



Autologous Blood Injection for Treatment of Chronic TMJ Dislocation, Sohag University Experience

Islam A Amer*

Department of General Surgery, Maxillofacial, Head and Neck Surgery, Sohag University, Egypt

Abstract

Background: The aim of this series is to assess the efficacy and safety of autologous blood injection in Treatment of patients suffering from recurrent temporomandibular joint dislocation by using autologous blood injection. In this study, we discuss clinical trials and recent techniques about this modality of treatment and discuss the mechanism, advantages, and disadvantages of this approach.

Patients and Methods: This study included 140 patients who underwent autologous blood injection in patients suffering from chronic recurrent temporomandibular joint dislocation. Who were admitted and examined in maxillofacial outpatient clinic and ER in Sohag University Hospital during the period from January 2017 to January 2020. Analysis of the clinical presentation, establishment of diagnosis, close monitoring of patients was done.

Results: One hundred and forty patients included in these study 87 patients of them were males while 53 were females, age of our patients ranged from 16 to 82 years, autologous blood injection was successful in 123 patients while 10 patients required re injection. Seven patients need surgery due to failure of re injection.

Conclusion: Successful results about this modality are noticed, some concerns are still noticed about it in terms of the effect of the blood injection on the articular cartilage and fibrous or bony ankylosis formation.

Keywords: Blood injection; TMJ; PT

Introduction

Hypermobility of the TMJ is divided into two groups: Subluxation and dislocation. This condition shows an excessive range of motion and is not necessarily associated with pathologic conditions. Temporomandibular joint dislocation occurs when the condyle moves beyond the anterior surface of the articular eminence, stays locked, and is unable to reduce itself back to the original position in the glenoid fossa [1].

This condition can occur unilaterally or bilaterally. In this situation, the patient will not be able to close his/her mouth [2]. TMJ dislocation may occur during daily activities like speaking, yawning, vomiting, laughing, and mastication or may happen during procedures such as laryngoscopy, endoscopic procedures, and dental treatments [3]. Acute dislocation of the TMJ is usually treated by pushing the mandible downward and backward manually to relocate the condyles in the glenoid fossa [4]. When this problem continues to repeat several times, it is described as chronic TMJ dislocation. A review of the literature shows that several nonsurgical and surgical techniques have been tried to treat patients with recurrent temporomandibular joint dislocation [5]. The nonsurgical (or conservative) approaches include restriction of the mandibular movement (plus muscle relaxants prescription and soft diet), applications of local anesthetics, injection of botulinum toxin to the muscles of mastication, injection of sclerosing agents (intraarticular or extracapsular), and Autologous Blood Injection (ABI) into the TMJ [6]. When the nonsurgical modalities are not successful in treating a patient with recurrent TMJ dislocation, surgical approaches will be considered. These approaches include capsular placcation, reduction, or augmentation of the articular eminence, temporal is tendon scarification, lateral pterygoid myotomy and condylectomy [7]. Most of these procedures can be performed under general anesthesia. Although ABI into the TMJ is a successful modality in treating patients with chronic recurrent temporomandibular joint dislocation, it is not still a routine and popular procedure among surgeons due to unclear reasons [8]. The aim of this article is to assess the efficacy and safety of ABI in treating patients suffering from recurrent temporomandibular joint dislocation. In this series, we highlight the key trials and

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*Correspondence:

Islam A Amer, Department of General Surgery, Maxillofacial, Head and Neck Surgery, Sohag University, Egypt, E-mail: dr.islamamer1981@gmail.com

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recent techniques about this modality and discuss the mechanism, advantages, and disadvantages of this approach.

Methods

This research was a prospective research which was conducted in maxillofacial, head and neck surgery unit in General surgery department in Sohag faculty of medication, Sohag governorate, Egypt through January 2017 to January 2020, the information base has been reviewed. This study included 140 patients 87 patients of them were males while 53 were females, who underwent autologous blood injection in patients suffering from chronic recurrent temporomandibular joint dislocation. Who were admitted to ER and Maxillofacial outpatient clinic of Sohag University Hospital? They were diagnosed as having chronic recurrent TMJ dislocation based on the clinical examination of TMJ and palpation of condylar head outside the glenoid fossa and panoramic criteria of TMJ dislocation which state that condylar head outside the glenoid fossa. Their maximal mouth opening, measured between maxillary and mandibular incisal rim, ranged between 32 mm and 44 mm, with an average of 40.5 mm. The episodes of dislocation ranged from 2 times a day to 2 times per week. Seventy two patients (33 females and 39 male) were sometimes able to self-reduce their TMJ dislocation. In all patients, the digital lateral double TMJ radiographs, open position, showed presence of both condyles anterior to the articular eminence in different positions. The patients were treated by autologous blood injections to the Superior Joint Space (SJS) and the Pericapsular extra-articular Tissues (PT). The information was analyzed simply by SPSS data base together with using Chi-pillow ensures that you analyze of comparison of ratios, p value <0.01 to 0.05. Contract of ethical committee and even consents from patients had been obtained. Patients presented with temporomandibular joint dislocation screened cautiously by attending surgeons. Specialized medical history, physical examination in addition to laboratory blood tests blood hemoglobin g/l and leukocyte count E9/l, Neutrophil count).

