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Treatment of Chronic Recurrent Mandibular Dislocations by Eminectomy: A Case Report and Literature Review

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Abstract **Case Report**

Temporomandibular joint (TMJ) dislocation is defined as excessive forward movement of the condyle beyond the articular eminence with complete separation of the articular surfaces and fixation in this position. It is usually associated with poor development of the articular fossa, laxity of the temporomandibular ligament or joint capsule, and excessive activity of the lateral pterygoid and infrahyoid muscles. We present a case of chronic luxation of the TMJ treated by bilateral eminectomy performed under general anesthesia. No dislocation recurrence, postoperative pain, or functional alterations were observed. It has been reported in the literature that surgical treatment should be applied in the presence of long-term dislocations. It is stated that eminectomy is an effective treatment modality for removing the obstacle in the condylar path and has a fairly low recurrence risk.

Keywords: Eminectomy, Recurrent Mandibular Dislocation, TMJ Surgery.

INTRODUCTION

Dislocation of the temporomandibular joint (TMJ) is defined by the displacement of the mandibular condyle out of the glenoid cavity, most often anterior to the temporal condyle. It is more rarely posterior, superior or lateral. It can be uni- or bilateral [2].

The pathogenesis of chronic recurrent dislocation of the TMJ has been attributed to trauma, abnormal chewing habits, TMJ ligaments and capsule laxity, and masticatory muscles disorders. Even some drugs, such as phenothiazine or neurological disorders causing muscular hyperactivity (e.g. Parkinson's disease), have been considered to have a role in TMJ dislocation [1].

Chronic TMJ dislocations are often the result of acute negligence of an acute dislocation ¨ or inadequate treatment. Longer duration of dislocation increases the difficulty of reduction, often necessitating surgical treatment.

We report the case of a 23-year-old man with chronic anterior bilateral dislocation of the TMJs treated by eminectomy.

A CASE REPORT

A 23-year-old male patient was referred to the department of oral and maxillofacial surgery, with a complaint of chronic persistent dislocations for 1 years. The patient's general health was good. A brief history revealed that she had suffered the dislocation as a result of yawning effort and no history of previous mandibular trauma. The patient reported with complaint of inability to close their mouth, pain in and around the TMJ region during mouth opening and mastication, Clicking or popping sound of TMJ during opening and closing movements of the mandible. On examination they had difficulty in speaking, mastication, swallowing and profuse drooling of saliva, posterior molar gagging and anterior open bite, forwardly postured mandible with restricted movements, distinct hollowness can be felt in both the preauricular regions and with extremely apprehensive behavior in nature. Clinical and radiological examination of the patient revealed no pathology in bilateral TMJ (figure 1, 2).

Figure 1: Frontal aspect of the patient.

Figure 2: open-mouthed patient

He was diagnosed with anterior dislocation bilateral of the TMJ and unsuccessful attempts were made to reduce the open lock under general anesthesia and muscle relaxants in the operating room. Radiologic examination was undertaken with a computed tomography (CT), the CT showed bilateral anteriorly displaced mandibular condyles well beyond the articular eminences (figure 3). After obtaining written consent, the patient was admitted to the hospital, scheduled for surgery and submitted to bilateral eminectomies under general anesthesia.

