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Case Report

Treatment of recurrent TMJ dislocation in geriatric patient by autologous blood – A technique revisited

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ABSTRACT

A number of techniques have been advocated for the treatment of recurrent temporomandibular joint dislocation. Autologous blood injection around the articular capsule and/or into the articular cavity, which is one of the treatment modality, was recently reintroduced. We report a case of 82-year-old female with bilateral recurrent temporomandibular joint dislocation, treated by technique of autologous blood injection. The outcome was successful and required no further treatment in eight months follow up, thus the procedure had proven to be safe, simple, minimally invasive and cost effective.

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1. Introduction

Temporomandibular joint (TMJ) dislocation occurs when the condyle travels anterior to the articular eminence and remains there. Chronic recurrent TMJ dislocation may occur as a result of everyday activities such as yawning or laughing, or during events that require mouth opening for a continuous amount of time such as during dental treatment. Chronic recurrent TMJ dislocation is distressing because it is painful and it interferes with daily routine activities. As a result, this condition may adversely affect an individual's life. The pathogenesis of chronic recurrent TMJ dislocation is attributed to a combination of factors including laxity of the TMJ ligaments, weakness of the TMJ capsule, an unusual eminence size or projection, muscle hyperactivity or spasms, trauma, and abnormal chewing movements that do not allow the condyle

to translate back. Recurrent dislocation of the TMJ may cause injury to the disc, the capsule, and the ligaments, leading to progressive TMJ internal derangement. To treat this condition, non-surgical interventions have been pursued, including restriction of mandibular range of motion combined with muscle relaxants and a soft diet, application of local anaesthetics, injection of botulinum toxin to various muscles of mastication, and injection of sclerosing agents. Conservative treatment methods are not always successful; therefore, multiple surgical interventions were developed including eminectomy, capsular plication, temporalis tendon scarification, and lateral pterygoid myotomy. In addition, there are general anaesthetic risks as well as surgical risks associated with these procedures. Autologous blood injection to the TMJ as a treatment of chronic recurrent TMJ dislocation was first reported by Brachmann, in 1964.¹ Several attempts follows,

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but for unclear reasons, autologous blood injection to the TMJ never gained popularity. This technique was recently reintroduced.^{2,3} The purpose of this article is to discuss our experience in an 82-year-old female patient with recurrent TMJ dislocation treated with autologous blood injection and to propagate this technique as a treatment for chronic recurrent TMJ dislocation.

2. Case report

An 82-year-old female reported with chief complaint of recurrent bilateral TMJ dislocation (Fig. 1). She had a number of episodes of dislocation in a day and required professional help to reduce the dislocation. She had undergone conservative therapy for the same but was not relieved. Clinically, her mandibular lateral and protrusive movements were normal. The patient and her family was not willing to undergo surgical treatment, due to her old age and poor socioeconomic status, so it was decided to treat this chronic recurrent dislocation by autologous blood injection. The procedure was performed under local anaesthesia in an outpatient clinic.

3. Method (description of technique)

After thorough dialogue history and necessary radiological (Fig. 1) and haematological investigation, the patient was taken up for the procedure with informed written consent. As routine part preparation of the skin overlying the TMJ was done and auriculotemporal nerve block was given. Established standard measurement used for arthocentesis were then followed by locating a point 10 mm anterior to the tragus and 2 mm inferior to the tragal-canthal line.⁴ In this location, an 18 gauge needle was inserted into the upper joint space (UJS) of the TMJ and the second needle was placed 20 mm anterior and 10 mm inferior to the tragal-canthal line in the UJS. The joint was then flushed with the approximately 5 mL of lactated Ringer's solution. Three mL of blood was then withdrawn from patient's antecubital fossa under sterile condition of which 2 mL were injected into the UJS and 1 mL was injected around the capsule (Fig. 2).⁵ The second needle was withdrawn prior to the blood injection into the joint. The same procedure was repeated on the opposite side. An occlusive head bandage was then applied.

4. Post-operative instructions

For first 2 weeks

1. Restrict mouth opening to 20 mm.
2. Have soft diet.
3. Wore head dressing at all times.
4. Antibiotics (amoxicillin) and non-steroidal anti-inflammatory drugs for one week.

Starting of 2nd week

1. Start jaw rehabilitation via gradual and controlled range of motion exercises in front of the mirror.
2. To wear head dressing only during night.
3. To advance her diet as tolerated.

