

Glenohumeral Joint Injection

Key Points

Patient Position:

Lying on their contralateral side with the symptomatic arm resting at their side.

Physician's Position:

Facing the patient

Probe Position: Place the probe just inferior and parallel to the spine of the scapula. Slide the probe medial/lateral parallel to the spine of the scapular until you see the ideal image which will show the posterior humeral head and glenoid just deep to the infraspinatus musculotendinous junction in long axis (see US image below taken from a different patient).

Needle Position: In plane with the probe, directed from posterolateral to anteromedial into the space between the glenoid labrum and humeral head.



Beam steering may be used to improve needle conspicuity, if necessary. Whenever possible, do most of the adjusting prior to inserting the needle. First, obtain a good image with it off. Next, turn it on and adjust the angle by turning the upper part of the adjustment wheel – gain knob towards the side of the ultrasound image from which the needle will be approaching. The image becomes slightly distorted, so doing most of the adjusting before the procedure allows your eye to adjust. Ideally, we would like the needle perpendicular to the ultrasound beam, but with steep needle angles this isn't possible. A maximum of 18 degrees of



angulation is allowed, but it's typically a good idea to start with 8 to 10 degrees. Additional angle adjustment can be made once the needle is inserted.

Either a linear or curvilinear probe may be used for this procedure. When using the linear probe, turning on Terason's virtual convex feature will open up the field of view.

Discussion

Glenohumeral joint injections performed under ultrasound guidance have a higher first attempt success rate (72% vs 94%). They require significantly less time to perform, and cause less pre- and post- injection pain than when performed under fluoroscopic guidance.¹

¹Rutten MJ, Collins JM, Maresch BJ, et al. Glenohumeral joint injection: a comparative study of ultrasound and fluoroscopically guided techniques before MR arthrography. Eur Radiol. Mar 2009;19(3):722-730

Pearls and Pitfalls:

- At least one digit of the probe hand should be in contact with the patient in order to stabilize the probe.
- The needle approach angle is typically about 45 degrees, but will vary with patient habitus.
- Frequently, an examiner will have the probe over the GHJ but can't find the ideal image because they have the transducer angled too inferior or superior. So if they slowly "wag the tail" of the transducer (thus tilting the transducer superior/inferior) they then see the GHJ more clearly.
- Dynamic imaging with internal and external rotation of the patient's shoulder can help distinguish the glenoid labrum from the humeral head and identify the tissue plane of the target, the posterior GH joint capsule.
- In very thin individuals, it is possible to reach the GHJ with a 1.5" needle, but most people require a 2" needle and occasionally a 3.5" spinal needle may be needed for larger patients.
- The Terason 15L4 (linear) probe is adequate for most glenohumeral injections, but a Terason 6C1 (curvilinear) probe may be needed for large patients.
- There is usually sharp pain associated with the needle puncturing the joint capsule. The patient's response provides good feedback. Warn them to expect it and report it when it happens.

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