CASE REPORT

ELASTIC TRACTION TREATMENT FOR THE MANAGEMENT OF CHRONIC DISLOCATION OF BILATERAL MANDIBULAR CONDYLE – A REPORT OF 2 CASES

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ABSTRACT :

Temporomandibular joint (TMJ) dislocation is an uncommon but debilitating condition of the facial skeleton. Temporomandibular joint (TMJ) dislocation is a common problem faced in outpatient setting by maxillofacial surgeons and dentist. Chronic recurrent TMJ dislocation is a challenging situation to manage. Though the chronic dislocation of bilateral condylar of mandible is not very common, but if it occur to the patient, there is no fixed noninvasive protocols to manage it. This study is an attempt to establish the noninvasive treatment protocols for further studies with larger sample size.

KEYWORDS: TMJ Dislocation. Chronic Dislocation

INTRODUCTION :

True TMJ dislocation is a condition in which condylar processes are displaced from glenoid fossa anterior to the articular eminence. TMJ dislocation is a very painful distressing and a restless condition in which patient had problem in closing and opening the mouth and also inability to chew the food properly. It is an uncommon condition which can happened for a variety of reasons including extreme mouth opening during yawning (46%), trauma to the mandible, dental treatments, anti-emetic medications, systemic diseases such as Ehlers-Danlos, Marfan syndromes, Steinert's disease, Meige's syndrome, endotracheal intubation and some psychogenic/neurologic disorders.[1-2] TMJ dislocations can be subdivided into acute, chronic or recurrent type.[3] In acute situations, it requires manipulation by another individual to reduce to its normal position. If the reduction of acute dislocation is delayed, the chronic condition will be encountered where manual reduction usually is insufficient and may require surgical intervention. The recurrent dislocation is a condition where repeated episodes of dislocation take place and it may be self-reducing or needs manual reduction.[4-5] The term "acute" refers to untreated dislocation up to 72 hours from the time since it got disclocated.[6-7] Acute dislocation presenting within 2 weeks is readily reducible by Hippocrates maneuver (The manual reduction method is performed by first pressing the mandible downward, then backward, and finally upward). After 2 weeks, spasm and shortening of the temporalis and masseter muscle occur and reduction becomes difficult to achieve manually leading to "chronic protracted Dislocation". Chronic, protracted dislocation may be left unperceived, undiagnosed/ misdiagnosed and untreated for days, weeks, months to even years and developed into a "longstanding" condition. Spontaneous anterior TMJ dislocation is not a common condition, with a reported annual incidence of 5.3 per 1000,000 patients who present to the emergency department.[8] The aim of treatment should be directed towards returning the condyles to their original position and conservative methods should be the first line of choice. Early conservative reduction by Hippocrates maneuver with or without local anaesthetics and sedatives is the best treatment. Reduction using this method can be achieved in most cases. Once the condylar head has been reduced, a period of functional restriction is advocated. Muscle relaxants may also be prescribed. In many instances, however, a tendency toward redislocation requires use of a chin strap/face-lift bandage.

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CASE REPORT :

Case 1

An 18-year-old Male patient was referred to the Department of Oral and Maxillofacial Surgery, RIMS Dental Institute, with a chief complaint of RTA with locking of lower jaw and being unable to close his mouth. History revealed that the patient had trauma 1 month back. The patient had no prior history of TMJ dislocation and fracture. On examination, an anterior open bite of 20 mm, a notable preauricular depression and a restricted range of mandibular motion were observed. 3D CT FACE Scan revealed bilateral TMJ dislocation (the patient reported with the radiographs). On Intraoral examination prominent gonial angle with blunting of articular eminence is also seen. The diagnosis of chronic recurrent TMJ dislocation was made based on clinical examination, radiographic investigations, it was observed that the mandibular condyle had developed a pseudoarticulation anterior to the articular eminence. Then decided for the managed conservatively by placing upper and lower arch bars along with Bilateral posterior rubber bite block of approximately 10mm height was made with rubber lid of LA bottles used in our centre (Figure 4). The rubber bite block was inserted in first molar region bilaterally, with their strings outside so that they can be retrieved after dislodgement if it occur. Class II elastic traction was applied on either side with anterior box elastic with green orthodontic elastics. After 3 weeks, the elastics and the posterior rubber bite blocks were removed but the upper and lower arch bars were retained for 3 more weeks (Figure 1 & 2). The patient never got his joints dislocated in these 3 weeks, and finally the arch bars were removed. Conservative approaches should be attempted initially, surgical treatment can be used only after these have failed.

FIGURE: 2
A – Postop Profile Photograph
B – Intraoral picture showing satisfactory occlusion

Case 2

A 27 years old Male patient was reported to our department who had bilateral TMJ dislocation after trauma. Duration for dislocation was one and half months. Same criteria was applied for the manual reduction. But manual reduction was Unsuccessful in this case too. Then planning for conservative management for the reduction (Figure 3). The diagnosis of Chronic Recurrent TMJ Dislocation was made based on clinical examination, radiographic investigations, and case history. In asepsis condition, part preparation was done with 5% povidine iodine. Local infiltration was given with Lignocaine 2% with Adrenaline 1:100000. First Erich arch bar was cut to the appropriate size for each jaw. Both ends of the wire was pass through the first interproximal space from the buccal to the lingual side, keeping one wire above and the other beneath the arch bar. The wires was crossed over in the lingual space and passed through the second interproximal space from the lingual to the buccal surface. The wire was fixed in both jaws with the help of 26 gauze prestretched stainless steel. This procedure was continued until the last tooth on the other side was reached and again the wires was twisted around the bar. Bilateral posterior rubber bite block of approximately 10mm height was made with rubber lid of LA bottles used in our centre. The rubber bite block was inserted in first molar region bilaterally. Routine NSAIDS with muscle relaxant was used. During inter arch elastic traction, if

required we was use 2mg of midazolam IV to reduce the anxiety and get muscle relaxation during the procedure with all precaution.

