

Ultrasound Guided Intra-articular Steroid Injection for Temporomandibular Joint Arthritis – A Case Report

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ABSTRACT

Introduction: Temporomandibular joint (TMJ) arthritis is one of the distressing features of many polyarthritic disorders because of interference with mastication. Usually bilateral joint affection may be a part of a larger profile of multiple joint involvements. Yet, it can present as an isolated entity. Establishing analgesia and improving mouth opening are the key features in the management of the case.

Case report: A 23 year old male with no co-morbidities presented with restricted and painful mouth opening and difficulty in mastication for the past two months. He was diagnosed as bilateral temporomandibular joint arthritis and referred to us for pain control. Routine investigations were normal. Ultrasound guided intra-articular temporomandibular joint injection was administered with a combination of bupivacaine and methylprednisolone bilaterally. There was a significant improvement in mouth opening and pain score VAS < 3 and on a three month follow up, there was no side effects and no requirement for further analgesics.

Conclusion: We present such a unique case since there is very little literature on effectiveness of ultrasound guided intra-articular steroid injection on a case of isolated TMJ arthritis in Indian population.

Keywords: Arthritis, Temporomandibular, Ultrasound Steroid

INTRODUCTION

Temporomandibular joint arthritis is one of the most distressing conditions where patient complaints of pain, difficulty in opening mouth and difficulty in eating¹. Although, there are conservative and invasive management, intra-articular steroid injection is proven to be effective in reducing the patient's symptoms. Although very few literatures throw a light on intra-articular steroid injection for TMJ arthritis in Indian population, prognosis of this intervention is better². Here we present one such case, which was refractory to conservative treatment, for which ultrasound guided intra-articular block with local anaesthetic and steroid mixture was very effective.

CASE REPORT

A 23 year old male came with complaints of pain in the jaw on both sides for six months – which was intermittent, waxing and waning type of pain, associated with clicking, locking of the joint and reduced mouth opening (inter incisor distance 0.5 cm) for the past 2 months. Patient was treated conservatively with NSAIDs with a low dose steroids, elsewhere for the same, after which the pain subsided initially but later, he developed excruciating pain (VAS 9/10) and presented to us for further management. On examination,

patient was dull looking, conscious, oriented to time, place and person. The cardiovascular system, respiratory system and central nervous system were examined and were found to be normal. Complete haemogram with arthric profile were normal. MRI of the Bilateral TMJ joints showed active inflammation of the joints. There was no pus collection. Ultrasound guided bilateral intra-articular steroid injection was planned. After getting a written informed consent from the patient, he was shifted to minor OT and ASA standard anaesthesia monitoring was instituted. Baseline vitals were noted and patient was sedated with Inj Midazolam 1mg. In supine position, under ultrasound guidance with sonosite xporte one inch HFL probe and strict aseptic precautions, a mixture of 0.25% bupivacaine and methylprednisolone 80 mg (5ml total volume - 2.5 ml each side) was administered using a hypodermic needle intra-articularly into the joint space bilaterally. Drug spread was confirmed by ultrasound as seen in figure 1. Vitals were stable throughout the

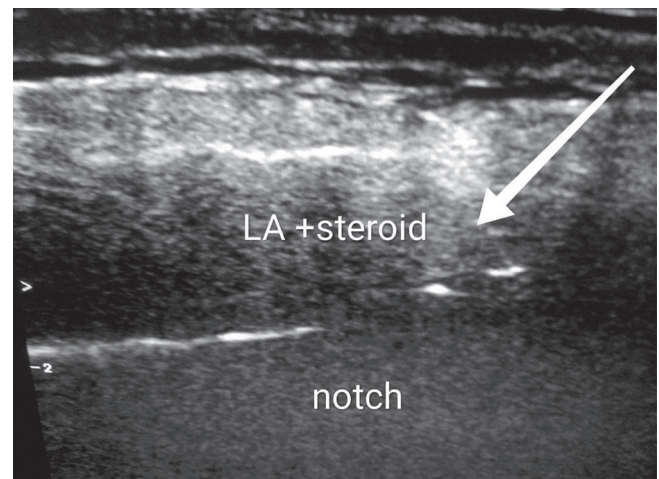


Figure-1: Showing ultrasound guided TMJ injection.

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procedure. Post-procedure, visual analogue scoring was monitored and charted. There was significant improvement in the mouth opening (inter incisor distance - 2.5 cm) also. Adequate analgesia with VAS less than 3 was obtained. On a 3 month follow up of the patient; it was found that there was no significant requirement of further analgesics for the same except an occasional paracetamol.

DISCUSSION

The most common symptom of any arthritic TMJ condition is pain. The pain arises from the soft tissues around the affected joint and the masticatory muscles that are in protective reflex spasm. Other common and significant signs and symptoms of TMJ arthritis are loss of joint function impairing mastication and mouth opening or late stage ankylosis, This will result in disability of one's daily activities.^{3,4}

The management goals in the treatment of painful TMJ arthritis are decreasing joint pain, swelling and masticatory muscle spasm for preventing further joint damage and disability. There are several treatment options for management of TMJ arthritis. If the patient does not respond to conservative treatment, including counselling, mandibular exercises, occlusal splints and occlusal grinding, intra-articular injection of drugs has proven to be effective. In our case, prior to intervention⁵, the patient was getting NSAIDs and a low dose of oral steroids for a month with minimal relief.

