

# Detroit SonoWAR 2022

## #5 Dislocation Station

Your team is out hiking and one of your teammates trips and suffers a dislocation of their shoulder and breaks several ribs.

There has been at least one recently published case of a stranded hiker with an ultrasound-confirmed glenohumeral joint dislocation who underwent ultrasound-guided intra-articular lidocaine injection and ultrasound-confirmed reduction. This procedure allowed the patient to hike out under his own power, avoiding the potential dangers of extrication to both patient and rescuers.<sup>1</sup>

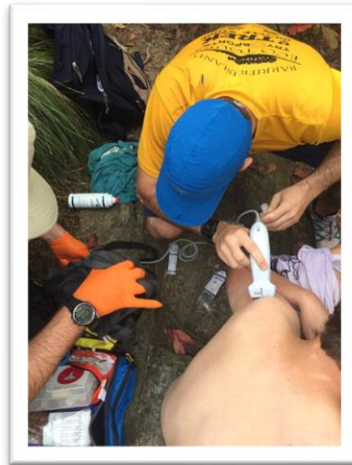


Image from Reference 1

Additionally, recent studies and meta-analyses have concluded “Intra-articular lidocaine may have similar effectiveness as IV sedation in the successful reduction of anterior shoulder dislocations in the ED with fewer adverse events, shorter ED length of stay, and no difference in pain scores or ease of reduction.”<sup>2</sup>

Furthermore, an erector spinae plane block has become increasingly popular in recent years for pain control of the thoracic wall. “The beauty of this single-injection high-volume block lies in its capacity to anesthetize the majority of the hemithorax. Additionally, the sonoanatomy of the ESPB is relatively simple and safe.”<sup>3</sup>

References to chew on as you stroll to this station:

1. Kranc, D. *Use of Ultrasound for Joint Dislocation Reduction in an Austere Wilderness Setting: A Case Report*. Prehospital Emergency Care, 2019
2. Secko, M et al. *Musculoskeletal Ultrasonography to Diagnose Dislocated Shoulders: A Prospective Cohort*. Annals of Emergency Medicine, 2020
3. Sethi, P et al. *Accuracy of anterior intra-articular injection of the glenohumeral joint*. Arthroscopy: The Journal of Arthroscopic and Related Surgery, 2005
4. Waterbrook, A *Intra-articular Lidocaine Injection for Shoulder Reductions*. Sports Health, 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3445222/>
5. Borke J *Reduction of Shoulder Dislocation Technique*. Medscape 2020. <https://emedicine.medscape.com/article/109130-technique>
6. Rastogi, K. *Fundamentals of Joint Injection*. American Journal of Roentgenography, 2016
7. Mantuani, D. *How to Perform an Erector Spinae Plane Block*. ACEPNow, 2021. <https://www.acepnow.com/article/how-to-perform-an-erector-spinae-plane-block/>

#### Additional Reading

8. Tin, J. *Ultrasound for Shoulder Dislocation and Reduction*. EmDocs 2018 <http://www.emdocs.net/us-probe-ultrasound-for-shoulder-dislocation-and-reduction>
9. Jacobson, J. *Shoulder US: Scanning, Anatomy, and Scanning Pitfalls*. Radiology, 2011 <https://pubs.rsna.org/doi/10.1148/radiol.11101082>
10. Riguizzi, et al. *How To Use POCUS To Identify Shoud*<https://www.acepnow.com/article/use-point-care-ultrasound-identify-shoulder-dislocation/>
11. Sithamparapillai, A et al. *Intra-articular lidocaine versus intravenous sedation for closed reduction of acute anterior shoulder dislocation in the emergency department: a systematic review and meta-analysis*. Canadian Journal of Emergency Medicine, 2022

## DETROIT SONOWAR 2022

### #5 Dislocation Station

- 1 Point      Navigate to this station
- 1 Point      Demonstrate proper probe position and technique for diagnosing shoulder dislocation via ultrasound (*Identify glenoid fossa, humeral head, spine of scapula, and supraspinatus tendon motion with internal/external rotation*)
- 1 Point      A common reason for failure of intrarticular lidocaine injections is using too short of a needle. Measure on your teammate the depth of the needle path from skin to glenoid labrum. How does this compare to a regular nursing needle (1" or 25mm) versus an 18g spinal needle (3.5" or 88mm)
- 1 Point      In the case of a typical anterior dislocation, describe two ways you can confirm that your needle is deep enough and properly located in the (now empty) glenohumeral fossa
- 1 Point      Properly describe the procedure for how to perform an intrarticular lidocaine injection of the shoulder. Must include: *Type of medication; Strength/Concentration; Amount; Needle Selection; Skin insertion site; and Description of Technique.*
- 1 Point      Perform an ultrasound guided intraarticular anesthetic block on the phantom
- 1 Point      Describe at least three different methods for reduction of a dislocated shoulder and how to confirm reduction
- 1 Point      Describe the indications and contraindications for an erector spinae plane block and a serratus anterior block
- 1 Point      Identify the key anatomy for an erector spinae plane block on a teammate
- 1 Point      Successfully perform an erector spinae plane block on the phantom

*Bonus Point: Tweet a photo of your score for this station (and an action shot) with **#SonoWAR** to have a bonus point added on the back end!*