



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

**Musculoskeletal Imaging and Intervention Section Procedures**  
Subacromial-subdeltoid Bursal Corticosteroid Injection

**Preamble & Indications**

- Radiating shoulder pain, although an often non-specific symptom, is a common initial complaint. There may be associated limited range of motion and findings of subacromial impingement on clinical exam.
- Common primary causes of bursitis: degenerative changes, post-traumatic, inflammatory/crystalline arthropathy, infection, calcific bursitis.
- Common secondary causes: rotator cuff tear/tendinopathy, calcific tendonitis, and subacromial impingement.
- This procedure is also performed as the last step of a calcific lavage in the setting of calcific tendonitis at our institution.
- We perform a full diagnostic shoulder ultrasound if:
  1. Patient has no prior diagnostic shoulder MRI or US, or over two years since the last exam.
  2. Interval injury or worsening of symptoms since last MRI or US.
- If on diagnostic ultrasound examination, there is a partial bursal-sided or small full-thickness rotator cuff tendon tear, it is a case-specific scenario in terms of proceeding with a corticosteroid injection, taking into account the patient, referring provider, and expectant course of management.

**RISKS**

- Bleeding
- Infection
- Pain

**MODALITY**

- Ultrasound

**PRE-OPERATIVE WORKUP**

- Informed consent

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## **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)
- 1% preservative-free lidocaine HCL (10 mg/mL)
- Ropivacaine HCL 0.5% (Naropin 5 mg/mL)
- 30G 0.5" & 22G 1.5" needles

## **TECHNIQUE**

1. The patient is positioned semi-reclined, ideally with their ipsilateral arm placed behind the back. This uncovers the bursa from the overlying acromion. The lateral approach is used, in which the long axis of the supraspinatus tendon is parallel with the ultrasound transducer.
2. The transducer is placed over the lateral aspect of the shoulder. The bursa should be visualized directly superficial to the supraspinatus tendon. 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 within the bursa, just superficial to the rotator cuff. Distend the bursa with a small volume of 1% lidocaine.
5. Inject 3 mL of a solution containing 1 mL triamcinolone acetonide (Kenalog 40 mg/mL), 1 mL preservative-free 1% lidocaine, and 1 mL 0.5% ropivacaine HCL.

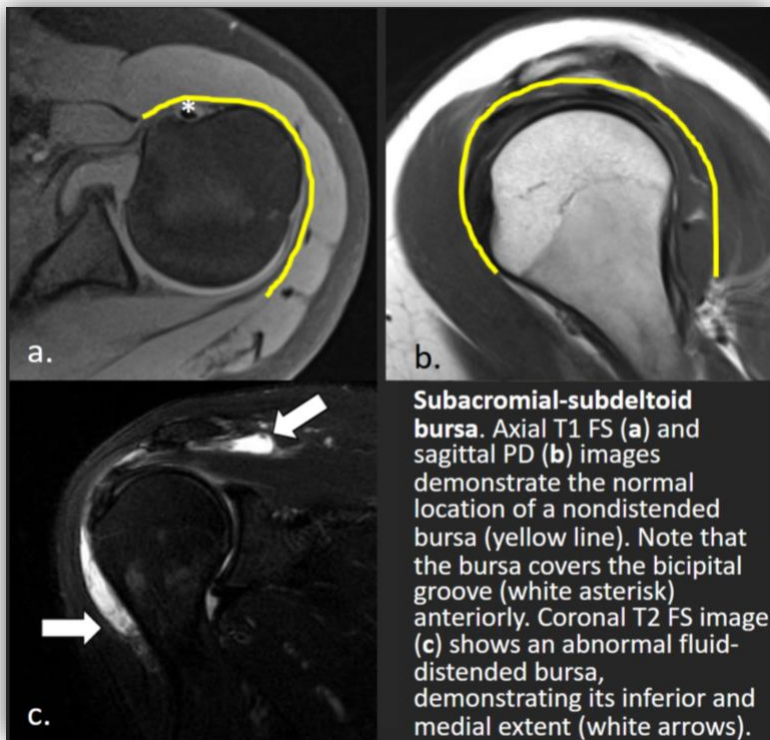


Fig 1. Axial (a), sagittal (b), and coronal (c) MR images demonstrating normal and distended appearances of the subacromial-subdeltoid bursa.

