



AUTOLOGOUS BLOOD INJECTION- A SAFE MINIMALLY INVASIVE APPROACH FOR RECCURENT TMJ DISLOCATION

Surgery

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ABSTRACT

Temporomandibular joint (TMJ) dislocation is an excessive forward displacement of the condyle beyond the articular eminence with complete separation from the articular surface of glenoid fossa and fixation in that position. There are reports in literature of many different surgical and non-surgical techniques used to treat patients with recurrent condylar dislocation; however each technique has its own advantages and disadvantages. In this article we investigated the prognosis of 3 patients after 2 years of treatment for recurrent dislocation of TMJ with autologous blood injection, followed by maxillomandibular immobilization for 10days. All of the patients had no recurrence during 24 months after treatment. Autologous blood injection followed by maxillomandibular immobilization is a simple procedure performed on an outpatient basis that we advise as an alternative treatment for patients with recurrent joint dislocation.

KEYWORDS

blood injection, temporomandibular joint dislocation, subluxation.

INTRODUCTION:

Temporomandibular joint dislocation occurs, when the head of the condyle travels anteriorly over the articular eminence into such a position that it gets stuck and cannot move back to its normal position voluntarily, but when it can be moved back to its normal position voluntarily (self reducing), it is termed subluxation. Dislocation of the condyle is a rather common situation that is often seen in emergency rooms, where patients present with difficulty/impossibility of closing the mouth, usually after yawning, laughing, or vomiting.^[1] The condition may also occur after excessive mouth-opening during dental treatment or other medical procedures while the patient is under general anaesthesia or during endo-tracheal intubation. Chronic recurrent dislocation can be associated with neuromuscular conditions, medications used in treatment of psychiatric disorders, seizures and connective tissue disorders like Ehlers-Danlos syndrome.^[2] Acute dislocation of TMJ is due to spasm of masticatory muscle—it is usually managed by manually pushing the mandible downward backward and upward to relocate the condyles in the glenoid fossa. But for chronic frequent dislocations; the triad of ligamentous and capsular flaccidity, flattening of articular eminence and trauma are well recognized. A review of literature shows that several surgical and nonsurgical techniques have been introduced for treating patients with chronic recurrent temporomandibular joint dislocation.^[1,3] The nonsurgical or conservative approaches include restriction of mandibular movement combined with use of muscle relaxant medication, injection of botulinum toxin to the muscles of mastication, injection of sclerosing solution (sodium psyllate, sodium morrhuate, sodium tetracyclisulfate) and autologous blood injection into the TMJ. When nonsurgical modalities are not successful, surgical approaches may be considered.^[3] Surgical approaches include capsulorrhaphy, eminectomy, le-clerc procedure/dautery procedure, augmentation procedures, lateral pterygoid myotomy. Surgical intervention may have a high success rate, but it is an invasive procedure requiring general anaesthesia, a hospital stay and a skin incision, in addition to increased risk of facial nerve injury.^[6]

The purpose of this article is to report our experience with autologous blood injection as a treatment for chronic recurrent TMJ dislocation. All patients had reported to the Department of Oral and Maxillofacial Surgery, K.D. Dental College and Hospital



Fig:1-Dislocated Temporomandibular Joint (Head Of Condyle Anterior To Articular Eminence)

Case Report:

Case 1: A 58year old male patient, with the chief complaint of recurrent locking of lower jaw and difficulty to close the mouth, since last 3years. The condition initially was managed by manual reduction followed by restriction of mandibular range of motion, however, marked deterioration of the condition was seen.

Case 2: A healthy 42year old female patient reported with chief complaint of recurrent bilateral condylar dislocation, since last 2years, and wanted non invasive therapy for the same.

Case 3: A 38year old male patient having recurrent bilateral condylar dislocation. He underwent a bilateral eminectomy 2years back but recovery was unsatisfactory.

