



**Department of Radiology**  
UNIVERSITY OF WISCONSIN  
SCHOOL OF MEDICINE AND PUBLIC HEALTH

**Musculoskeletal Imaging and Intervention Section Procedures**  
Long Head of Biceps Tendon Sheath Corticosteroid Injection

**INDICATIONS**

- Anterior shoulder pain in the setting of tenosynovitis or tendinosis of the long head of the biceps tendon.
- At our institution, we perform a full diagnostic shoulder ultrasound if:
  1. Patient has no prior diagnostic shoulder MRI or US, or over 2 years since last exam.
  2. Interval injury or worsening of symptoms since last MRI or US.
- If on diagnostic US there is a partial articular surface or small full-thickness rotator cuff tear, or a partial tear of the biceps tendon, we do not proceed with the corticosteroid injection.

**RISKS**

- Bleeding
- Infection
- Pain

**MODALITY**

- Ultrasound

**PRE-OPERATIVE WORKUP**

- Informed consent

**Department of Radiology**

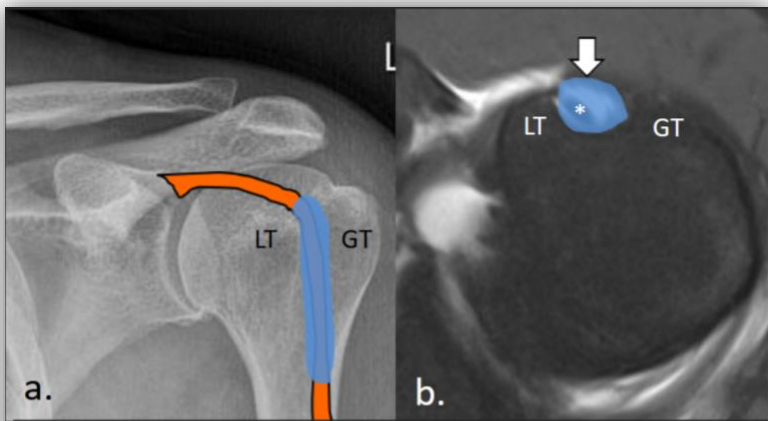
Musculoskeletal Imaging and Intervention

## **MATERIALS**

- Alcohol, Chloraprep applicator, sterile drape
- 10 mL syringes for skin anesthetic and steroid/anesthetic mixture
- 1% lidocaine (for skin numbing); buffered with 8.4% sodium bicarbonate
- 1 mL triamcinolone acetonide (Kenalog 40 mg/mL)
- Ropivacaine HCL 0.5% (Naropin 5 mg/mL)
- 30G 0.5" & 22G 1.5" needles

