

Dautery's procedure for the management of recurrent tmj dislocation –A case report

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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 which leaves the patient unable to close her mouth. Various methods have been described in literature for the management of TMJ dislocation in patients where conservative measures are not successful and need surgical intervention. This case report highlights outcome of Dautrey's method of surgical correction in case of recurrent bilateral TMJ dislocation. The patient had history of manual reduction of lock jaw in the past. Orthopantomogram confirmed anterior dislocation of condyles beyond articular eminence.

Dautrey's procedure was performed, patient showed marked improvement in pain and TMJ function with no relapse at 1 month follow up. Post-operative mouth opening became normal in the patient at 1 month follow up. No episode of pain, clicking, deviation or TMJ dislocation was seen in follow up period of 1 year. Hence, Dautrey's procedure serves as an effective management option for recurrent temporomandibular joint dislocation.

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I. Introduction

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, preauricular skin depression, excessive salivation, and a tense, spasmatic masticatory musculature¹.

Many reasons have been proposed for this condition, and treatments range from relatively conservative methods to various surgical interventions. The common reasons for dislocation can be iatrogenic, spontaneous, systemic disease-related, pharmacologic, trauma-related or anatomic. Whatever the underlying cause, with each successive dislocation, further episodes tend to happen more quickly². The capsule of the joint is the most important structure which stabilizes the joint reinforced by the lateral ligaments. However displacement of the head of the condyle out of the glenoid fossa is also greatly influenced by the morphology of the condyle, glenoid fossa, articular eminence, zygomatic arch and squamotympanic fissure^{3,6}. The afore-mentioned factors mainly determine the type and direction of dislocation. In addition, age, dentition, cause and duration of the dislocation as well as the function of the masticatory muscles contribute significantly in the mechanism and management of temporomandibular joint dislocation³.

The surgical methods which have been used in literature either facilitate the unhindered forward and backward movement of condyle around articular eminence or obstruct the condylar movement ahead of the articular eminence².

II. Case Report

One case of 67 year old female patient with bilateral chronic recurrent TMJ dislocation is described who presented to us with difficulty in closing the mouth. The patient had a history of four to five times of manual reduction of dislocation in the past. The patient was not medically compromised, had no neurological/psychogenic disorders and was not under any anti-psychotic medications. Patient was completely edentulous and her Pre-operative mouth opening was 1cm. OPG (figure 1) confirmed an anterior dislocation of condyles beyond articular eminence. Dautery's procedure was performed and miniplate fixation was done. Patient is being regularly followed up, with the post op mouth opening of 3Ccm. Any recurrence of TMJ pain and general well-being of the patient was noted and mouth opening was recorded at each appointment.

Dautery's procedure was performed under general anesthesia using preauricular approach with temporal extension (Figure 2A and 2B). After reaching temporal fascia the flap was undermined anteriorly. An oblique incision at 45° was made into the temporalis fascia over the root of the zygomatic arch and the arch was exposed by subperiosteal dissection. Care was taken to expose articular eminence fully with no breach in TMJ

capsule and minimal zygomatic arch stripping. Articular eminence was confirmed by palpating condylar movements behind it on opening and closing the patient's mouth. Using an osteotome, an oblique osteotomy was performed of the zygomatic arch . An oblique cut running downwards and forwards through the arch is made meeting the lower border just in front of the articular eminence (fig 2A). The arch was sprung first laterally very slowly and then downwards by controlled pressure with a nasal septal osteotome to prevent its complete fracture. With its inherent elastic property, the arch was stabilized with a 1.5mm two hole titanium miniplate on the right side (fig 2B) ,whereas a positional screw was additionally used on the left side . MMF was not required, and patients was instructed not to do excessive mouth opening till three weeks post-operatively. Post-operative radiograph was taken (Figure 3)