5. Results

The procedure was successful as the patient had no TMJ dislocation or subluxations, and had a functional range of motion with inter-incisal opening of 35 mm at six months follow up (Fig. 2).

6. Discussion

Recurrent TMJ dislocation is due to multiple factors that prevent the condyle from translating back to the condylar fossa. There are many different surgical techniques described in the literature that are used as treatments for recurrent TMJ dislocation. They address the capsular ligaments or the area of articular eminence, and most of them are inpatient procedures performed under general anaesthesia. These procedures require surgical access to the TMJ area; some require bony structure handling. The autologous blood injection serves as an alternative, minimally invasive non-surgical procedure for recurrent TMJ dislocation. In 1964 Brachmann¹ reported 60 patients treated successfully using autologous blood injections to the TMJ for recurrent TMJ dislocation. Jacobi-Hermanns⁶ published their experience of treating 17 patients with only single autologous blood injection. Hasson² and Kato et al³ reported their experience of successfully treating 3 and 1 patient respectively. Daif et al reported

Fig. 1 – Pre-operative – clinical photograph (with bilateral dislocation) and orthopantomogram (open–close view).

Fig. 2 – Intra-operative (autologous blood injection into the superior joint space) and eight months post-op (maximal interincisal opening without dislocation – 35 mm).

autologous blood to the superior joint space and pericapsular tissues gave a higher success rate (80%) than its injection only into the superior joint space (60%).⁵ Our experience, although of few cases and that too of only one geriatric case (of this extreme age group i.e. 82 years) but it correlates with previously reported studies. Moreover, it is a safe, simple, minimally invasive and cost effective method for the patients of this age group who are medically and physically challenged. The main aim of autologous blood injection is to limit mandibular movement. The proposed mechanism of action is that blood injected would result in distension of joint space and pericapsular tissue, followed by inflammatory reaction resulting in swelling of adjacent tissues and decreased jaw movement. Next, a combination of an organized blood clot and loose fibrous tissue forms which maintains the joint stiffness. Last, this tissue matures and causes a permanent limitation of the joint by causing fibrosis, formation of adhesions, scarring in the joint and in the surrounding soft tissue.⁷ Since the technique could potentially severely restrict mandibular range of motion, it is mandatory that patients undergo controlled physical therapy program to re-establish a functional range of motion.⁸ We have done a pubmed search with a phrase “Autologous blood injection for TMJ dislocation” which shows only one article revealing treatment of 84-year-old female patient with autologous blood comparable to the age of the patient as ours, moreover, they had injected blood bilaterally but only right condyle has settled down to its position.³

7. Conclusion

We conclude that the autologous blood injection is a simple, safe and cost-effective technique, which can be performed in an outpatient basis. With this technique there is no need for surgical incision and tissue dissection, thereby decreasing post-operative complications such as facial nerve injuries, pain and infection. Thus, we encourage use of autologous blood injection for recurrent TMJ dislocation, as it has shown better clinical and radiographic results.

Conflicts of interest

All authors have none to declare.

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REFERENCES

1. Brachmann F. Eigenblutinjektionen bei rezidivierenden, nichtfixierten Kiefergelenkluxationen. *Zahnarzt*. 1964;15:97.
2. Hasson O, Nahlieli O. Autologous blood injection for treatment of recurrent temporomandibular joint dislocation. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2001;92:390.
3. Kato T, Shimoyama T, Nasu D, et al. Autologous blood injection into the articular cavity for the treatment of recurrent temporomandibular joint dislocation: a case report. *J Oral Sci*. 2007;49:237–239.
4. Nitzan DW. Intra articular pressure in the functioning human temporomandibular joint and its alteration by uniform elevation of the occlusal plane. *J Oral Maxillofac Surg*. 1994;52:671.
5. Daif ET. Autologous blood injection as a new treatment modality for chronic recurrent temporomandibular joint dislocation. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2010;109(1):31–36.
6. Jacobi-Hermanns E, Tetsch P. Pericapsular autologous blood injection as therapy for habitual temporomandibular joint luxation. *Deutsche Zahnärztl Z*. 1981;36:187.
7. Machon V, Abramowicz S, Paska J, Dolwick MF. Autologous blood injection for the treatment of chronic recurrent temporomandibular joint dislocation. *J Oral Maxillofac Surg*. 2009;67:114–119.
8. Costas Lopez A, Monje Gil F, Fernandez Sanroman J, et al. Glenotemporal osteotomy as a definitive treatment for recurrent dislocation of the jaw. *J Craniomaxillofac Surg*. 1996;24:178.