is thought by some to become a pain generator due to increased stress in the case of massive irreparable rotator cuff tears. These patients may obtain some pain relief by surgically addressing the LHB.

In patients where the usual conservative management (physiotherapy, activity modification, nonsteroidal anti-inflammatory medications, and possibly cortisone injections) fails to provide pain relief, surgical intervention can be beneficial. Tenderness over the bicipital groove and positive special tests, such as Speed’s, Yergason’s, or O’Brien’s, increase the likelihood the biceps will need to be addressed. Arthroscopic evaluation is often the final determinant.

Procedures for a painful LHB tendon include tenotomy or tenodesis. Tenodesis can be performed at various locations with various forms of fixation. Although tenodesis was traditionally performed on younger, active patients, this shifted over the last decade and is currently controversial. Traditional thinking was that tenotomy results in more cosmetic deformity (“Popeye” appearance) and muscle cramping, particularly in physically active individuals such as laborers. Tenodesis, meanwhile, requires longer rehabilitation (when an isolated procedure) and can fail, resulting in a functional

tenotomy. Recent studies have suggested the incidence of cramping or weakness with tenotomy may be less than previously thought, with some finding no significant difference between tenotomy and tenodesis, while others continuing to note higher incidences of deformity and cramping with tenotomy. Both procedures are associated with good subjective outcomes and pain relief.

To summarize, there is a high incidence of concomitant LHB tendon and rotator cuff pathology as a cause of shoulder pain. It is not unusual for patients undergoing rotator cuff surgery to also require a procedure for the LHB tendon. Both tenotomy and tenodesis are associated with good subjective outcomes. ■

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