The diagnosis of chronic TMJ dislocation was based on case history and clinical presentation which was later confirmed by radiographic findings. Clinically bilateral condylar dislocation is accompanied by anterior open bite and posterior gag-reflex while unilateral condylar dislocation causes contralateral deviation of chin. It was decided to perform autologous blood injection as a minimally invasive treatment modality.

Description Of The Technique:

There are no universally accepted guidelines for this therapy. The skin overlying TMJ was scrubbed with 10% povidone iodine and local anaesthesia with 2% lignocaine containing 1:80000 adrenaline, was injected into the articular fossa to block auriculo-temporal nerve. The articular fossa injection point was located 2mm inferior to an imaginary line, 10mm long drawn from tip of tragus of ear to lateral canthus of eye (canthal-tragal line). A 19-gauge needle was inserted in the superior joint compartment and 3cc of saline was injected to increase the volume of the compartment. Correct location of the needle was confirmed by protrusive movement of the mandible, the 19-gauge needle was left in place. 5cc of blood was drawn from the patients' anterior cubital fossa and 3cc blood was injected into the superior joint compartment via 19 gauge needle which was previously placed. Then the same needle was retracted slightly and 2cc blood was injected into the peri capsular tissue. Same procedure was performed on the opposite site. The procedure was followed by intermaxillary fixation for 10days [we used eyelets] after which, patient was advised to take a semi-solid and liquied diet for 2weeks and instructed to take small morsels of food or to eat food with a spoon. Paracetamol 650mg twice on the day of procedure followed by sos in case of pain was prescribed.

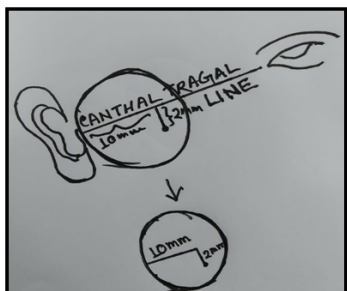


Fig:2-Marking For Auriculo-Temporal Nerve Block



Fig:3-Autologous Blood Injection



Fig:4-Intermaxillary Fixation After Autologous Blood Injection

RESULT:

Post-operative consultations were done at 1 week, 2 weeks, 4 weeks, 3 months, 6 months, 18 months and 24 months. Patients experienced significant tightening of TMJ, with satisfactory mouth opening. No recurrence occurred up to the last consultation before data collection.

DISCUSSION:

TMJ dislocation was first reported in German literature by Brachmann in 1964, who successfully treated 60 patients by autologous blood injection to their temporomandibular joints.^[5] Blood was injected in 2 regions, in peri capsular tissue and in the superior compartment of the joint. Additional bleeding was also a result from needle penetration. Inflammatory mediators released by platelets and the dead and injured cells cause adjacent blood vessels to dilate and leak plasma which results in swelling of the adjacent tissues. This predisposes to calcification and obliteration of joint space, where immobility of the joint is maintained over a prolonged period. Next, a combination of an organized blood clot and loose fibrous tissues forms which maintains the joint stiffness. Lastly, this tissue matures and causes a permanent limitation of movement of the joint. In addition, it causes changes in chondrocyte metabolism resulting in localized contraction.^[13] It is better to avoid analgesic post-operatively as it inhibits the inflammatory pathway.

CONCLUSION:

Injection of autologous blood is simple, as it can be done in outpatients; it has also been proven to be a safe and effective method for patients who are at a high risk for undergoing a surgical treatment or want a simple, minimally invasive, outpatient technique. It causes scarring and fibrosis once it has been injected into the superior compartment of the TMJ and into the pericapsular tissue.^[15] The resulting fibrous tissue reduces mandibular movements and prevents recurrent dislocation.

CONFLICT OF INTEREST: We have no conflict of interest.

ETHICS STATEMENT/CONFIRMATION OF PATIENT'S PERMISSION: The study has been approved by the ethics review board of the institution. Written informed consent was obtained from patients.

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