How to Do a Subacromial Shoulder Injection
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Procedural learning

# Workshop objectives

1. **Knowledge**
   1. Indications and contraindications for subacromial steroid injection
   2. Risks and benefits of subacromial aspiration and injection
   3. Post procedure instructions
   4. Materials needed for procedure

2. **Skills**
   1. Consent
   2. Sterility
   3. Positioning
   4. Entry site
   5. Needle technique

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## Indication: Shoulder impingement. Neer’s test
Indication: Shoulder impingement. Hawkins test

Contraindications to steroid injection

- Joint infection
- Hemarthrosis
- Overlying cellulitis
- Fracture
- Prosthetic joint
Relative contraindications to steroid injection

- Coagulopathy
  - Warfain okay
    - Recent INR therapeutic
  - DOACs okay (data limited)
    - Confirm proper dosing, creatinine
- Poorly controlled diabetes
- h/o past subacromial injections (number?)

Benefits of subacromial injections in rotator cuff disease?

- 2003 Cochrane review: maybe small benefit for SA injection for RC disease (impingement, tendinopathy, partial tear) over placebo at 4wks
- Difficult to pool data
  - Variations in how patients diagnosed
  - Different types of injections
  - Different locations of injections (accuracy?)
  - Various study designs (lack RCTs)

Randomized 100 impingement syndrome patients
- Subacromial injxns (up to 3x, 1 month apart)
- Physical therapy x 6 sessions
- After 1 year both groups 50% better
- 10 injxn people crossed over to PT
- 9 PT people crossed over to injxn

Risks of corticosteroid use in rotator cuff disease?

- Patients with ≥ 4 steroid injections had worse outcomes after surgery for large-massive RTC tear (Watson M. J Bone Joint Surg Br. 1985)
- Patients with h/o ≥ 3 SA injections no higher risk for RTC tear than those with < 3 injxns (Bhatia M et al. Ann R Coll Surg Engl 2009)
- 1 dose steroid in SA space significantly reduces strength of rat RTC (both injured and not injured) @ 1 week. No change compared to control at 3 and 5 weeks. (Mikolyzk DK et al. J Bone Joint Surg Am. 2009)
- Patients with 2 or more SA injections in the year prior to rotator cuff repair were more likely to have revision surgery (Desai VS et al. Arthroscopy 2018)
Risks of steroid injection in the subacromial space

- Diabetics: increased blood sugar
- Facial flushing: 10% with Kenalog
  - 19-36 hours post-injection
- Skin or fat atrophy
- Post-injection steroid flare: 1-10%
  - Synovitis in response to injected crystals
  - Within hours - 48 hours post-injection
  - More common in soft tissue injections (20% of trigger points) than intra-articular injections
- Infection: 1/3000-1/50,000
  - 1-2 days after injection


Aspiration/injection supplies

- Betadine swab x 3
- Ethyl chloride spray
- Alcohol swabs x 6
- 4x4 gauze x 1
- Bandaid x 1
Needles, syringes, meds

- Needle to draw up meds
- 22g 1.5 inch needle to inject
- 10cc syringe
- 2-5 cc lidocaine
- Steroid (I use 40mg, 1 cc, triamcinolone)

Approach

1. Posterior
2. Lateral

Evidence points to lateral approach being most accurate when using landmarks to guide injection, especially in women. (Marder et al. JBJS 2012, Ganokroj et al. Orthopedics 2018.)

Photo courtesy of Anthony Luke, M.D.
Subacromial Injection

**Posterior approach**

**Landmarks**
- Posterior and lateral borders of acromion
- Coracoid

**Technique**
- Insert needle at Posterior “soft spot”
- Aim parallel to angle of lateral acromion to reach subacromial bursa
- Direct needle towards ipsilateral coracoid

Ganokroj P et al. Orthopedics. 11/2018

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Subacromial Injection

**Lateral approach**

- Patient sitting up, hands placed in lap
- Ask patient to relax shoulder and neck muscles
- Can apply traction to flexed elbow to open subacromial space
- Mark midpoint of lateral edge of acromion
- Enter 1-1.5” below marked spot
- Angle of entry parallel to acromion (directed slightly cephalad and anterior)

Lateral approach

Shoulder injection practice
1. Patient in gown
2. You stand behind patient who is seated
3. Palpate landmarks
4. Mark with end of pen
5. Clean with betadine x 3, let dry
6. Swab with alcohol x 1 over injection spot
7. Spray with ethyl chloride
8. Place alcohol swab over site, feel approach of needle
9. Use 10cc syringe filled with 4-5cc 1% lidocaine and 1 cc 40mg triamcinolone and 22g 1.5” needle
10. Enter space
11. Once needle is hubbed or nearly hubbed inject solution
12. If resistance, redirect
13. Remove needle, place 4x4 over injection site, clean betadine off using alcohol swab, cover injection site with Band-Aid.
14. Give patient handout with emergency contact info.
Thank you!

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