

INJECTION OF AUTOLOGOUS BLOOD FOR THE TREATMENT OF TEMPOROMANDIBULAR JOINT SUBLUXATION;-A CASE REPORT.

Dentistry

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ABSTRACT

Dislocation of temporomandibular joint is the dislodgement of the head of the condyle from its normal position in the glenoid fossa to anterior of articular eminence during mandibular opening. It represents 3% of all reported dislocated joints in the body and can be partial(sub-luxation) complete (luxation), bilateral or unilateral, acute, chronic protracted or chronic recurrent. Many specific surgical procedures have been identified for treating the subluxation and dislocation of temporo-mandibular joint. This article addresses autologous blood injection procedure for the chronic recurrent TMJ subluxation. A 24 year old male patient reported with the chronic recurrent TMJ sub-luxation since 2 years. Following arthrocentesis, autologous blood was injected into upper joint space and surrounding pericapsular tissue under local anesthesia. The patient was followed up regularly for a period of 2 months. The treatment was successful and the patient had no subluxation of TMJ as inferred from favorable mouth opening. Autologous blood infusion within the articular capsule/ pericapsular space or joint depression, is one of the most negligibly intrusive treatment methodology for repetitive subluxation of TMJ, was as of now presented.

KEYWORDS

Subluxation, Temporomandibular dislocation, Autologous blood injection.

INTRODUCTION;

Temporomandibular joint is one of the most complex facial structures with diagnosis and management of its anomalies posing unique challenges. Subluxation of the TMJ is a condition which occurs when the condyle moves ahead of the articular eminence. Subluxation of TMJ can happen even, during daily activities such as laughing and yawning. It might also happen after too much opening of the mouth while intubation under general anesthesia and dental treatment. Various surgical and non surgical procedures have been used in the literature to treat patients with dislocation and subluxation of TMJ. Conservative methods include: limitation of mandibular movements, local anesthetic applications, injection of Botulinum toxin into masticatory muscles (causes denervation of muscles), and injection of sclerosing agents (tincture of iodine, alcohol and sodium psylliate). Non surgical methods of treatment are not always helpful: so, multiple surgical procedures, including capsular plication, reduction or increase of articular eminence, temporalis tendon scarification, lateral pterygoid myotomy and condylectomy, have been tried. Here, we present a case of recurrent temporomandibular joint subluxation managed by arthrocentesis followed by autologous blood injection.

Case History-

A 24 Year old male patient reported to the department of ORAL AND MAXILLOFACIAL SURGERY with chief complaint of excessive opening of lower jaw and pain in the right ear region since 2 years. History dates back to approximately 2 years, when the patient first experienced this distressing condition. Patient remained stable for variable times followed by recurrence. The condition was managed by muscle relaxant therapy by various local clinicians. There is marked deterioration of the condition with multiple episodes per day. On extra-oral examination, no gross facial asymmetry was noted. TMJ translation movement was excessive over the right side and deviation of jaw towards left side on mouth opening which was associated with pain, difficulty in closing mouth, pre-auricular hollowing and condyle palpated anterior to articular eminence. Clicking was appreciated on opening of the mouth and the maximum mouth opening was noted to be 54mm (fig-1). On intra-oral examination, anterior deep bite was appreciated with Angle's class one molar relation. The clinical condition was diagnosed as unilateral TMJ sub-luxation of right side.

Treatment

Keeping the age and the complications of surgical treatment outcome into consideration, a conservative approach was planned for the patient, which was occlusal splint therapy followed by arthrocentesis with autologous blood injection into TMJ space. A soft occlusal splint

was fabricated and the patient was kept on splint therapy for at least 12 hours a day for a period of one month. Following this, patient had decreased clicking over the affected joint site. Then the splint therapy was terminated and the case was further proceeded with autologous blood therapy.

The patient was made to seat on the dental chair at an angulation of 45 degree. The target site was prepared, scrubbed with Betadine. From middle of tragus to outer canthus of eye, straight line was drawn and points were noted on canthotragal line. Point A, 10mm from the mid tragus was marked and 2mm below canthotragus line which corresponded to posterior superior joint cavity and another point B, 20mm anterior and 8mm inferior to the line corresponded to articular eminence were marked.

Local anesthetic 2% lidocaine with vasoconstrictor was injected at auriculo temporal nerve by inserting the needle behind neck of the condyle in antero-superio direction to a depth of 25mm. Following this arthrocentesis was carried out with a two needle technique using 100ml of ringer lactate (fig-2).

Following this the anterior needle was removed. Using 3ml syringe, blood was drawn from the cubital vein and 2ml was injected through the posterior needle into joint space and 1ml into the pericapsular tissue (fig-3). The patient was kept under immobilization for a period of 7 days using IMF. Following 7 days, IMF was removed and patient was kept under isometric joint exercise to improve joint mobility.

After 10 days, the maximum mouth opening was assessed to 19mm. The patient was advised not to open mouth widely and to consume soft diet. After 20 days of isometric exercise, maximum mouth opening was noted to be 26mm and by 30 days it was 32mm. By the end of 45 days post operatively, it was noted to be 37mm (fig-4). No episodes of subluxation were noted and no complaint of pain or clicking or jaw deviation were given by the patient.

