



Research Article

DAUTERY PROCEDURE; AN ALTERNATIVE FOR THE MANAGEMENT OF RECURRENT TMJ DISLOCATION

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ABSTRACT

Temporomandibular joint (TMJ) dislocation is an involuntary forward movement of the mandible beyond the articular eminence, with the condyle remaining stuck in the anterior-most position and is characterized by the inability to close the mouth. [1] Different treatment lines have been adopted for the management of chronic TMJ dislocation in patients which include both conservative measures as well as surgical intervention. In the present case,

Dautrey's procedure was performed for surgical correction of recurrent bilateral TMJ dislocation. Patient showed marked improvement in TMJ functions and with no relapse or no episodes of pain, clicking, deviation or TMJ dislocation was seen in follow up period of 2 years. Hence, Dautrey's procedure served as an effective management option for recurrent temporomandibular joint dislocation.

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INTRODUCTION

The temporomandibular joint (TMJ) is a hinge type synovial joint that connects the mandible to the rest of the skull, it is an articulation between the glenoid fossa and articular tubercle of the temporal bone, and the condylar process of the mandible. During normal or unstrained opening of mouth condyles move forward under the apices of articular eminence. The condyle head when moves beyond these limits are considered abnormal and termed as TMJ dislocation. So TMJ dislocation is the disarticulation of the condyle in front of the articular eminence where it is held by the spasm of the muscles of mastication.

Incidence of mandibular dislocation is only 3.1% of all reported dislocated joints, and incidence of recurrent dislocation is more in female subjects although the reasons for this are not well understood.[2]

Many reasons have been proposed for this condition. Few common reasons are iatrogenic, spontaneous, systemic disease-related, pharmacologic, trauma or anatomic.[1] Whatever the underlying cause, with each successive dislocation, further episodes tend to happen more quickly. Patients with this condition generally present with a gnawing pain in the TMJ region, opening click with a deviation of the mandible while opening wide, difficulty in closing the mouth with a closing click, depression of the skin, excessive salivation, tense and spasmodic muscles of mastication.[2]

Conservative treatment modalities for recurrent dislocations include intermaxillary fixation and injections of sclerosing solutions and autologous blood. Surgical techniques can be broadly classified into surgeries that limit the condylar path and those that enhance the condylar path. Even though advanced method like eminoplasty are practised, Dautery's procedure still remain as one of the most accepted treatment modality. In this case report a case of recurrent TMJ dislocation treated by the age old Dautery's procedure is presented.

Case Report

A 29 year old female patient reported to our department of Oral and maxillofacial surgery in RV dental college Bangalore, with chief complaint of frequent, painful and recurrent episodes of locked jaw since past 10 years especially during night time. Patient gave no history of traumatic injury to her jaws during childhood. Patient had been undergoing manual relocation of the dislocated jaw by dentist since past 10 years and was on muscle relaxants for the same which was ineffective in curing the condition. Patient did not have any medical history nor any drug allergy.

On bilateral pre-auricular palpation of the Temporomandibular joint, tenderness and clicking was noted over the right side, Movements of the TMJ in the sagittal and lateral excursive plane was satisfactory. Mouth opening and occlusion was satisfactory. Patient was advised to take routine radiographs and basic blood investigations for the surgery.

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Fig 1 Pre Op Profile

Procedure

General anesthesia was achieved using right nasal intubation followed by painting and draping using standard aseptic protocols. Local anaesthesia with 2% lignocaine with 1:80000 adrenaline was administered to the proposed surgical site. The surgery was performed using preauricular approach. Incision line of 3cm was marked along the crease anterior to tragus with a surgical marker at the right pre-auricular region. (FIG-3)



Fig 3 Pre-auricular incision line marked

Incision placed along the marked line and blunt dissection performed anteriorly upto 1-5 cms through the skin and superficial temporal fascia by subperiosteal dissection using howarth's elevator. Care was taken to expose articular eminence fully with no breach in TMJ capsule and minimal zygomatic periosteum stripping (FIG-4)



Fig 4 Blunt dissection performed and zygomatic arch and articular eminence exposed

Using a straight fissure bur, an oblique osteotomy was performed on the zygomatic arch. The osteotomy cut placed was about 2 cms from the root of the zygomatic arch. An oblique cut running downwards and forwards through the arch was made meeting the lower border just in front of the articular eminence (FIG-5).



Fig 5 Osteotomy cut placed on the zygomatic arch

Extreme care was taken to avoid damage to the 7th nerve (facial nerve) The anterior segment of the fractured arch relieved using an osteotome and then it is detached from the surrounding tissues and dislocated very slowly by controlled pressure downwards and fixed in position with 1.5mm 2- holed gap plate with one end attached to the down-fractured segment of zygomatic arch while the other end attached to the articular eminence using two 1.5 x 6mm screws (FIG-6)



Fig 6 Down-fractured zygomatic arch fixed in position

Later mandibular movements were confirmed using opening and closing of mouth manually and occlusion was satisfactory. Closure achieved in layers using 3-0 vicryl and 4-0 prolene for skin (FIG-7).



