

AUTOHAEMOTHERAPY FOR TREATMENT OF RECURRENT TEMPOROMANDIBULAR JOINT DISLOCATION : A CASE REPORT

Case Report

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ABSTRACT:-Temporomandibular joint (TMJ) dislocation is a painful condition that occurs when condyle becomes fixed in anterosuperior aspect of the articular eminence. Various nonsurgical and surgical modalities have been described in the literature with variable success. There is no definite consensus regarding superiority of any treatment modality over the other. (1) Recently autologous blood transfusion injection has been used to treat recurrent TMJ dislocation. Schulz first described autologous blood injection for treating recurrent TMJ dislocation in 1973. (2)

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INTRODUCTION: Dislocation of the temporomandibular joint occurs, when the head of the condyle moves anteriorly over the articular eminence into such a position that it cannot be returned voluntarily to its normal position. Luxation of the joint refers to complete dislocation, while subluxation is a partial or incomplete dislocation, actually a form of hypermobility. (1) Temporomandibular joint (TMJ) dislocation can

occur during simple activities such as laughing and yawning, and it may occur after excessive mouth opening during dental treatment, tracheal intubation or episodes of vomiting.

There is a higher frequency of TMJ dislocation in patients with Parkinson's disease or cerebrovascular disorders, which is attributed

to masticatory muscle incoordination. A person with TMJ dislocation is unable to close his mouth, which remains locked open until a mechanical reduction is performed. Frequent dislocation episodes characterize a condition referred to as recurrent TMJ dislocation. Thus, patients with this problem risk TMJ dislocation simply by carrying out their daily activities; the disorder can be especially dangerous

when self-reduction of the TMJ dislocation is difficult or impossible. (2) Acute mandibular dislocation is usually managed by manually pressing the mandible downwards and then pulling it backward in an attempt to try relocating the condyle in the glenoid fossa. Chronic recurrent TMJ dislocation caused due to repeated dislocation of condyle at multiple times.

TMJ dislocation is due to unknown etiology. Over a period of time multiple theories were given in an attempt to find out its origin. According to Celal Candiret al. It is frequently associated with bad articular fossa growth, temporomandibular ligament laxity or joint capsule, and lateral pterygoid and infrahyoid muscle excessive activity owing to drug use or disease. Additionally some disorders of collagen metabolism such as ligamentous hyperlaxity and Ehler-Danlos syndrome might be related. (3)

The chronic recurrent temporomandibular dislocation can be treated with either invasive surgical modality or non-invasive/ minimally invasive non surgical modality given in the various literature. Surgical interventions aim at restricting condylar movement by creating a mechanical obstruction

along the condylar path or by removing a mechanical obstacle along the condylar path.

The decision depends on predisposing factors and the TMJ morphology. The more complex and invasive methods of treatment might not necessarily offer the best treatment option and out-come, and less invasive approaches should be utilized appropriately before adopting the more invasive surgical techniques. Chronic recurrent dislocation can be managed with various conservative modalities such as sclerosing agents , injection of botox in masticatory muscles and autologous bloodc transfer in joint space.(4)

Schulz[9] first described autologous blood injection for treating recurrent TMJ dislocation in 1973. In Japan, Takahashi et al.first reported the efficacy of autologous blood injection in a compromised patient who was unable to receive surgery in 2003. The reported overall success rate of autologous blood injection is approximately 80 percent.

Blood injections given in the Temporomandibular joint acts via pathophysiology of bleeding which results in decreased mobility of joint ultimately causes permanent limitation of joint movement.(4,5)

SURGICAL TECHNIQUE: The patient's face was prepared to perform this procedure requires to anaesthetize auriculotemporal nerve which is achieved by local anaesthesia .celalcandrili et.al. Stated that The articular fossa point (AF) was located at a point 10 mm anterior to the tragus and 2 mm inferior to the tragal-canthal line. At this location, a 19-gauge needle was inserted into the superior joint space of the TMJ; the correct location of the needle was confirmed by movement of the mand-ible during the fluid injection. 3ml of blood was withdrawn from the patient's anticubital fossa; 2 ml of blood was injected into the superior joint space and 1 ml was injected onto the outer surface of the TMJ capsule . The same procedure was per-formed on the contralateral TMJ.

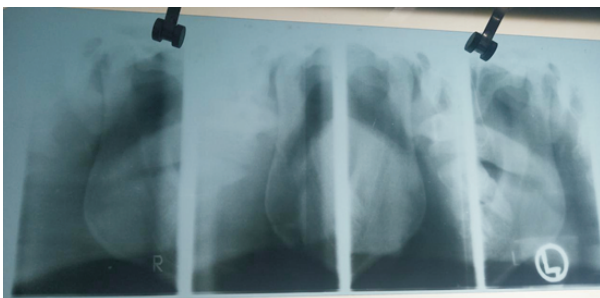


FIG.1 TMJ View Open & Closed Showing Dislocation

CASE REPORT: A 24year old male patient reported to department of Oral and Maxillofacial surgery , K.D. Dental College and Hospital with

the chief complaint of recurrent locking of lower jaw and inability to close the mouth. History dates back to approximately 2-3 years, when the patient first experienced this distressing condition. patient was found to be normal for varying time till the condition reoccur.



Fig.2.OPG Showing Right Recurrent TMJ Dislocation

Various clinicians tried to manage this distressing condition by means o manual reduction at multiple occasions. There was marked deterioration of the condition with multiple episodes of dislocation per day. The diagnosis of TMJ dislocation was based on case history and clinical presentation which later confirmed by radiographic findings. Upon above mentioned investigations and case history later it was approached with minimum invasive technique. Restrictions to mouth opening by intermaxillary fixation using Erich's arch bar seemed appropriate. Patient was informed regarding the procedure and written informed consent was taken.

