

MANAGEMENT OF LONG STANDING TMJ DISLOCATION BY MECHANICAL METHOD: A CASE REPORT

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ABSTRACT

Mandibular dislocation involves dislocation of condyle of mandible from glenoid fossa of temporal bone. Longstanding Temporomandibular joint dislocation is a clinical entity which often goes undiagnosed. When diagnosed, commonly, surgical intervention becomes necessary for its correction. This article presents one such case, its diagnosis and management. We describe an innovative technique using An arch bar rubber cork and elastics as an aid to manual reduction in long standing cases which may usually be difficult or impossible to manage without surgery. Dislocation was reduced thus avoiding major surgical procedure. Temporomandibular Joint 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.

KEYWORDS: Management; TMJ; Dislocation; Mechanical

INTRODUCTION

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. Dislocation of TMJ occurs when the mandibular condyle is displaced anteriorly behind the articular eminence caused by displacement of the condyle in front of the articular eminence. Patients sometimes cannot replace it themselves and often require reduction under general anesthesia. It can be treated either conservatively or by operation. Conservative treatment accompanies intermaxillary fixation or injection of sclerosing solutions. Ambroise Pare described the use of an object that would act as a

wedge in the molar regions as the chin is elevated. In this way, the condyles are lifted off their locked position.^[1] In a review study, Gottlieb^[2] found that only three of 24 long-standing cases were successfully reduced by manual manipulation. Another review from 1949 to 1976 reported that four out of 24 cases of long-standing dislocations were successfully reduced manually.^[3] Manual reduction of prolonged dislocations, up to 16 months, has also been described.^[4] Manual reduction of prolonged dislocations, up to 16 months, has also been described.^[5] One case involved passing a wire through the inferior aspect of the mandible to aid in posterior distraction. A variety of conservative surgical techniques have been described for reducing dislocations, including the use of a bone hook passed over the sigmoid notch or inserted into bur holes placed at the angles.^[6] A Bristow elevator placed through a temporal incision can be used to apply posterior pressure to the anterior aspect of the condyle, which may force it to move posteriorly.^[7] A unique approach has been reported by Rao, who reduced a chronic mandibular dislocation using archbars and posterior bite splints with strong anterior wiring and Class III vector for the posterior wires.^[8] Autologous blood injection as a new treatment modality for chronic recurrent temporomandibular joint dislocation.^[9] The utilization of the gag reflex provides a new alternative treatment of acute dislocation. This method is simple, rapid and safe and can be advocated in all cases of acute dislocation.^[10] Operations include scarification of the temporal tendon; turning down a temporal fascia flap to reinforce the capsule of the joint formation of the external ligament by ligating to the fascia through drill holes in both the zygomatic arch and the



Fig. 1: Female patient



Fig. 2: OPG of the patient



Fig. 3: Rubber cork placed posterior most between the upper and lower molars



Fig. 4: Post-operative radiograph of patient

condyle, eminectomy increasing the height of the eminence by bone grafting or setting up a mechanical obstacle on the eminence by down fracture of the zygomatic arch (the Dautrey Procedure). Most elderly patients have some other systemic disease and are unable to withstand operation, so treatment is limited and results unsatisfactory.

CASE REPORT

A 45 year old female patient presented in with a chief complaint of difficulty in speech, mastication and inability to close mouth completely, since 6 months. On extraoral examination the lower third of her face appeared to be elongated and there was apparent hollowing anterior to the tragus bilaterally (Fig. 1). Her mouth opening was restricted to one and half finger breadth. She had an anterior open bite Orthopantomograph (OPG) (Fig. 2) revealed dislocation of both condyles anterior to the articular eminence and at a height of 8-10 mm above it. A diagnosis of long standing TMJ dislocation was made. An initial attempt at reduction of the dislocation failed and patient was worked up for reduction under general anesthesia and surgery if required. However, a second attempt at closed reduction of the dislocated joint under local anesthesia.

TECHNIQUE

The patient was seated upright on a dental chair. Local anesthetic solution, Lignocaine Hydrochloride with adrenaline was injected in the joint space bilaterally; after ten minutes, the joint was manipulated by Hippocrates method, but reduction was not achieved. As the condyle was dislocated superior to the articular eminence, the aim was to bring it inferior to the eminence prior to manipulation. The technique is based on lever and fulcrum principle. Here rubber cork acts as a fulcrum and elastics placed anteriorly act as power arm (Fig. 3). Arch bar was placed on both upper and lower arch and rubber cork placed bilaterally. Elastics placed in anterior tooth region. After two days dislocation was reduced. Secondary wiring was done to prevent from relapse. Once the condyle has been relocated it is recommended that the mouth opening be limited for several days, which can be accomplished using intermaxillary fixation using external dressing over the chin, ivy loops with elastic traction. An overjet and overbite was achieved which appeared to be close to normal. OPG (Fig. 4) and TMJ radiographs taken immediately following reduction revealed the new position of the condyles bilaterally touching the articular eminence at its anterior aspect. TMJ dislocation can be reduced by arch bar placed on upper and

lower arch and rubber cork placed bilaterally between molars which act as fulcrum and elastics placed in anterior tooth region. It is based on lever and fulcrum principle. Here rubber cork acts as a fulcrum and elastics placed anteriorly act as power arm.