Fig 7 Closure achieved in layers

Patient was extubated and shifted to the post-operative ICU where she was under observation for a period of 6 hours post which patient was shifted to ward.

In the immediate post-operative period, patient was closely monitored for any signs of facial nerve weakness or excessive bleeding in the operated site.

The patient had an uneventful post-operative period with satisfactory healing and minimal to no scarring of the incision line and normal mouth opening. IMF was not required, and patient was instructed to refrain from excessive mouth opening till three weeks. Patient was followed up for every month in 1st six months and every 2 months in next 6 months and every 6 months in the 2nd year. No recurrent TMJ dislocation was noted in the following period.



Fig 8 Minimal Scarring Noted During Post-Op 2 Weeks Follow Up



Fig 9 Post OP OPG Showing the Plate Fixation



Fig Post OP Profile PIC



Fig 10 Post-OP 7 Months Review

DISCUSSION

Chronic recurrent dislocation is caused by dysfunction of the components of the TMJ, including abnormal articular eminence, glenoid fossa, or condylar head; relaxation of the ligaments and the capsule; or dysfunction of the muscles of mastication.

Chronic recurrent dislocation is characterized by a condyle that slides over the articular eminence, catches briefly beyond the eminence and then returns to the fossa.

The various causes can be iatrogenic, spontaneous, trauma-related, systemic diseases related, pharmacologic or anatomic. Iatrogenic causes can be intubation/laryngoscopy, dental or ear, nose and throat procedures, gastrointestinal endoscopies. Spontaneous causes are laughter, yawning, vomiting, or singing. [2] Trauma-related is where injury impact comes on TMJ. Systemic diseases like Ehlers-Danlos/connective tissue disease, neurodegenerative/neurodysfunctional diseases, i.e., Huntington disease, epilepsy, Parkinson disease, multiple sclerosis, muscle dystrophies/dystonias, are related to chronic TMJ dislocation. [2] Other pharmacologic causes like phenothiazines, metoclopramide and anatomic causes like steep eminence, abnormal condylar shape and atypical disc position [2]. Prolonged immobilisation of the temporomandibular joint using intermaxillary fixation has been used for recurrent dislocation of the mandible but does nothing to eliminate the cause. [2]

Schultz described the injection of a sclerosing solution into the joint to produce capsular fibrosis and eliminate excessive condylar movement. This technique is successful in cases of hypermobility, but its efficacy in patients with severe recurrent dislocation is doubtful. [2]

Thoma advocated a bone graft onlay to the articular eminence. Many surgeons favour this approach despite involving a separate donor site. [2]

Dingman recommended meniscectomy to treat this condition. However, this involves interfering with the joint space. To avoid this, capsular surgery is favoured by many operators.

Plication of the capsule, which is an operation for reducing the size of a hollow viscus, was first described by Hudson. [2] Myrhaug, Irby, and Hale describe the reduction in the height of the articular eminence so that the condyle will readily slip back into the fossa if subluxation occurs. [2]

In LeClerc and Girard technique, a vertical osteotomy of the zygomatic arch was performed in front of the joint and the proximal segment lowered to obstruct the condylar path.[2]

In 1975 Dautrey modified this technique and a downward and forward osteotomy of the zygomatic arch in front of the articular eminence is made to create similar mechanical obstruction and recommended the procedure to be carried out bilaterally in all cases irrespective of either unilateral or bilateral. 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 anaesthetic and short operating time.[3] There is no need for postoperative intermaxillary fixation or bone transplantation. No interference with the normal working of the temporomandibular joint yet prevents abnormal excursions of the condyle. It increases the height of the articular eminence and provides a bony obstruction to excessive forward movement without the need for a bone graft from another site. [3] There is no interference with the joint cavity or with the capsule of the joint. Also it avoids the introduction of foreign material into the joint area. [3]

However few limitations were noted in this technique such as relocation of fragments after repositioning, medial escape of condyle as width of zygomatic arch is narrow, not suitable for elderly individual as it may cause fracturing of the arch instead of green stick fracture at the zygomatico temporal suture.

In our procedure the patient was followed up for a span of 2 years and no post operative complications were noted and recurrent dislocation was not reported.

CONCLUSION

In recurrent bilateral dislocation of TMJ various treatments have been attempted. These included conservative as well as surgical interventions. Conservative treatment options such as maxillo-mandibular fixation and injection of sclerosing agents often provide marginally satisfactory to profound results however these results are often not as long lasting as one would prefer. Thus, such cases require surgical management. The surgical 1) procedures can be categorized under 2 main headings procedures that enhance the path of condylar movement and 2) those that inhibit the path of condylar movements. [1]

Dautrey's method of down fracturing the zygomatic arch is most popular and its failure rate has been reported as only one percent in literature. Here we have performed Dautrey's procedure for the management of chronic dislocation of TMJ and the results were very satisfactory with no associated complications involving joint functions bilaterally in the 2 year follow-up period.

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