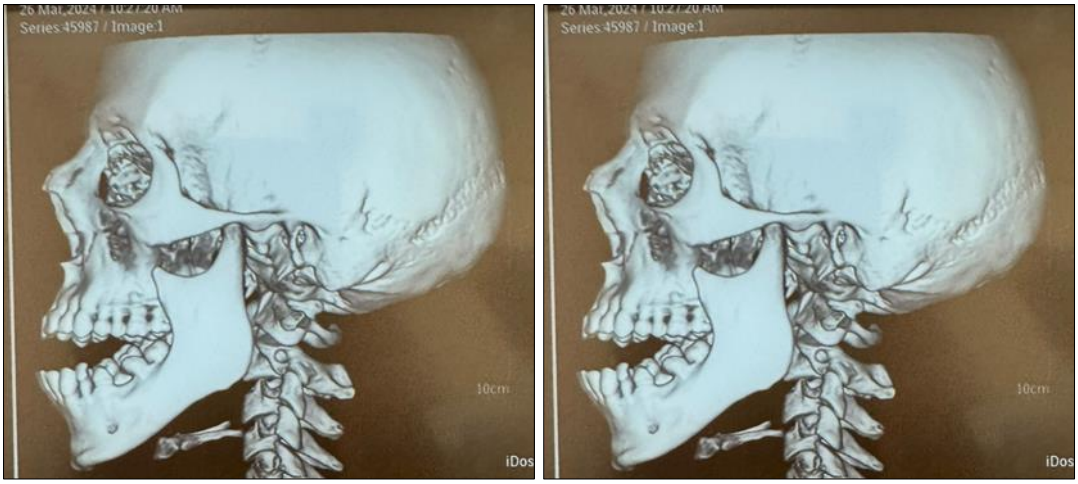

Figure 3 : Computedtomography demonstrating bilateral dislocation of the TMJ in front of the eminence ; it is an obstacle to the manual resolution of the pathology

It was planned to perform eminectomy with preauricular approach under general anesthesia. After local anesthesia, skin incision was made. Subcutaneous tissue, superficial temporal fascia, deep temporal fascia was passed with blunt dissection while protecting the external auditory canal, then the joint capsule and zygomatic arch were exposed. The tissues were lifted with a periosteal elevator on the zygomatic arch and the articular eminence was exposed. The eminence was removed by performing osteotomy in the articular eminence with piezo surgical instruments (Figure 4, 5).

Bone irregularities were corrected by a vulcanite trimming bur; especially paying attention to the medial aspect of the articular eminence. TMJ movements were checked for normalcy and following achievement of hemostasis. While the subcutaneous tissues were closed with resorbable sutures, the skin was closed primarily with prolene sutures. The procedure was applied in the bilateral TMJ region. Intermaxillary fixation (IMF) screws was retained for 3 weeks after surgery.

At the first post operatory appointment, performed 15 days after surgery, the patient referred no pain at either side of the jaw, but a moderate restriction in jaw motion skills was recorded; thus, the patient was suggested to start performing vigorous physiotherapy. The patient underwent follow-up assessments twice a month for the first 3 months and then once a month. At the 3-month follow-up appointment, jaw motion values were in line with baseline values.