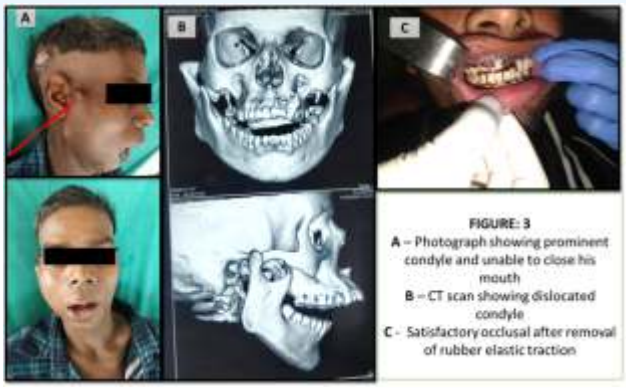

FIGURE: 3
A – Photograph showing prominent condyle and unable to close his mouth
B – CT scan showing dislocated condyle
C - Satisfactory occlusal after removal of rubber elastic traction

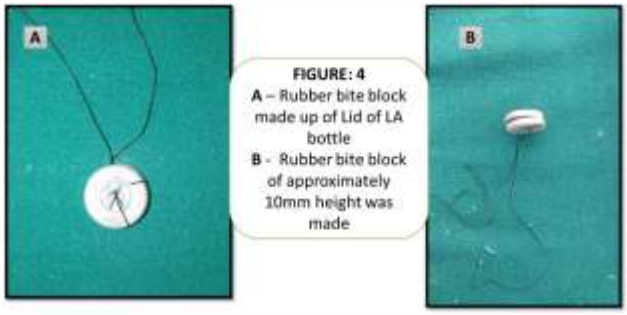

FIGURE: 4
A – Rubber bite block made up of Lid of LA bottle
B - Rubber bite block of approximately 10mm height was made

DISCUSSION:

Long-standing TMJ dislocation usually occurs when a case of acute dislocation is left untreated or is inadequately treated. On the basis of the clinico radiological evaluation, Akinbami[17] classified TMJ dislocation into the following three types:

Type I The head of the condyle is directly below the tip of the eminence

Type II The head of the condyle is in front of the tip of the eminence

Type III The head of the condyle is high up in front of the base of the eminence.

The TMJ dislocation has an incidence of about 3% of all dislocations throughout the body.[9] The diagnosis of TMJ dislocation is often clinically based. The most common clinical symptom is the inability to close the mouth i.e. "open lock". Typical signs and symptoms seen in patients with TMJ dislocation include inability to occlude, anterior cross bite, prominent preauricular depressions, drooling of saliva, lip incompetency and mandibular pain. The aim of treatment should be directed towards returning the condyles to their original position and conservative methods should be the first line of choice.[10] However, diagnosis is confirmed by radiographic evaluation. The conservative method included use of various sclerosing agents like alcohol, sodium tetradecyl sulfate, autologous blood transfer, sclerotherapy, botulinum toxin injection, or a combination thereof, Injection of the lateral pterygoid muscle with botulinum toxin. In case of chronic protracted dislocation, elastic rubber traction with arch bar fixation with elastic bands are useful to achieve the reduction.[11] Temporomandibular joint recurrent dislocation treatment still remains debated. Some patients could be successfully treated by conservative approach, but nonresponders have to be addressed by surgery, which results to be mandatory in 5% of cases.[12] As the duration of dislocation increases, the joint cavity fills with connective tissue, cartilaginous changes occur, adhesions develop between joint surfaces, and there is shortening of the masticatory muscles. Temporalis muscle fibrosis and impingement of the coronoid have also been reported to increase the difficulty of reduction. Due to continuous traction by elastics, the joint ligaments and shortened muscles were stretched, repositioning the condyle in the glenoid fossa. Even if this kind of management is time consuming and require frequent follow-up, the method is safe as compared to inherent risks of surgery under general anaesthesia. The method is especially suitable patients with poor financial status and in government hospital setups where the patients need to wait for several weeks to months for a surgery date, further deteriorating their condition. In cases of failure to reduce, Initially try all the conservative treatments first, surgical treatment can be used only after these have failed.

CONCLUSION:

In conclusion, there is no consensus regarding the treatment of long-term TMJ dislocation, from above discussion we conclude that long standing TMJ dislocations up to six months and more can be

reduced with ease with the help of this simple & versatile mechanical method by avoiding major surgical intervention. We suggest the use of a mechanical method to pull down the superiorly displaced condyle below the articular eminence followed by a maneuver to guide it posteriorly towards the glenoid fossa. Continuous traction using elastics in achieving a complete repositioning of the condyle back into the fossa. Further studies with large series are needed in order to reach an agreement concerning the definition and the most appropriate treatment protocol for long-term TMJ dislocation. Surgical management of TMJ dislocation may not always be feasible due to various factors like patient co-morbidities, lack of operating theater, lack of surgical skill, financial status, etc. Thus, it is important to have a knowledge of various conservative methods of reduction in our armamentarium.

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Ethical approval - Not required but patient consent was taken

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