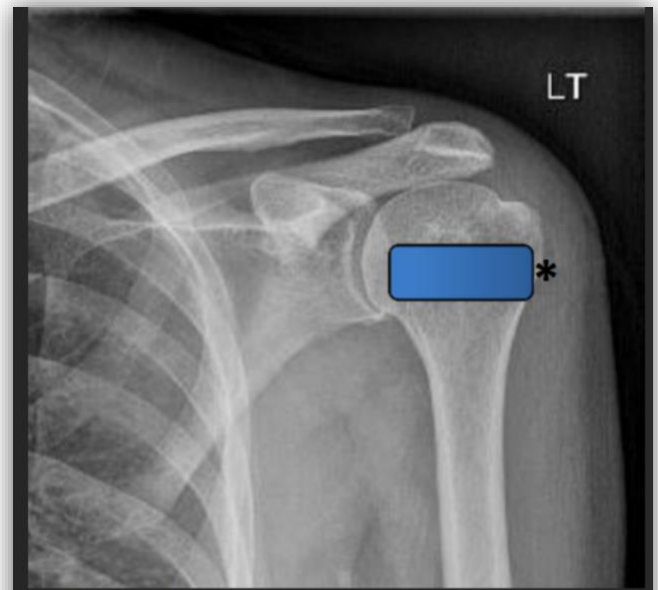
## **TECHNIQUE**

1. The patient can either be positioned supine or semi-reclined, with their arm at their side in slight external rotation with the hand supinated. The elbow may be flexed at 90° for comfort.
2. Localize the long head of the biceps tendon within the bicipital groove with the ultrasound transducer in transverse orientation. Assess for traversing vessels to avoid with Doppler. Mark the skin at the lateral aspect of the transducer.
3. Prep and drape as per usual and perform local anesthesia.
4. Guide a 22G 1.5" needle in the lateral aspect of the bicipital groove, just lateral to the biceps tendon, and deep to the transverse ligament. Distend the sheath with a small volume of 1% lidocaine.
5. Inject 2 mL of a solution containing 1 mL triamcinolone acetonide (Kenalog 40 mg/mL) and 1 mL 0.5% ropivacaine HCL. Confirm distension of the sheath both cranially and caudally during and after injection.



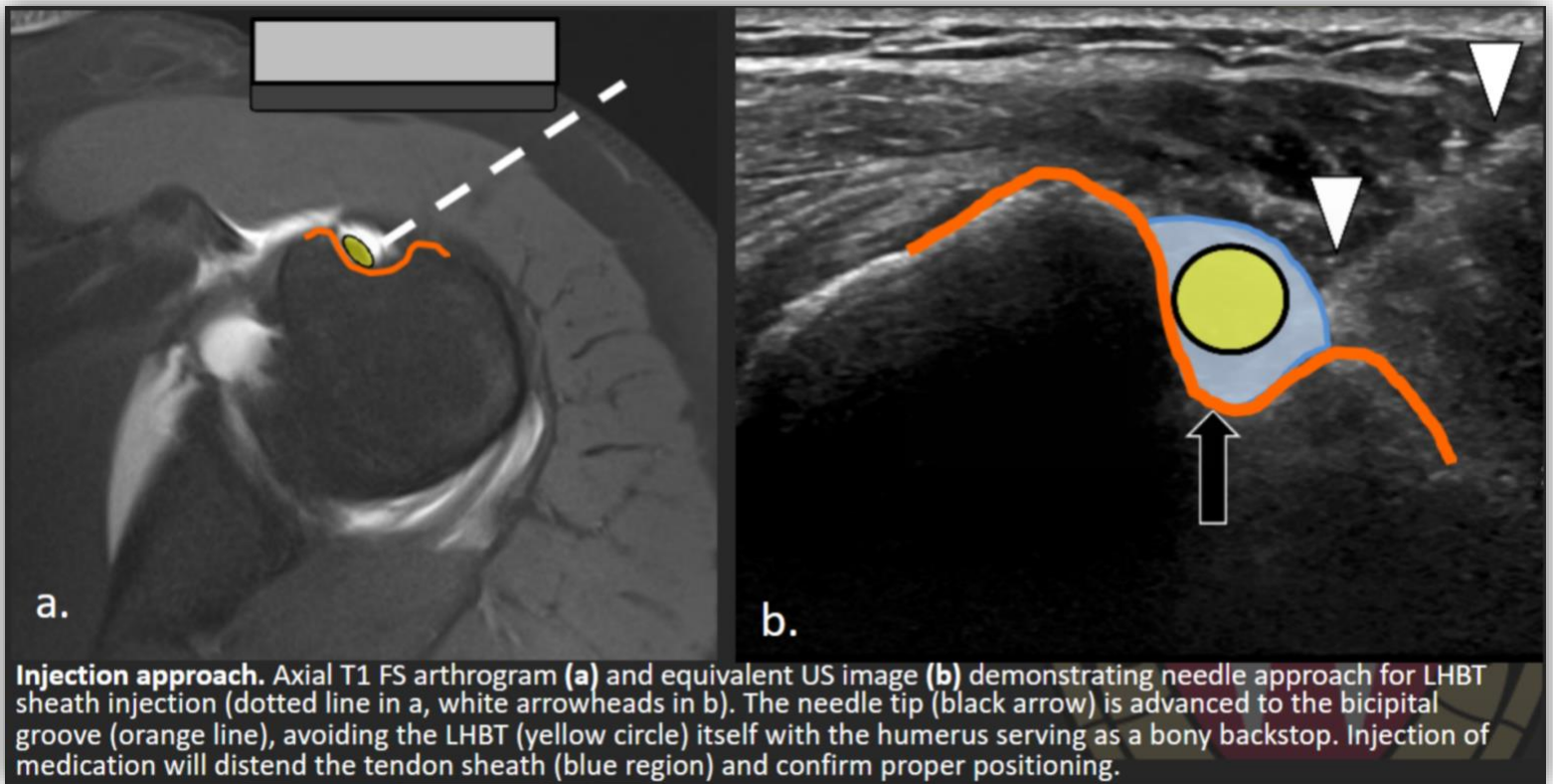
**LHBT sheath.** a. Illustration of the course of the LHBT (orange) and surrounding sheath (blue region) on an AP film. b. Axial T1 FS arthrogram image demonstrates the bicapital groove containing the LHBT (white asterisk) and tendon sheath (blue region). Note intraarticular glenohumeral contrast fills the tendon sheath. The bicapital groove boundaries include the lesser tuberosity (LT), greater tuberosity (GT) and transverse humeral ligament (white arrow)