Patient was under intermaxillary fixation for 2weeks and a liquid diet was adviced. After 2weeks IMF was released and patient was followed up for 2months.



Fig.3. Showing transfusion of Autologous Blood to TMJ

Patient showed relief in no. Of occurrence of dislocations but dislocations continued even after restricted mouth opening for 2 weeks .

It was decided to use Autologous blood injection therapy as patient was against surgical intervention seems .consent sign

were taken and information regarding the procedure was given to the patient. Arthrocentesis followed by injection of autologous blood only in the right TMJ space and adjacent pericapsular tissue as the right TMJ had the most discomfort as compared to contralateral side. Auriculotemporal nerve were anaesthetized using local anaesthetic agent. This was followed by injecting 2 mL of autologous blood into the upper joint space and 1 mL around pericapsular tissue. injection of blood was followed by opening the mouth and manipulation of the mandible forward to open the joint space.

For the purpose of restriction in mouth opening intermaxillary fixation using ivy eyelet wiring was done for 2 weeks. During post-operative period



Fig. 4: Showing Post Operative Mouth Opening patient experienced significant tightening of right TMJ with reduction in mouth opening. The result of autologous blood injection was highly encouraging in this patient.

DISCUSSION: TMJ dislocation occurs because of variable factors which prevent the condyle from translating back to the condylar

fossa. Injury to teeth or jaw, misalignment of teeth or jaw, teeth grinding, poor posture, stress, arthritis, and gum chewing. Recurrent TMJ dislocation may cause injury to the disc, the capsule and the ligaments, leading to the TMJ internal derangement.(1)

Methods of treating recurrent TMJ dislocation range from conservative treatment to surgical interventions. Conservative treatments such as restricting mandibular motion with a chin cap, an elastic facial bandage or maxillomandibular fixation often fail to manage the condition. Whereas surgical treatment through eminectomy is considered the gold standard in the treatment of recurrent TMJ dislocation with success rates greater than 85%. Multiple surgical interventions were developed including, capsular placcation, temporalis tendon scarification, and lateral

pterygoidmyotomy may have a high success rate, but it is an invasive procedure requiring general anesthesia, a hospital stay and a skin incision, in addition to increased risk of facial nerve injury.(2)

Conservative non-surgical treatment modalities preferred initially before going for surgical modality. There were some successful nonsurgical treatment models described in the literatures such as injection of a sclerosing solution into the joint cavity (tincture of iodine, alcohol and sodium psylliate). However, many side effects and the possible risk of facial paralysis or traumatic arthritis have hindered its widespread usage. Another procedure with less side effects is the use of botox. The toxin temporarily causes denervation of the muscles that draw the

chin down. The muscle of choice for injection is the lateral pterygoid muscle. In this way, the displacement of the condyle is prevented even when the mouth is opened excessively.(3)

Autologous blood injection as a treatment of recurrent TMJ dislocation was reported by Brachmann in 1964. Brachmann et. al. successfully treated 60 patients by autologous blood injections into their TMJ. The therapy is based on the principle to restrict mandibular movements by inducing fibrosis in upper joint space, pericapsular tissues or both.(6)

There are no universally accepted guidelines for this therapy. The protocol differs amongst various clinicians. So, the auto haemotherapy include the injection of autologous blood only into pericapsular tissues, upper joint space or into both upper joint space and pericapsularly. The volume of blood to be used ranges from 2 mL to 4 mL in the upper joint space and 1.0 to 1.5 mL into pericapsular structures.(7) To further enhance the fibrosis in and around the TMJ a period of restricted mouth opening was advocated in the literature. The protocol for mandibular movement restriction ranges from 7 days to 1 month.(4) The method to restrict mandibular movement utilizes conservative elastic bandage head dressing to an aggressive approach of maxillomandibular fixation.(8)

Machon et al. advocated that intraarticular injection should be repeated only if there is recurrence of dislocation. Based on their experience, they advocated surgical intervention in case of failure of two

intraarticular injections. Few case reports reported successful outcomes even on single blood injections.(9)

Schulz et al repeated 3 weeks of pericapsular therapy with injection twice a week. Repetition of injection was not based on the recurrence of attack. . (10) Critical evaluation of

protocols followed by various authors revealed greater success rates in case of use of both intraarticular and pericapsular injections as compared to either intraarticular or pericapsular injections alone. Also, the same clinicians recommended more

aggressive form of mandibular restriction in the form of intermaxillary fixation for greater time period of 2 to 4 weeks.(11)

The autologous blood therapy was challenged by some authors who believe that even a brief exposure of the intraarticular cartilage to the blood may lead to decrease chondrocyte metabolism, chondrocyte apoptosis, cartilage degeneration and permanent joint destruction.(12)

Alons et al after inducing haemarthrosis in the TMJ of the rats reported that there is no noticeable damage to the cartilage and interposing disc on histopathological examination. According to Safran et al in an animal rat model have found that cartilage changes after blood injections were only temporary without any permanent damage. The disadvantage of this technique is the potential for severe restriction in mandibular range of motion. there were some concerns about the procedure such as fibrous or bony ankylosis and articular cartilage degeneration.(1)

There are several advantages of the autohaemotherapy as a treatment modality. As there is no surgical exposure the postoperative pain, swelling, altered sensation etc are reduced or absent. The procedure can be performed in an office setting with or without sedation under local anaesthesia and do not require any sophisticated instrumentation(4).

Conclusion: autologous blood injection in the superior joint compartment and around the capsule has been shown to be a safe, simple, and cost-effective method for the treatment of chronic recurrent TMJ dislocation. This conservative approach can be tried prior to performance of more invasive surgical intervention. We hope this procedure will prove to be a feasible alternative treatment for patients prior to any surgical intervention.

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