

Inappropriate Treatments in Temporomandibular Joint Chronic Recurrent Dislocation: A Literature Review Presenting Three Particular Cases

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Abstract: Chronic recurrent dislocation (CRD) is characterized by a condyle that slides over the articular eminence, catches briefly beyond the eminence, and then returns to the fossa. A variety of techniques have been proposed for the treatment of CRD involving tightening of the capsule with sclerosing agents, capsular plication, open condylotomy, eminectomy, and eminoplasty. In eminoplasty, to produce a barrier and eventually to incarcerate the condyle, zygomatic down-fracture, and autografts were used. Studies incorporating the use of screws and wires in the treatment of CRD have never been published. In this article, complications in three patients with CRD who were previously treated by screw eminoplasty and their treatment are presented. Three of the patients were referred to the author's clinic with reports of spontaneous and severe pain around the TMJ area. All of the patients reported in the article were treated previously by other surgeons by fixing screws on articular eminences in an attempt to limit the excursion of the condyle. Placement of materials such as screws with the purpose of creating a barrier, erosion of the articular eminence, and the anterior wall of the condyle are the major problems for this type of surgical option. The other option, as it is applied in treatment of the three cases presented, is to remove the barrier to enable spontaneous reduction, a process that is accomplished best by eminectomy.

Key Words: Arthroplasty, dislocations, disorders, eminectomy, eminoplasty, recurrent dislocations, temporomandibular joint

Anterior mandibular dislocation may conveniently be classified as acute and chronic recurrent. Mandibular dislocation may be unilateral or bilateral. The mouth is partially open, and the affected mandib-

ular condyle is impalpable. Acute anterior mandibular dislocation is common and may be post-traumatic, spontaneous, or associated with psychiatric illness. Acute dislocation is associated with pain caused by the presence of intra-articular effusion and muscular spasms.^{1,2} Acute dislocation of the temporomandibular joint (TMJ) is a condition in which the condyle moves suddenly ventral to the articular eminence and becomes locked in front of it.³ The patient cannot close the mouth and has an anterior open bite (open lock); treatment is possible by nonsurgical therapy. The Hippocratic method is still used to achieve immediate reduction of acute dislocation, facilitated if required by local anesthetics, intravenous sedation, or general anesthesia.⁴

The terms "chronic," "chronic recurrent," or "habitual" should be reserved for repeated episodic dislocation.⁴ Various forms of dislocations have been reported, including anterosuperior,⁵ medial, and lateral.⁶ Posterior dislocation is extremely rare.⁴ Caput protrusio glenoidalis—with the condyle lying within the middle cranial fossa—also is rare, and was first described in 1884 by Heath⁶ and later by Gunning⁷ and others.⁸⁻¹²

Chronic recurrent dislocation (CRD) is rare condition, and there can be anatomical predisposition to dislocation. The triad of ligamentous and capsular flaccidity, eminential erosion and flattening, and trauma is well recognized in the genesis of CRD. In such predisposed individuals, yawning, vomiting, extremes of masticatory effort, or laughing may precipitate eluxation.^{4,13} Dislocations caused by sagittal split osteotomy¹⁴ and mandibular symphyseal distraction¹⁵ also have been reported.

A review of the literature for the period 1884 to the present date shows great and increasing ingenuity in the surgical treatment of CRD, but such treatment still remains a challenge. Many techniques have been proposed for the treatment of CRD, including extra-articular sclerosing agents,¹⁶⁻¹⁸ capsular plication,¹⁹ condylar suspension by temporal fascia,²⁰ partial or complete myotomy,¹⁸ and open condylotomy.²⁰ Of the myriad procedures currently used by maxillofacial surgeons, eminectomy²¹⁻²⁹ and down-fracturing of the zygomatic arches, or augmentation of the eminence^{3,30-32} are, in all probability, the most popular and commonly preferred.

In addition to these methods, some other techniques have been performed for the treatment of CRD by surgeons; some of them were used successfully, and some of them failed. The aim of this article is to present three cases with CRD previously treated by techniques that have never been described before.