Technique

The procedure was planned to be performed under local anesthesia using lignocaine 2% with adrenaline. We ask the patient to lie in supine position. After sterilization, we start to make a facial massage using lignocaine gel 5% in circular manner for 5 min and then nerve block was given on either side for auriculotemporal nerve. We draw a line from middle of tragus to lateral canthus of eye on either side and we mark appoint at articular fossa which was located 10 mm anterior and 2 mm inferior to this line in front of the tragus. Then we insert an 18-gauge 1.5-inch long needle at the first point up to a depth of 1 inch and stabilized. 6 mL of blood was taken from patient's cubital vein or femoral vein and 3 mL was injected in the articular fossa through first needle. Then the needle was withdrawn outward for 1 cm and another 1 mL of blood was injected around pericapsular tissue. The same procedure was done for the opposite side. Then elastic bandage was applied for one week and avoid open mouth not more than 2 fingers. Anti-inflammatory analgesic was prescribed for 3 days, follow up was done at 1 week, 2 week, 1 month, 3 months and 6 months period and outcomes and maximal mouth opening were noted during follow-up period.

Results

Our study starting from January 2017 to January 2020 which included 140 patients in this study, autologous blood injection was done, 87 (62.41%) patients of them were males while 53 (37.35%)

were females. The age of our patients ranged from 16 to 82 years; follow up of our patients extended up to one year following injection. In general, all patients tolerated autologous blood injections without any important complications either during the injection or post injection follow-up period. The postoperative pain was tolerable in all patients and lasted only for few days after the injections. It was easily controlled by taking the previously prescribed non-steroidal anti-inflammatory drugs. Autologous blood injection was successful in 123 (87.8%) patients who did not develop any complications during follow up period while 17 (12.14%) patients develop complication (recurrence of dislocation). Re-injection was carried out in the second and third week after first injection. This done for whole 17 patients, and on follow up done up to one year post to the second injection patients had successful results and requires no intervention while 7 (5%) patients needed surgery due to failure of re injection. At the end of the follow-up period, 1 year, the average decrease of the maximal mouth opening was 3.32.2 mm (range from 0.6 mm to 1.1 mm). The decrease of maximal mouth opening was related advice for patients to not open the mouth more than two fingers.

Discussion

ABI to the TMJ was first used by Brachmann in 1964, which successfully treated 60 patients suffering from recurrent dislocation. In 1973, Schultz reported treatment of 16 patients suffering from recurrent dislocation of the TMJ by injection of autologous blood [3].

In our series, 140 patients suffering from chronic recurrent temporomandibular joint dislocation underwent autologous blood injection in maxillofacial, head and neck surgery unit in general surgery department in Sohag University Hospitals, Sohag, Egypt. Jacobi Hermanns et al. [9] reported their experience with treatment of 19 patients. His protocol included injection of autologous blood only one time followed by intermaxillary fixation for 2 weeks. Eighteen months postoperatively, 17 cases were symptom-free with a decrease in maximal mouth opening. Hasson and Nahlieli reported their experience about injection of autologous blood into the TMJ for treatment of recurrent dislocation of the temporomandibular joint for three patients. They reported that all of their cases felt well after the injection with no complications. Only one patient, who had bilateral eminectomy previously, reported one episode of unilateral subluxation of the condyle 18 months later after the procedure [3]. In our study, autologous blood injection was successful in 123 patients who did not develop any complications during follow up period, while 17 patients develop complication (recurrence of dislocation). Almost 6 years later, in 2007, Kato et al. reported a case of recurrent TMJ dislocation, which was treated with ABI into the articular cavity [10]. Among our patients 17 of them develop complication (recurrence of dislocation). Reinjection was carried out in whole 17 patients, and on follow up 10 of 17 patients had successful results and requires no intervention. In 2009, Machon et al. [3] reported their experience about this procedure. Of the 25 patients, who participated in their study, 9 patients after 1 week and one patient after 4 weeks experienced redislocation. These patients were scheduled for reinjection. Of these ten patients, five reported redislocation at their follow-up. The remaining five patients were treated for the third time but continued to dislocate, and they were selected for open TMJ surgery. In our study 7 patients needed open surgery due to failure of re injection. In Hegab's study all patients tolerated blood injections without serious complications. Hegab concluded that ABI is an effective modality for the treatment of dislocation of the TMJ, and recurrence after

performing this technique can be overcome by multiple injections. He also suggested that combination of ABI and IMF offers the best results and can be used in patients with longstanding problems and in whom ABI has failed. He mentioned that IMF as an adjunctive to ABI can help the formation of mature fibrous tissue because excessive mouth opening can disturb the integrity of the fibrosis, resulting in recurrent dislocation [11].

In Daifs study, all patients underwent arthrocentesis of TMJ before the autologous blood injection and he divided the patients in two groups, one group the injection was in superior joint space only and the second group was in superior joint space and in extra articular tissue. Daifs encourage that injection of autologous blood to SJS and PT for treatment of patients with chronic recurrent TMJ dislocation, as it has shown better clinical and radiographic results than its injection only into the SJS [12].

Conclusion

Successful results about this modality are achieved, but some concerns are still noticed like the effect of the injected blood on the articular cartilage and formation of fibrous or bony ankylosis.

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