Long Head of Biceps Pathology

Normal Anatomy
- Long Head of Biceps Tendon (LHBT) attaches to superior glenoid tubercle and superior labrum
- The tendon is surrounded by a synovial sheath
- The tendon passes through the rotator interval to the intertubercular groove between the greater and lesser tuberosities
- The LHBT is surrounded by a sling made up of the coraco-humeral ligament, superior glenohumeral ligament, supraspinatus and subscapularis fibres
- The stability of the LHBT is provided by the superior glenohumeral ligament and coraco-humeral ligament
- The LHBT’s main role is to provide stability at the glenohumeral joint

Pathology
- LHBT can undergo the following
  - Inflammation or degeneration (Tendinopathy)
  - Instability
  - SLAP Lesions (See SLAP lesions Handout for further details)
  - Rupture (Not covered)

LHBT Tendinopathy
- Inflammation of the tendon is rarely seen
- Inflammation of the tendon sheath is more appropriate (Tenosynovitis)
- Degeneration is the structural changes within the tendon without inflammation (Tendinosis)
- Tendinopathy describes any tendon disorder with pain, swelling and impaired performance
- Due to repetitive traction and friction the tendon will initially swell, but remains mobile
- As degeneration progresses the tendon becomes thicker, developing haemorrhagic adhesions to surrounding structures
- Can occur with other rotator cuff disease (Secondary Biceps Tendinopathy) or without rotator cuff disease (Primary Biceps Tendinopathy)

LHBT Instability
- A medially directed force can displace the tendon into the subscapularis insertion
- Medial force is increased with repetitive throwing in abduction external rotation
- The soft tissue sling, particularly subscapularis tendon must also be disrupted in order for the LHBT to be unstable
Co-Existing Pathologies

Anterior Instability

- Positions of internal rotation, cross body motion and forward flexion cause anterior and superior translation of humeral head. Continuation of this causes lax anterior structures (including LHBT) further increasing anterior translation, causing anterior instability

Internal Impingement

- As stated above increased anterior superior translation of the humeral head can occur. The posterior capsule of the shoulder can develop, further increasing anterior translation. This causes a fraying the of the posterior rotator cuff on the poster superior glenoid labrum (internal impingement)

Rotator Cuff Pathology, External Impingement, Bursitis

- Due to the vast amount of soft tissue within the shoulder it is not uncommon for LHBT pathology to be associated with other soft tissue pathologies. This makes diagnosis particularly difficult.
- The LHBT synovial sheath merges with many soft tissue structures, therefore inflammation can take place along all connected structures

Examination

LHBT Tendinopathy

Subjective

- Usually insidious onset
- Localized anterior shoulder pain over bicipital groove
- Symptoms often vague
- Repeated over head activities and sports

Objective

- Pain on palpation of the bicipital groove
- Confirm palpation with external and internal rotation of humerus and LHBT moves
- Reduced internal rotation

Special Tests

1. Yergasson’s Tests
2. Speed’s Test

Further Investigation

- Diagnostic injections
- MRI with arthrogram
- Ultrasound
LHBT Instability

Subjective
- Acute trauma
- Clicking and popping of anterior shoulder
- Audible snap with throwing motions
- Signs of adjacent rotator cuff disease

Objective
- Tenderness and painful click with full abduction and external rotation

Special Tests
1. Apprehension Test

Further Investigation
- Diagnostic injections
- MRI
- Ultrasound

Management

LHBT Tendinopathy

Conservative
- Always considered first
- Rest from aggravating activities
- Stage 1 – Restore Normal Mobility
  o Anti-Inflammatory Modalities (Ice, NSAID’s, Massage)
  o Decrease tone of muscles in spasm (Soft tissue techniques)
  o Normalise inferior capsule mobility (Joint Mobilisations)
- Stage 2 – Restore Normal Motor Control and Strength
  o Motor control and strength of posterior rotator cuff and scapular stabilisers
- Stage 3 – Dynamic Stability
  o Exercises that challenged the stability of the glenohumeral joint in open and closed chain positions
- Stage 4 – Return to Sport Rehabilitation

Surgical
- LHBT Decompression
- Subacromial Decompression
- LHBT Debridement
- LHBT Tenotomy
LHBT Tenodesis
LHBT Transfer

Post-Operative Rehabilitation
- Dependent on the surgeon and surgery completed, see (Krupp et al., 2009)

Management

LHBT Instability

Conservative
- Due to the usual co-existence of rotator cuff pathology treatment should focus on the rotator cuff pathology first
- Conservative management is usually unsuccessful

Surgical
- LHBT Tenotomy
- LHBT Tenodesis
- Subscapularis Repair

Post-Operative Rehabilitation
- Dependent on the surgeon and surgery completed, see (Krupp et al., 2009)

References
(Ditsios et al., 2012; Ejnisman et al., 2010; Krupp et al., 2009; Nho et al., 2010)