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CASE REPORTS

Case 1

A 65-year-old female patient visited our clinic with complaint of spontaneous and severe pain around the TMJ area. The patient had a long history of TMJ discomfort. Her mandible was dislocated 5 years previously when she had sneezed. Her mandible was repositioned by a medical practitioner, and in the following years she had dislocations several times and had repositioned the mandible by herself. She was referred to a clinic for the treatment of recurrent dislocations. She received surgical treatment, and 6 months after surgery, she felt pain while she was eating. The patient was edentulous; alveolar ridges were resorbed, and she was wearing a full denture. On clinical examination, her interincisal mouth opening (IO) was found to be 18 mm.

Radiographic examination revealed that two screws had been fixed on both articular eminences to restrict anterior movement of the condyle (Figs 1, 2). In this case, diagnosis was right; however, the treatment was wrong.

Under general anesthesia, the screws were removed, and articular eminectomy was performed. After the patient underwent long-term medical therapy and prosthetic rehabilitation, her symptoms disappeared.

Case 2

A 37-year-old female patient was referred to our clinic with severe pain on the right TMJ during chewing movements. Posterior parts of the maxilla and mandible were edentulous, and she was not wearing a denture. Her IO was 16 mm. Her history revealed a previous surgical treatment. Three years previously she had been referred to a clinic with the complaints of abnormal movement of the right condyle, clicking, and deviation of the mandible. Radiographs showed a screw on the right articular eminence to provide limited mouth opening; moreover, radiographic

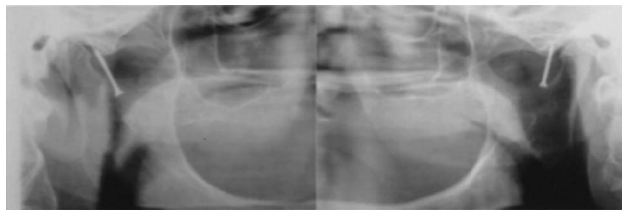


Fig 1 Anteroposterior radiograph reveals two screws fixed on articular eminences.

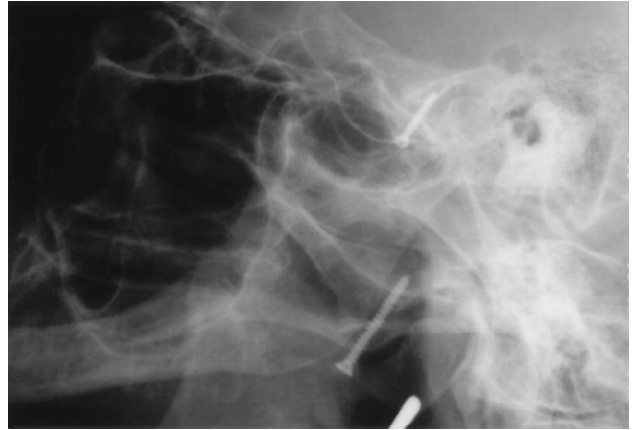


Fig 2 Lateral radiograph shows the relation of the condyle and screw.

examination revealed bone resorption on the articular eminence referring to osteolysis (Fig 3).

With the patient under general anesthesia, the screw was removed, osteolytic bone was thoroughly curetted, and eminectomy was performed. In this case, the diagnosis was wrong, as was the treatment. Her symptoms have disappeared after treatment with a suitable removable denture, muscle relaxants, and physiotherapy.

Case 3

A 67-year-old female edentulous patient was referred to our department with limited mouth opening (17 mm), pain around the left TMJ, and difficulty



Fig 3 A screw fixed on the right articular eminence. Radio-lucency on the eminence gives information about a bone erosion.

in mastication and speech. Her medical history revealed a completely different treatment approach. Four years previously her mandible had been dislocated. After experiencing recurrent dislocations, she was referred to a clinic for treatment, and she had been treated surgically. Eight months previously, the patient had felt discomfort and pain at the operated side during eating and chewing. The pain had increased gradually during jaw movements. Radiographic examination revealed a screw fixed on articular eminence, and the coronoid process was ligated to the zygomatic arch by a wire to limit the overmovement of the condyle (Fig 4). Limitation of the mouth opening was caused by the obstruction of the coronoid process. In this case, the diagnosis was right, but the treatment was wrong.