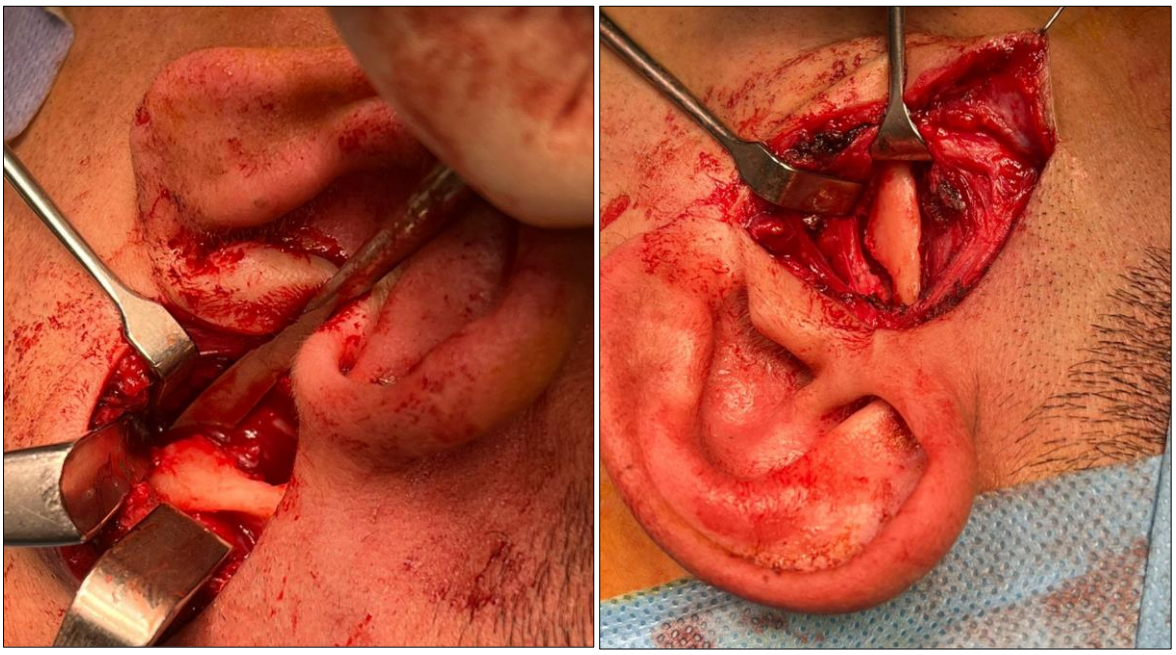

Figure 4: Exposure of the articular eminence

DISCUSSION

Literature data suggest that the lifetime prevalence of chronic temporomandibular joint dislocation is about 3–7% in the general population [14], with a strong female representation within patients' groups.

Since eminectomy was first described by Myrhaug [3], a variety of treatments for the habitual luxation of the TMJ have been developed, such as ABI [4-6], miniplate eminoplasty [7], Dautrey's procedure [8], glenotemporal osteotomy [9], and botulinum toxin injection [10]. In 1951 Myrhaug [3]. It has been described by and is reported in the literature to be an effective procedure. Removal of the eminence allows the condyle to return to the glenoid fossa without any manipulation and without pain [11, 12]. It has been reported that eminectomy is the gold standard in the presence of chronic recurrent TMJ dislocations and its success rate is more than 85%.

Kitamura *et al*., [7], compared eminectomy and other surgical treatments in terms of recurrence in patients with TMJ luxation in their study, He followed the patient for 6-36 months and found that no recurrence occurred in the cases in which he applied eminectomy.

Variations and modifications of the initial procedure have also been proposed by some authors. Gay Escoda [13], presented a series of 12 patients with eminectomy and repositioning of the temporal muscle instead of the articular eminence; he reported success in terms of the absence of dislocation recurrence and an almost 4-mm reduction in the maximum mouth opening after a year of follow-up.