DISCUSSION

Anterior dislocation is caused by dysfunction of components of the TMJ, including abnormal articular eminence, glenoid fossa, or condylar head; relaxation of the ligaments and the capsule; or dysfunction of the muscle of mastication. Dislocation of the mandible may be accompanied by extrapyramidal symptoms such as Huntington's chorea^[3] psychiatric disorders being treated by neuroleptic therapy^[4] and Parkinson's disease. Men with cerebrovascular lesions and cerebral palsy sometimes have similar symptoms. Because all our cases had the same symptoms, we are convinced that the extrapyramidal symptoms may be an etiological factor in dislocation of the mandible because patients with extrapyramidal symptoms often have abnormal muscular tension and make excessive involuntary movements, conservative treatment had not proved effective. Dislocation of the mandible in elderly patients with extrapyramidal symptoms can recur after eminectomy, so we selected a more appropriate intervention. In 1975, Dautrey described the principle of the operation in which the zygomatic arch is cut and sprung downwards, which restricts excessive forward movement of the condyle. The advantage of this method is that it is less invasive, involving a short incision in the hairy temporal region, a small operative field, local anesthetic and short operating time. There is no need for postoperative intermaxillary fixation or bone transplantation. We therefore considered that this method was the most suitable for edentulous elderly patients. Lawlor stated that it was desirable to carry out this procedure in patients less than 32 years of age, as inherent elasticity of the bone is reduced.^[8] However, Iizuka *et al.* reported excellent results in 12 patients aged from 17 to 59 years old (mean 28).^[9] Srivastava *et al.* reported successful treatment of 11 of 12 patients over 25 years old (mean 36). We attempted repositioning of the condyle using the traditional Hippocrates method. Our attempt failed, due to the large extent of dislocation. So, Arch bar was placed on both upper and lower arch and rubber

cork placed bilaterally. Elastics placed in anterior tooth region. After two days dislocation was reduced. Secondary wiring was done to prevent from relapse. Once the condyle has been relocated it is recommended that the mouth opening be limited for several days, which can be accomplished using intermaxillary fixation using external dressing over the chin, ivy loops with elastic traction. The idea behind this was to release the condyle and guide it back into position without the articular eminence obstructing this maneuver helped bring down the condyle, and the condyles were guided backwards one at a time. Establishing an anterior dental relation with overjet and overbite from an existing openbite, was considered fair amount of reduction. Though radiographs repeated at this instance revealed the position of the condyle anterior to the eminence, condyle

CONCLUSION

In conclusion, 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. The diagnosis of long standing TMJ dislocation may be difficult owing to its rarity and requires a proper knowledge as well as keen observation of the clinician. Once diagnosed, a repositioning by closed means may be attempted after achieving a proper anesthesia of the whole joint apparatus using TMJ infiltration and mandibular nerve block to inhibit motor supply of the muscles of mastication. 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. We would like to stress the importance of continuous traction using elastics in achieving a complete repositioning of the condyle back into the fossa. This technique may be adopted to achieve a higher success rate using closed means for reduction of long standing cases of TMJ dislocation.

BIBLIOGRAPHY

1. Bradley PF. In: Maxillofacial Injuries, Rowe NL, Williams JL (eds.). Churchill Livingstone: Edinburgh (UK). 1985.
2. Gottlieb I. Long-standing dislocation of the jaw. *J Oral Surg.* 1952;10:25-32.
3. Adekeye EO, Shamia RI, Cove P. Inverted

- L-shaped ramus osteotomy for the prolonged bilateral dislocation of the temporomandibular joint. *Oral Surg Oral Med Oral Pathol.* 1976;41:568-577.
4. Fordyce GL. Long-standing bilateral dislocation of the jaw. *Br J Oral Surg.* 1965;2:222-225.
 5. Hayward JR. Prolonged dislocation of the mandible. *J Oral Surg.* 1965;23:585-595.
 6. El-Attar A, Ord RA. Long standing mandibular dislocations: report of a case, review of the literature. *Br Dent J.* 1986;160:91.
 7. Lewis JES. A simple technique for long-standing dislocation of the mandible. *Br J Oral Surg.* 1981;19:52-56.
 8. Rao P. Conservative treatment of bilateral persistent anterior dislocation of the mandible. *J Oral Surg.* 1980;38:51-52.
 9. Daif TE. A new approach to the reduction of acute dislocation of the temporomandibular joint: a report of three cases. *J Oral Maxillofac Surg.* 2009;67(1):114-9.
 10. Awang MN. A new approach to the reduction of acute dislocation of the temporomandibular joint: a report of three cases. *Br J Oral Maxillofac Surg.* 1987;25(3):237-43.

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