Fig 1. Anatomy of the LHBT



**Probe position.** The US probe (blue rectangle) is placed in transverse orientation on the anterior shoulder at the bicapital groove. The needle (black asterisk) is inserted in the skin just lateral to the edge of the probe

Fig 2. Transducer positioning for LHBT injection



**Injection approach.** Axial T1 FS arthrogram (a) and equivalent US image (b) demonstrating needle approach for LHBT sheath injection (dotted line in a, white arrowheads in b). The needle tip (black arrow) is advanced to the bicapital groove (orange line), avoiding the LHBT (yellow circle) itself with the humerus serving as a bony backstop. Injection of medication will distend the tendon sheath (blue region) and confirm proper positioning.

Fig 3. MRI & US correlate of proper needle positioning for LHBT injection

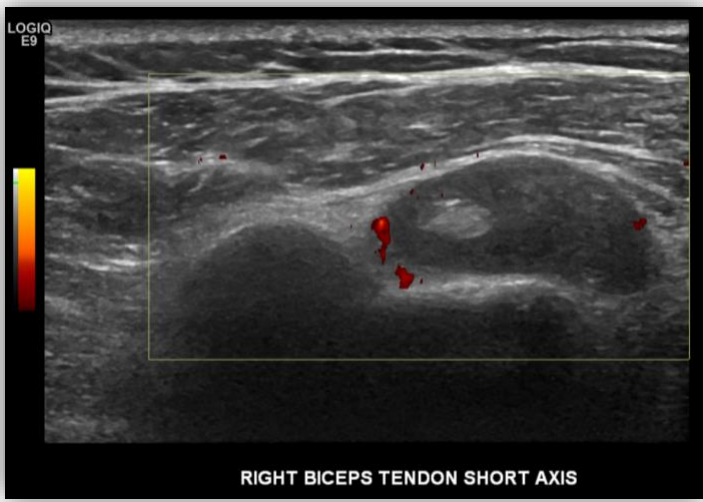


Fig 4. Short-axis US image of the right LHBT demonstrating considerable intra-sheath fluid, consistent with tenosynovitis.



Fig 5. Long-axis US image of the right LHBT again demonstrating significant intra-sheath fluid.



Fig 6. Short-axis US image demonstrating appropriate needle tip placement within the bicipital groove.



Fig 7. Short-axis US image demonstrating injection of corticosteroid mixture within the bicipital groove.

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Fig 8. Short-axis US image demonstrating intra-sheath fluid surrounding the left LHBT.



Fig 9. Short-axis US image demonstrating appropriate needle tip placement within the bicipital groove, deep to the LHBT.



Fig 10. Short-axis US image following injection of corticosteroid mixture within the left bicipital groove with needle still in place.



Fig 11. Short-axis US image following needle removal with distension of the LHBT sheath.

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