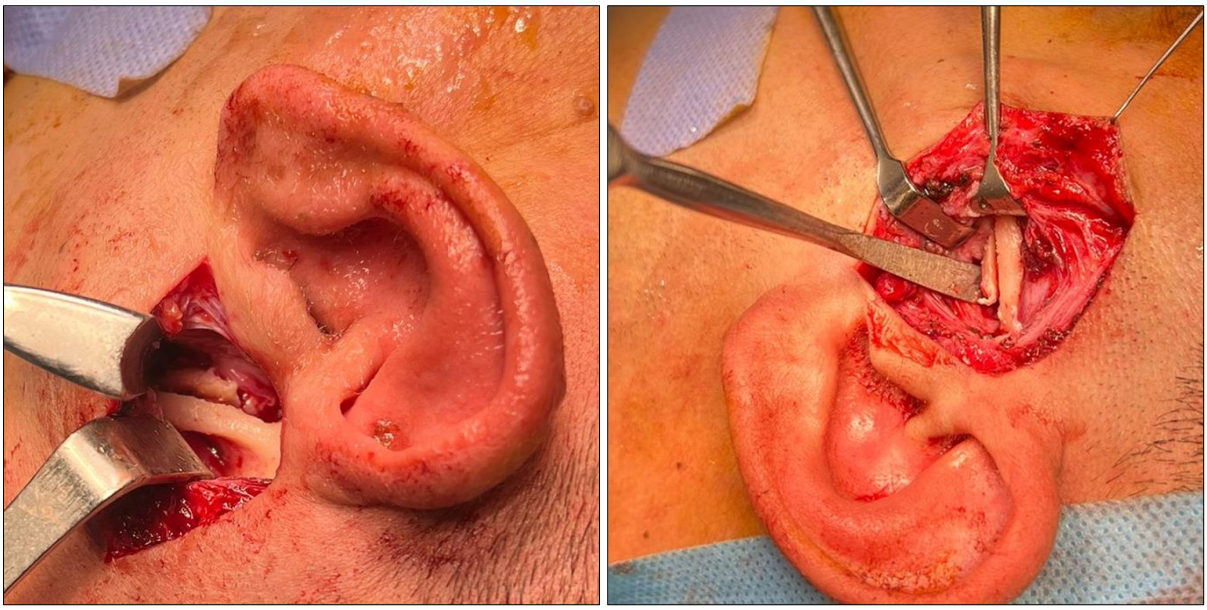

Figure 5: bilateral Osteotomy of the articular eminence using a sagittal saw with piezo surgical instruments and constant irrigation with 0.9% saline solution.

The amount of bone that should be removed is still a subject of debate. Many investigators believe that the most medial parts of the eminence must be reduced in height to prevent recurrence, persisting pain, and the development of disc displacement following surgery. Goode and colleagues, Courtemanche and Son-Hing, Helman and colleagues, and Gay-Escoda recommend completely resecting the eminence, whereas other investigators recommend only reducing the height or partial contouring of the eminence (Hale, Baumstark and colleagues, Cherry and Frew, Van der Kwast, Reich, and Cascone and colleagues) [15].

The contraindications for eminectomy are widely discussed in the literature [16]. There are a number of relative contraindications including chronic mandibular dislocations associated with a shallow articular eminence and radiographic evidence of a vascularized eminence [16]. A single, absolute contraindication to eminectomy has been noted where, in the presence of pneumatization of the articular eminence, there is an increased risk of intracranial spread of inflammation along with an increased risk of temporal bone fracture [17]. The presence of pneumatization can be identified through radiographic examination with both orthopantomogram (OPT) and computed tomography (CT) [18, 19].

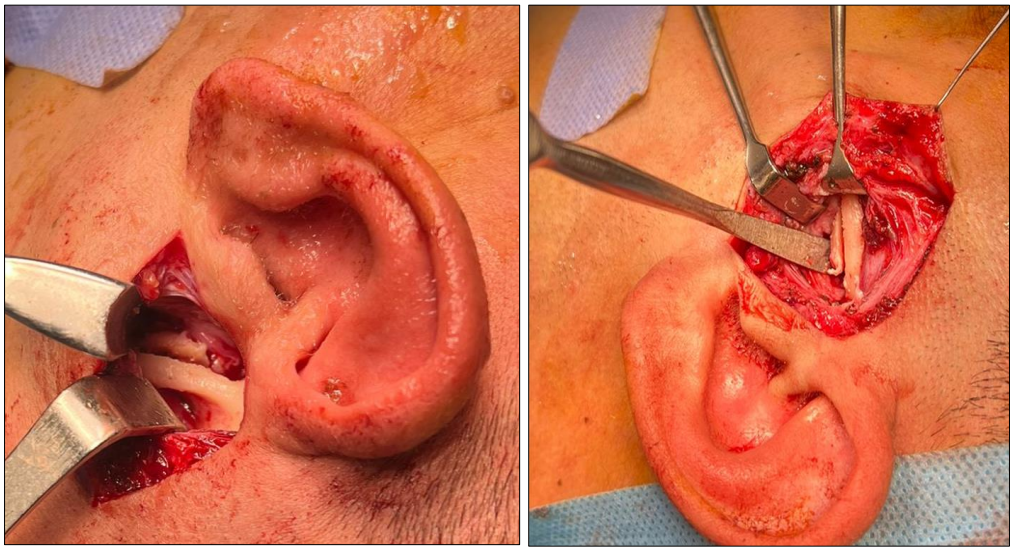

Figure 5: bilateral Osteotomy of the articular eminence using a sagittal saw with piezo surgical instruments and constant irrigation with 0.9% saline solution

Figure 6: patient check-up one-month post-op

CONCLUSION

The bilateral eminectomy applied to cases of chronic mandibular dislocations is a completely viable option, with few complications; it is currently presented as a well-known procedure that is constantly being modified to optimize the indications and their results.

Competing Interests: The authors declare no conflict of interest.

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