A combination of corticosteroids with local anaesthetics have been shown to be very beneficial for pain reduction in many clinical conditions including temporomandibular joint disorders^{6,7,8}. Intra-articular corticosteroid formulations are often diluted with a local anaesthetic before injection into the TMJ. It has been suggested that this approach decreases the risk of soft tissue atrophy and other complications. Ultrasonography has proven to be one of the non-invasive, real time diagnostic and therapeutic modality which is devoid of ionising radiation unlike CT. It also increases the success rate in accurate application of drugs into the temporomandibular joint space^{9,10}. Thus, we decided to proceed with ultrasound guided steroid injection with local anaesthetic for our patient with temporomandibular joint arthritis for effective analgesia.

Arabshahi et al¹¹ in 2005 conducted a study to assess the effects of computed tomography (CT)-guided injection of corticosteroid into the temporomandibular joint (TMJ) in children with juvenile idiopathic arthritis (JIA) and clinical and magnetic resonance imaging (MRI) evidence of TMJ inflammation. Effective relief was found in majority of case with minimal side effects. But we used ultrasound which is less invasive. Apart from the pain relief, the improvement of mouth opening was significant in our patient which satisfied him in day to day activities. Stoll et al¹² conducted a study to evaluate the safety and efficacy of intra-articular corticosteroid injections of the temporomandibular joint in children with juvenile idiopathic arthritis when administered by an oral and maxillofacial surgeon without imaging guidance. Out of the sixty three patients with multiple

injections, 51% of TMJs showed magnetic resonance imaging evidence of improvement of arthritic changes, of which 18% had complete resolution of TMJ arthritis. This study was done without imaging guidance and this could account for a low success rate.

In our case also, we observed a significant improvement in VAS score and mouth opening of the patient and no requirement of further analgesics in a 3 month follow-up of the patient. Unlike other joints, this joint is involved in mastication and nutrition. Hence an improvement in mouth opening is imperative. We present such as a case because there is very few literature among Indian population with regards to effectiveness of intra-articular steroid injection for TMJ arthritis. In our case, the routine arthritic profile blood screening did not point to any specific disease. There was no other joint involved. The important limitation is that it's a single case report.

CONCLUSION

We conclude that intraarticular injection of a mixture of local anaesthetic and steroid on both sides is a good, effective and simple technique in management of isolated TMJ arthritis. The use of ultrasound precisely locates the site of injection. This effectiveness was valid for both pain relief and improved mouth opening for more than three months. There were no side effects.

REFERENCES

1. Tjakkes G-HE, Reinders J-J, Tenverger EM, Stegenga B. TMD pain: the effect on health related quality of life and the influence of pain duration. *Health Qual Life Outcomes*. 2010;2;8:46.
2. Fredriksson L, Alstergren P, Kopp S. Tumor necrosis factor-alpha in temporomandibular joint synovial fluid predicts treatment effects on pain by intra-articular glucocorticoid treatment. *Mediators Inflamm*. 2006; 6:59425.
3. Alomar X, Medrano J, Cabratosa J, Clavero JA, Lorente M, Serra I, et al. Anatomy of the temporomandibular joint. *Semin Ultrasound CT MR*. 2007;28:170-83.
4. Tanaka E, Detamore MS, Mercuri LG. Degenerative disorders of the temporomandibular joint: etiology, diagnosis, and treatment. *J Dent Res*. 2008;87:296-307.
5. Mountziaris PM, Kramer PR, Mikos AG. Emerging Intra-Articular Drug Delivery Systems for the Temporomandibular Joint. *Methods San Diego Calif*. 2009;47:134-40.
6. Liu Y, Wu J, Fei W, Cen X, Xiong Y, Wang S, et al. Is There a Difference in Intra-Articular Injections of Corticosteroids, Hyaluronate, or Placebo for Temporomandibular Osteoarthritis? *J Oral Maxillofac Surg*. 2018;1;76:504-14.
7. Fredriksson L, Alstergren P, Kopp S. Serotonergic mechanisms influence the response to glucocorticoid treatment in TMJ arthritis. *Mediators Inflamm*. 2005;31: 194-201.
8. Parthasarathy.S. Anwar Batcha. Successful management of sacral postherpetic neuralgia with ganglion impar block - a case report. *Asian Journal of Pharmaceutical and Clinical Research* 2019;12,2: 15-16.

9. Cha YH, O J, Park J-K, Yang H-M, Kim SH. Ultrasound-guided versus blind temporomandibular joint injections: a pilot cadaveric evaluation. *Int J Oral Maxillofac Surg.* 2019;48:540–5.
10. Levorova J, Machon V, Hirjak D, Foltan R. Ultrasound-guided injection into the lower joint space of the temporomandibular joint. *Int J Oral Maxillofac Surg.* 2015;44:491–2.
11. Arabshahi B, Dewitt EM, Cahill AM, Kaye RD, Baskin KM, Towbin RB, et al. Utility of corticosteroid injection for temporomandibular arthritis in children with juvenile idiopathic arthritis. *Arthritis Rheum.* 2005;52:3563–9.
12. Stoll ML, Good J, Sharpe T, Beukelman T, Young D, Waite PD, et al. Intra-articular corticosteroid injections to the temporomandibular joints are safe and appear to be effective therapy in children with juvenile idiopathic arthritis. *J Oral Maxillofac Surg Off J Am Assoc Oral Maxillofac Surg.* 2012;70:1802–7.

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