FIG 1

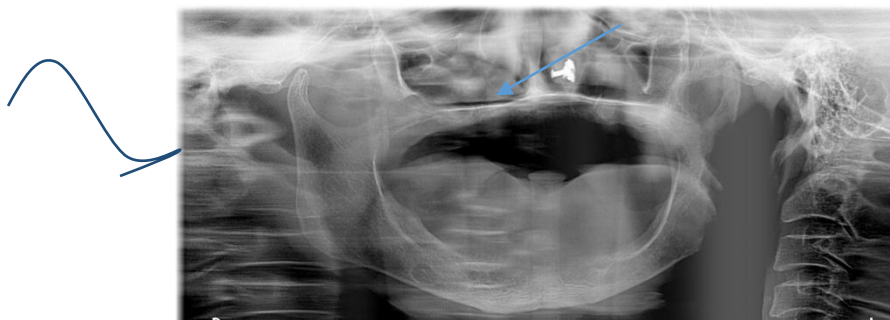


FIGURE 2A

FIGURE 2B

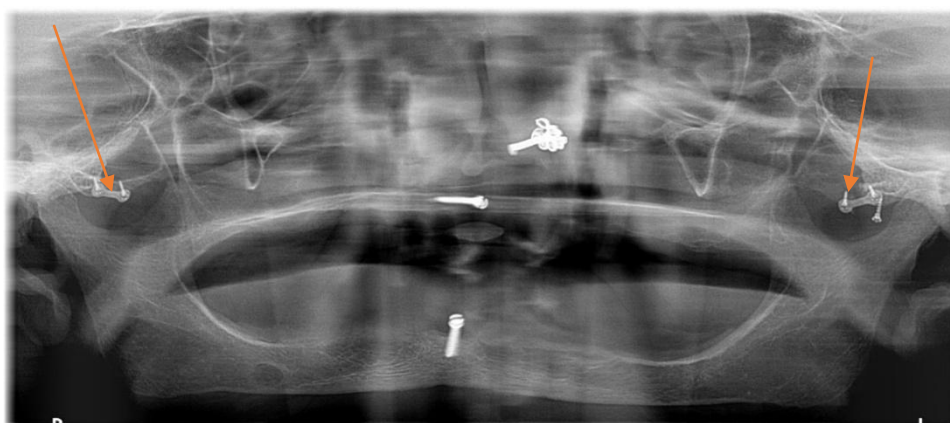


FIGURE 3

III. Discussion

Dislocation of TMJ occurs in up to 7% of people during their lifetime . TMJ dislocation represents 3% of all articular body luxation . When this condition progresses and becomes frequent it is termed as recurrent dislocation or habitual dislocation ⁴ .Anterior dislocations are the most common and occur due to displacement of the condyle anterior to the articular eminence of the temporal bone. Anterior dislocations are usually

secondary to an interruption in the normal sequence of muscle action when the mouth closes from extreme opening³. The masseter and temporalis muscles elevate the mandible before the lateral pterygoid muscle relaxes resulting in the mandibular condyle being pulled out of the glenoid fossa and anterior to the bony eminence. Spasm of the masseter, temporalis and pterygoid muscles causes trismus and keeps the condyle from returning into the glenoid fossa³.

The various causes can be iatrogenic, spontaneotrauma-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. 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. Other pharmacologic causes like phenothiazines, metoclopramide and anatomic causes like steep eminence, abnormal condylar shape and atypical disc position have also been cited⁵.

In the original 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. Gosserez and Dautrey popularized downward and forward osteotomy of the zygomatic arch in front of the articular eminence to create similar mechanical obstruction and recommended the procedure to be carried out bilaterally in all cases irrespective of either unilateral or bilateral dislocation⁷.

Various methods have been tried for the treatment of this disorder. The treatment modalities have been either conservative or surgical. Although initially conservative treatment is preferred, when it fails, the only option remaining is surgical. In patients with chronic recurrent dislocation, conservative treatment such as maxillomandibular fixation and injection of sclerosing solutions often results in failure. Thus, such cases require surgical management.

The surgical procedures can be categorized under 2 main headings: 1) procedures that enhance the path of condylar movement; and 2) those that inhibit the path of condylar movement⁸. Dautrey's method of down-fracture of the zygomatic arch is most popular and its failure rate has been reported as only one percent. However, in a re-appraisal of the Dautrey procedure, Revington (1986) has suggested that a failure is most likely to be because of a lack of engagement of fractured bone, and emphasized the importance of pre-operative anatomical assessment. In other words, success of the Dautrey's procedure may depend on anatomical factors. Besides the procedure using autograft bone, an alloplastic device such as vitallium mesh or titanium plate to overcome the anatomical problems, has been applied and satisfactory results have been reported¹¹.

The principle of the Dautrey operation is that an oblique cut is made through the zygomatic arch posteriorly and the arch then sprung down and impacted in under the articular eminence preventing abnormal forward movement of the condyle⁹.

LAWLOR considered this procedure to be unsuitable for patients above 32 years of age. In the study of IIZUKA et al., however, this procedure appeared to be successful in patients ranging in age from 17 to 59 years.

In our study the patient was 67 years of age and was managed successfully. It should be stressed that a gentle method of elevating the arch and minimal elevation of the arch periosteum are the most important factors in prevention of arch fracture. The age of the patient, even considering the reduced elasticity of bone with increasing age, is less important¹⁰.

The Dautrey procedure has been found to be very satisfactory in the treatment of recurrent chronic dislocation, and it does not adversely affect joint function.

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