Bicipital tendinopathy is a condition of inflammatory tenosynovitis, most commonly affecting the tendinous portion of the long head of the biceps (LHB) as it travels within the bicipital groove in the proximal humerus. The clinical pathology ranges from acute inflammatory tendinitis to degenerative tendinopathy, an inflammation of the tendon that attaches the biceps muscle to the bone. Usually described as a painful condition of the anterior shoulder that results from the inflammation, irritation, and degradation of the LHB (Nho et. al. 2010). This condition can impair patients ability to perform many routine activities.

History

Shoulder Pain

- Individuals will usually present with complaints of anterior shoulder pain associated with overhead activities that may radiate down the anterior arm from the shoulder. Patients may also experience pain at rest as well as nighttime pain that can interfere with sleep (Nho et al. 2010).
- Symptom onset is usually gradual or insidious and can develop over weeks to months. Patients typically are unable to describe a specific trauma or event that resulted in the pain (Nho et al. 2010)
- Pain is often located over the anterior shoulder but may radiate down the anterior aspect of the shoulder to the elbow.
- Symptom relief may be noted with rest, anti-inflammatory medications (NSAIDs), and ice, but symptoms often return with overhead activity and increased arm use (Nho et al. 2010).

Physical Examination Findings

Observation/Posture	AROM
Usually unremarkable, although assessment for shoulder girth symmetry and bulk should be noted (Bakhsh et al. 2018).	Patients with bicipital tendinopathy will often have full shoulder range of motion without limitation (Bakhsh et al. 2018).
Palpation	**AC Sprain Tests**
Direct palpation over the patient's bicipital groove usually elicits a painful response in the arm involved.	• Biceps Hyperextension • Speeds Test • Uppercut Test • Yergasons Test

Ancillary Tests

- The role of imaging is to provide structural information to influence therapeutic decisions. Usually, X-Rays are not indicated upon presentation, unless osseous pathology is suspected.
- Plain film shoulder radiographs (AP and lateral/scapular Y) can be used to evaluate boney structures but usually will be unremarkable (Nho et. al. 2010).
- Advanced imaging with MRI is most beneficial in delineating other associated shoulder pathologies. MRI is useful in evaluating the LHB tendon's position in the bicipital groove. Absence of the tendon within the groove would suggest subluxation and/or dislocation (Nho et al. 2010)
- Diagnostic Musculoskeletal Ultrasound (MSK Ultrasound) is also a useful imaging option. Characteristic findings include tendon thickening, tenosynovitis/hypertrophy of the synovial sheath, and fluid surrounding the tendon in the groove. The diagnostic accuracy of ultrasound in detecting LHB pathology ranges from 50% to 96% (sensitivity) and 98% to 100% (specificity) when compared to magnetic resonance arthrography (MRA) (Nho et al. 2010)

Treatment Options

- The emphasis of care is to decrease pain and improve overall shoulder function; increase pain free active range of motion, improve shoulder segmental motion, and improve mechanical faults.
- Management incorporates rehabilitative exercise programs that focus on scapular stability, reducing scapulothoracic dyskinesia, rotator cuff strengthening, and exercises to correct strength imbalances of the upper extremity.
- Injection or surgical intervention is usually not necessary except with significant underlying anatomical pathology, or failure of response to conservative care (Aky et al. 2015).
- Surgical Management is considered if significant tearing, fraying, and hypertrophy of the LHB exists (Nho et. Al. 2010).

- **Scapular stability and general strengthening exercises can include:**
  - Brugger's
  - Prone abduction (full can)
  - Standing full can
  - Side-lying abduction
  - Side-lying external rotation at 0* abduction
  - Standing external rotation at 0*, 45*, 90*
  - Prone external rotation at 90*
  - Internal rotation belly presses
  - Standing internal rotation at 0* adduction and/or at 90*
  - Standing internal rotation in a diagonal direction
  - Bicep curls
  - Serratus Punch
  - Serratus push-up with a plus
  - Dynamic hug
  - Wall angels
  - Prone full can at 15* ("I") and/or at 45* ("Y")
  - Prone horizontal abduction at 90* ("T")
  - Prone external rotation at 90*
  - Standing bilateral external rotation with arms at 0*
  - Prone Rows
  - Farmers carry

Treatment Options	
• **Exercise** – *Acute Phase:* Exercises within the pain free arc (scapular stabilization, Codman arm swings, broomstick exercises, and wall walk/table walks). – *Sub-Acute Phase*: Scapular stability and rotator cuff strengthening as tolerated. – Scapular stability and general strengthening exercises can include: See Appendix	• **Manual therapy** – Shoulder manipulation/mobilization into joint restriction based upon directional preference. – Soft tissue techniques can be incorporated to shoulder muscles if tender muscles are present (PIR, Pin and Stretch, Ischemic Compression) – As pain range of motion increases and pain decreases, incorporating work/sport specific exercises can be added. • **Activity modification** – Avoid painful motions which exacerbate the symptoms. – Focus on exercises within the pain free zone. • **Common treatment duration:** 4-6 weeks • **Other options:** – Class IV laser – Cryotherapy – Pharmaceuticals: NSAID's – Corticosteroid injections – Platelet Rich Plasma (PRP) injections – Surgery

Potential ICD 10 Codes	DDX List for this Condition	
• M75.20 = Bicipital Tendinopathy	• Subacromial Impingement • Acromioclavicular Joint Arthritis • Glenohumeral Joint Arthritis • Distal Clavicle Osteolysis	• Calcific Tendonitis • Adhesive Capsulitis • Rotator cuff tears • Multidirectional Instability

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