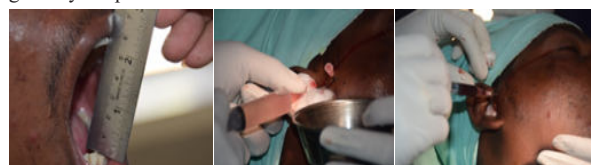


Fig-1 preop mouth opening

fig-2 arthrocentesis

fig-3 injection of blood into joint



fig-4 post op mouth opening

DISCUSSION-

TMJ subluxation and dislocation occurs because of variable factors which prevent the condyle from the translating back to the condylar fossa. These factors are laxity of the TMJ ligaments, weakness of the TMJ capsule, an unusual eminence size or projection, muscle hyperactivity or spasm and abnormal chewing movements that do not allow the condyle to translate back. Recurrent TMJ subluxation may cause injury to the disc, the capsule and the ligaments, leading to the TMJ internal derangement. Various nonsurgical and surgical interventions were used in the past, including restriction of mandibular range of motion combined with muscle relaxants and soft diet, injection of Botulinum toxin to various muscles of mastication, and injection of sclerosing agents. Conservative treatment methods are not always successful and therefore multiple surgical interventions were developed including pteryectomy, plication, temporalis tendon scarification and lateral pterygoid myotomy.

Oscar Hasson¹, injected in two regions, in pericapsular and superior compartment of the joint. Bleeding will results from the introduction of needle for injection in the pericapsular tissue believed that blood coming from this wound, associated with autologous blood injection, will create a bed for fibrous tissue formation in this region. The role of blood injection into the superior compartment joint is not fully understood. However, we speculate that injected blood combined with blood coming from pericapsular tissue may lead to formation adhesions in this compartment. Yet, one must keep in mind that restrained mandibular movements is the key to success of the procedure.

Emad T. Daif et al² conducted, at 2 weeks after the autologous blood injection, 11 patient of group A and 13 patients of group B had no dislocation of their TMJ. At the fourth week post-operatively, another 2 patients of group A and 1 patient of group B started to re-dislocate. No more cases have shown redislocation of the TMJ until the end of the follow up period. The patient who continued to dislocate after the injection and those who re-dislocated after 4 weeks have refused to receive another injection and chose to proceed with TMJ surgery. At the end of the follow-up, 1 year, the average decrease of the maximal mouth opening was 36.7/-1.5mm and 5.3/-2.1mm for group A and B respectively.

In both groups, the digital radiographic imaging of TMJ showed absence of any destructive changes to its bony components. This coincides with the results of Machon et al.

Menatallah M Yasso et al⁶, conducted study on 20 patients, one group injected with 3ml of autologous blood and another group injected with 3ml of PRP under local anesthesia. There was a significant decrease in mandibular range of motion in both groups post-operatively in comparison to preoperative measurements on other hand, there was no statistical significant difference between the two groups.

Celal Candirli et al³, conducted study on 14 patients, at the end of 1st year follow-up period, their symptoms were improved in 13 patients successfully. The result of the treatment evaluated by physical examination and together with MRI. These results were in agreement with previous studies. However, contrary to the studies mentioned above, a structural changes such as fibrosis or other mechanisms were not observed on MRI.

Sahil Parvez Gagnani et al⁴, conducted study on 19 patients by Ultra-

sound guided autologous blood injection. At 2nd week post operatively 18 patients were asymptomatic, only one patient reported recurrent of dislocation and was treated successfully by 2nd injection. At subsequent follow-up visits none reported dislocation.

Islam A Amer⁵ conducted study on 140 patients out of 140 patients, 87 were male patients and 57 were female patients. Ages of the patients ranged between 16 years to 82 years, autologous injection was successful in 123 patients while 10 patients required re-injection. Seven patients needed surgery due to failure of re-injection.

CONCLUSION

The main purpose of the article is to inject autologous blood for limitation of mandibular movements. It is safe, simple and cost effective method for the treatment of chronic recurrent TMJ dislocation. Bleeding resulted from the introduction of needle in the pericapsular tissue. Blood coming from the wound, associated with autologous injected in the superior compartment, generates a bed for fibrous tissue formation in the region, creating a restriction for mandibular movement, thus ceasing dislocation of the condyles. Autologous blood injection is a simple procedure performed on out patient and alternative treatment for patients with recurrent dislocation of the condyles. The treatment technique requires more research to explain patho-physiology.

REFERENCES

1. Autologous Blood Injection For The Treatment Of Relopcurrent Temporomandibular Joint Dislocation. Oscar Hasson, dds. oded Nehlieli, dmd. march, 2001, 29.
2. Autologous Blood Injection As A New Treatment Modality For Chronic Recurrent Temporomandibular Joint Dislocation- emad T. daif Published In The Year 2009, aug, 1st
3. Autologous Blood Injection To The Temporomandibular Joint -magnetic Resonance Imaging Findings- Celal Candirli Published In The Year Dec, 28, 2011. Korean Academy Of Oral And Maxillofacial Surgery.
4. Ultra Sound Guided Autologous Blood Injection In Patients With Recurrent Temporomandibular Joint Dislocation. Sahil Parvez Gagnani, Yatin Ramesh Bhai Kholakhiya. 18th June 2020.
5. -autologous Blood Injection For The Treatment Of Chronic Tmj Dislocation, sohaq University Experience. Islam A Amer, published In The Year 16th Sep 2020, published In Journals Of Oral And Maxillofacial Surgery.
6. Comparative Study Between Autologous Blood And Platelet Rich Plasma In The Treatment Of Recurrent Temporomandibular Joint Dislocation. manatallah M Yasso Bds, Published In The Year 2018, in The Journal Of Alexandria Dental Journal.