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Ultrasound Guided Of Differents Injections Techniques and Controlled Mobilization for Frozen Shoulder Treatment

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Faculty Disclosure Information

- Nothing to disclosure

Frozen shoulder

- Common and disabling condition
- Usually self-limiting
- Recovery times are often unacceptable for patients

Therapeutic options

- Steroid-anesthetic subacromial injections
- Intra-articular injections
- Hydrodilation
- Under local anesthesia manipulation of the shoulder
- Arthroscopic arthrolysis

None of them are considered the gold standard

Objective

To report the results of our technique involving ultrasound-guided injections of cortisone and lidocaine in differents anatomicals points with capsular hydrodilation and a controlled mobilization under local anesthesia, followed by a rehabilitation protocol, in a group of patients with frozen shoulders.

M&M

Inclusion criteria

- Clinical diagnosis of frozen shoulder
- Failed conservative treatment for at least 2 months

Exclusion criteria

- Patients with previous infiltrations or other invasive treatment
- Medical contraindications for steroid use
- Associated rotator cuff injuries or glenohumeral osteoarthritis
- Not be adequately controlled

Shoulder X-rays and MRIs were performed in all the patients

M&M: Procedure

Sterile conditions

Diluting 2 ml of betamethasone phosphate-dipropionate in 15cc of 2% lidocaine and 20cc of saline into 3 syringes of 10cc each.

Ultrasound-guided injection was performed at various anatomical points of the shoulder

- 4cc was injected into the bicipital groove,
- 4cc into the subacromial space,
- 10cc into the rotator cuff interval,
- Finally 10cc intra-articular from the posterior capsule.

M&M: Procedure

Taking advantage of the anesthesia generated by infiltrations, a **controlled manipulation of the shoulder** in three steps-directions was performed: anterior elevation, external rotation, and internal rotation

M&M

At 96 hours, the rehabilitation protocol was resumed

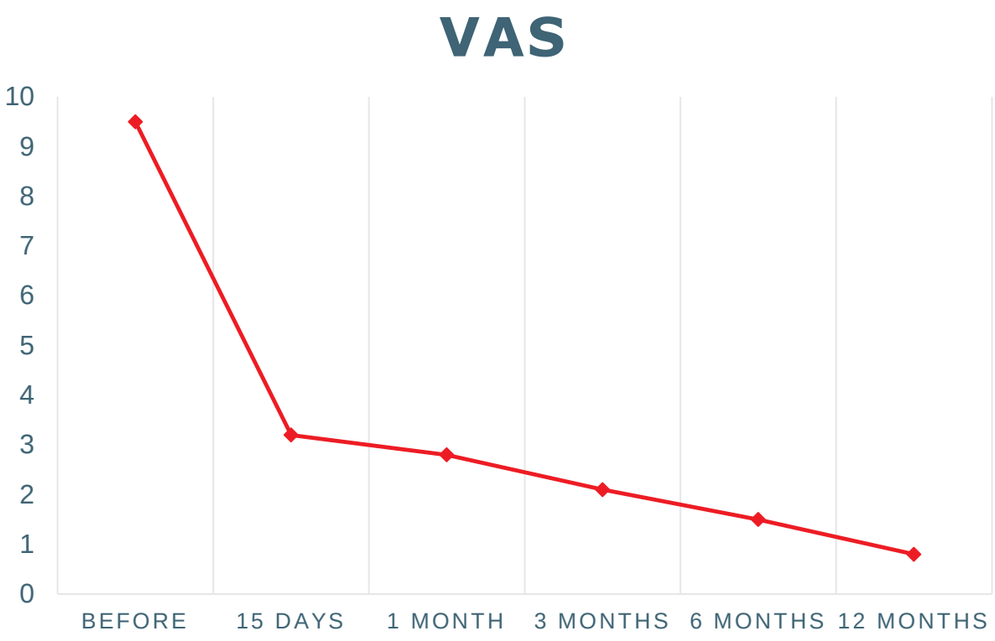
Patients were assessed using:

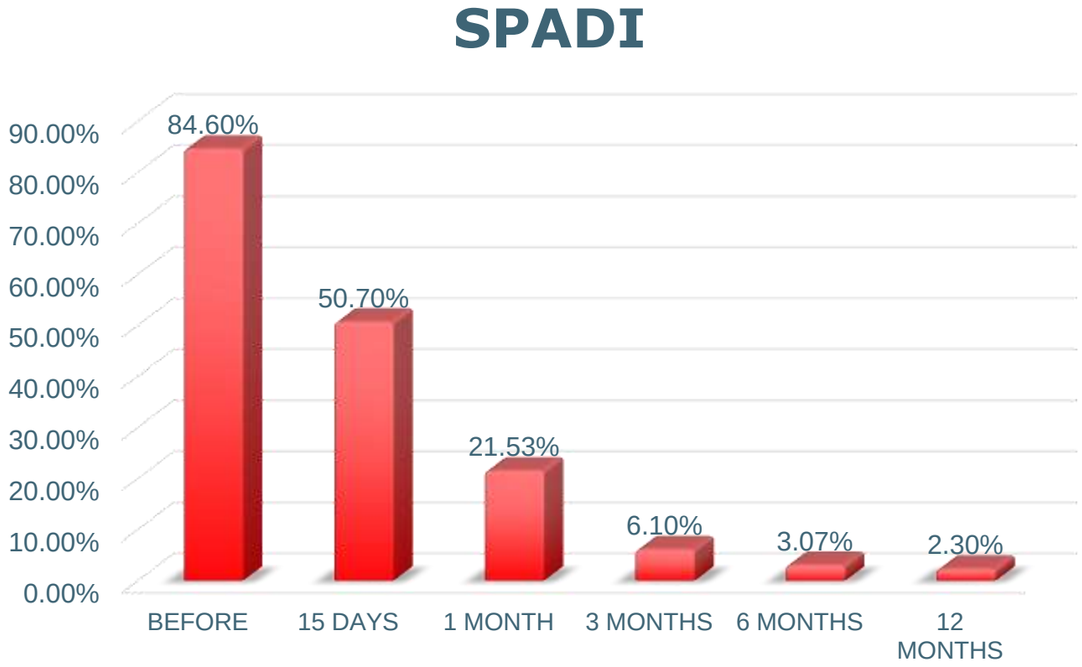
- VAS
- Score SPADI
- Passive mobility

Before the procedure and subsequently at 15 days, and at 1, 3, 6, and 12 months.

Results

- 82 patients were included
- Follow-up time of 19 months (19-60)





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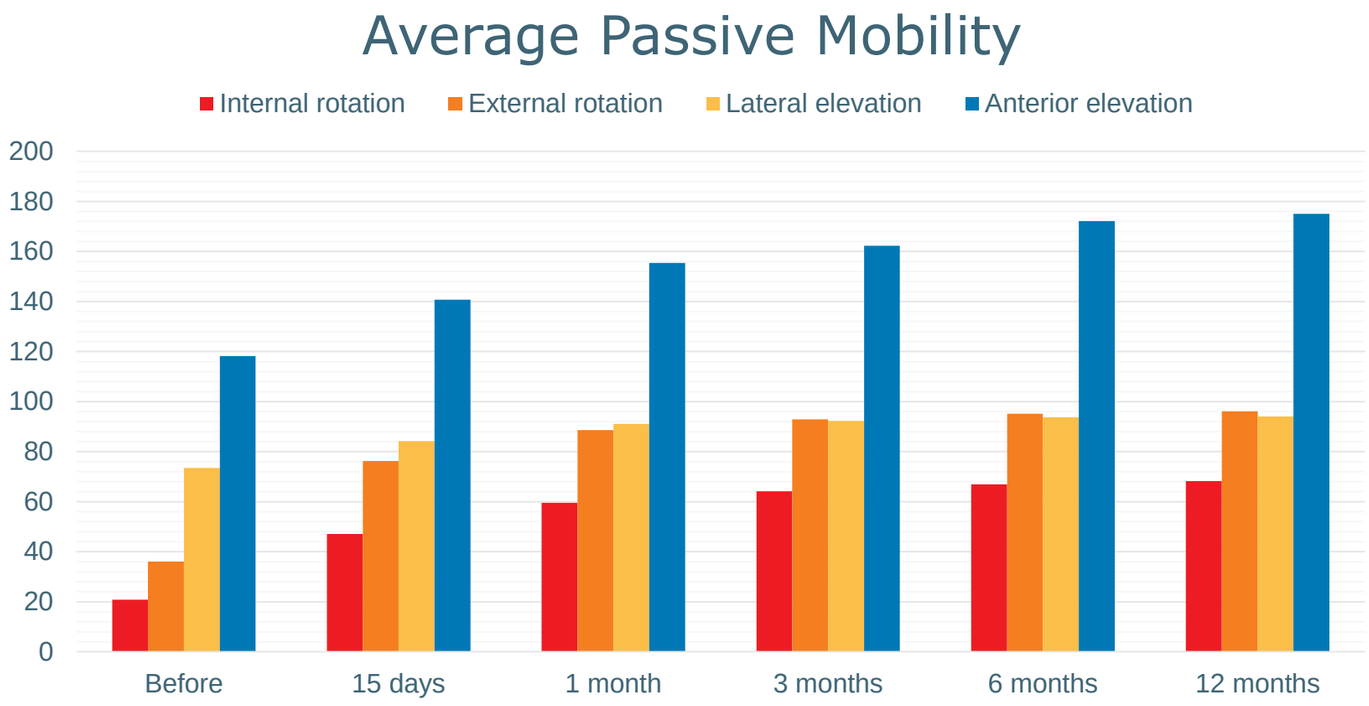
Results

At 6 months, **87.6% of patients had fully recovered mobility**, compared to the contralateral side



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Conclusion

To our knowledge, this is the first study to describe this technique combining different procedures that are performed in isolation into one for the treatment of frozen shoulder.