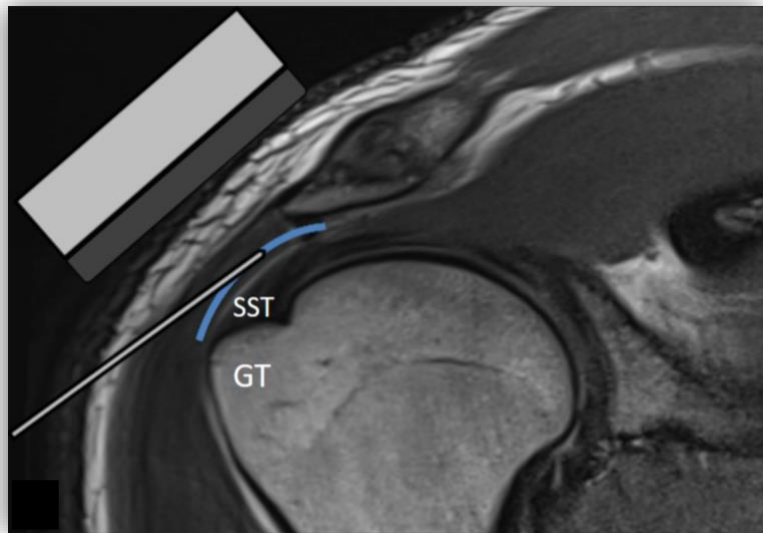


Fig 2. Coronal-oblique T1-weighted MR image demonstrating proper US transducer position and trajectory of the needle into the SASD bursa (blue line).

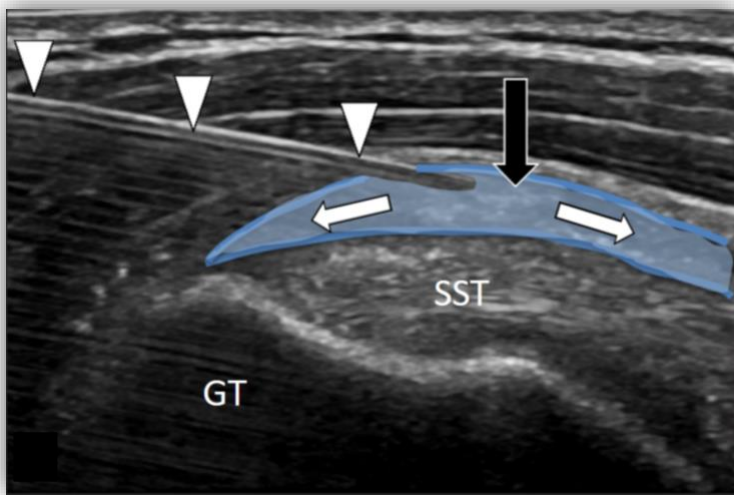


Fig 3. An equivalent long-axis US image shows the needle path (white arrowheads) and distal tip (black arrow) positioned in the SASD bursa, directly superficial to the supraspinatus tendon (SST), which inserts on the greater tuberosity (GT). There is expected spread (white arrows) of corticosteroid mixture away from the needle tip with distension of the SASD (blue crescent) after injection of medication.



Fig 4. Long-axis US image demonstrating a fluid-filled subacromial bursa (arrow) overlying the supraspinatus tendon.

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Fig 5. Long-axis US image demonstrating the needle tip in appropriate position within the distended subacromial bursa.



Fig 6. Long-axis US image demonstrating further distension of the subacromial bursa with corticosteroid/anesthetic mixture.