Based on our experience, the combination of different ultrasound guide infiltration plus manipulation of the shoulder, has provided very good clinical results.

It is our main approach in patients with frozen shoulder that fail to conservative treatment.

References

1. Itoi E, Arce G, Bain GI, Diercks RL, Guttmann D, Imhoff AB, Mazzocca AD, Sugaya H, Yoo YS. Shoulder Stiffness: Current Concepts and Concerns. Arthroscopy. 2016 Jul;32(7):1402-14. doi: 10.1016/j.arthro.2016.03.024. Epub 2016 May 12. PMID: 27180923.
2. Sharma SP, Bærheim A, Moe-Nilssen R, Kvåle A. Adhesive capsulitis of the shoulder, treatment with corticosteroid, corticosteroid with distension or treatment-as-usual; a randomised controlled trial in primary care. BMC Musculoskelet Disord. 2016 May 26;17:232. doi: 10.1186/s12891-016-1081-0. PMID: 27229470; PMCID: PMC4880881.
3. Juel NG, Oland G, Kvalheim S, Løve T, Ekeberg OM. Adhesive capsulitis: one sonographic-guided injection of 20 mg triamcinolon into the rotator interval. Rheumatol Int. 2013 Jun;33(6):1547-53. doi: 10.1007/s00296-012-2503-4. Epub 2012 Dec 22. PMID: 23263492.
4. Lin MT, Hsiao MY, Tu YK, Wang TG. Comparative Efficacy of Intra-Articular Steroid Injection and Distension in Patients With Frozen Shoulder: A Systematic Review and Network Meta-Analysis. Arch Phys Med Rehabil. 2018 Jul;99(7):1383-1394.e6. doi: 10.1016/j.apmr.2017.08.471. Epub 2017 Sep 9. PMID: 28899826.
5. Cho CH, Kim DH, Kim DH, Choi BC, Kim SG, Lee DG, Cho JH. Comparative Efficacy of Rotator Interval Versus Posterior Capsule Approach Intraarticular Corticosteroid Injections for Primary Frozen Shoulder: A Single-blind, Randomized Trial. Pain Physician. 2022 May;25(3):313-321. PMID: 35652771.
6. Patel DN, Nayyar S, Hasan S, Khatib O, Sidash S, Jazrawi LM. Comparison of ultrasound-guided versus blind glenohumeral injections: a cadaveric study. J Shoulder Elbow Surg. 2012 Dec;21(12):1664-8. doi: 10.1016/j.jse.2011.11.026. Epub 2012 Mar 23. PMID: 22445159.
7. Dias R, Cutts S, Massoud S. Frozen shoulder. BMJ. 2005 Dec 17;331(7530):1453-6. doi: 10.1136/bmj.331.7530.1453. PMID: 16356983; PMCID: PMC1315655.
8. Lädermann A, Piotton S, Abrassart S, Mazzolari A, Ibrahim M, Stirling P. Hydrodilatation with corticosteroids is the most effective conservative management for frozen shoulder. Knee Surg Sports Traumatol Arthrosc. 2021 Aug;29(8):2553-2563. doi: 10.1007/s00167-020-06390-x. Epub 2021 Jan 9. PMID: 33420809.
9. Kraal T, Beimers L, The B, Sierevelt I, van den Bekerom M, Eygendaal D. Manipulation under anaesthesia for frozen shoulders: outdated technique or well-established quick fix? EFORT Open Rev. 2019 Mar 19;4(3):98-109. doi: 10.1302/2058-5241.4.180044. PMID: 30993011; PMCID: PMC6440298.
10. Lee HJ, Lim KB, Kim DY, Lee KT. Randomized controlled trial for efficacy of intra-articular injection for adhesive capsulitis: ultrasonography-guided versus blind technique. Arch Phys Med Rehabil. 2009 Dec;90(12):1997-2002. doi: 10.1016/j.apmr.2009.07.025. PMID: 19969160.
11. Zheng F, Wang H, Gong H, Fan H, Zhang K, Du L. Role of Ultrasound in the Detection of Rotator-Cuff Syndrome: An Observational Study. Med Sci Monit. 2019 Aug 6;25:5856-5863. doi: 10.12659/MSM.915547. PMID: 31386649; PMCID: PMC6693366.
12. Fields BKK, Skalski MR, Patel DB, White EA, Tomasian A, Gross JS, Matcuk GR Jr. Adhesive capsulitis: review of imaging findings, pathophysiology, clinical presentation, and treatment options. Skeletal Radiol. 2019 Aug;48(8):1171-1184. doi: 10.1007/s00256-018-3139-6. Epub 2019 Jan 3. PMID: 30607455.
13. Candela V, Giannicola G, Passaretti D, Venditto T, Gumina S. Adhesive capsulitis of the shoulder: pain intensity and distribution. Musculoskelet Surg. 2017 Dec;101(Suppl 2):153-158. doi: 10.1007/s12306-017-0488-6. Epub 2017 Jul 29. PMID: 28756507.