With the patient under general anesthesia, the screw and wire were removed, and bilateral eminectomy was performed. The patient was rehabilitated with a suitable denture, muscle relaxants, and physiotherapy.

DISCUSSION

The pathogenesis of CRD has been attributed to trauma and abnormal chewing movements. It is found more frequently in people with general joint laxity and in patients with internal derangement of the TMJ or occlusal disturbance.³³

A variety of techniques have been advocated for treatment of CRD. Conservative approaches have been proposed to limit the excursion of the condyle, including physiotherapy,³ splints, and even sclerosing injections¹⁶ in an attempt to cause joint fibrosis. In the surgical treatment of CRD, several techniques are popular and commonly preferred by surgeons.

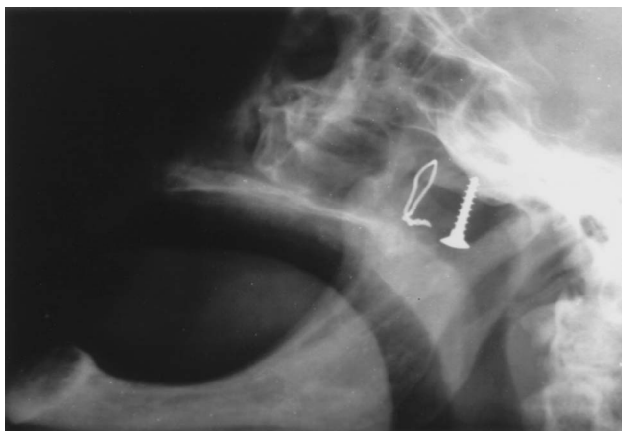


Fig 4 A screw and a wire are seen on the left TMJ area.

Some of the authors concluded that eminoplasty with down-fracturing of the zygomatic arch and bone grafting may be the predictable treatment of CRD.^{19,30,31,34} However, this operation may fail in some circumstances because of the case encountered or the operative techniques preferred. Norman and Bramley⁴ commented earlier on the phenomenon of medial escape and the apparent inability of a narrow zygomatic arch to incarcerate the condyle, particularly a small condyle. The authors⁴ also reported that in one of their patients a down-fractured arch produced a deep erosion because of a pressure atrophy of the lateral aspect of the mandibular condyle, resulting in a recurrence of the dislocation. If the operation of zygomatic down-fracture fails to incarcerate the condyle, a revision arthroplasty will clearly be needed to reclaim the situation. To produce a barrier by zygomatic down-fracture and an autograft to incarcerate the condyle may be a logical alternative when compared with the techniques of creating a barrier with screws, plates, and the variety of other inconvenient materials.

All of the patients reported here were treated previously by other surgeons by fixing screws on articular eminences in an attempt to limit the excursion of the condyle. To the author's knowledge, for the treatment of TMJ dislocation, fixing a screw on the articular eminence or wiring the condyle or coronoid process to the zygomatic arch have not been previously reported. In one of the patients, the coronoid process was ligated to the zygomatic arch by a wire to restrict mandibular movements. Mouth openings were limited and painful in all patients, and chewing was almost impossible. The pain might be caused by the close contact and resulting friction between the condylar head and screws during excursion of the condyle. The use of alloplastic materials to produce a barrier in the treatment of CRD, which has been reported previously,^{35,36} described fixation of a mini-plate to the anterior wall of the glenoid fossa. In placement of materials with the purpose of creating a barrier, erosion of the articular eminence and the anterior wall of the condyle will be the major problems for this type of surgical option. The other option, as it is applied in the treatment of the three cases presented here, is to remove the barrier so as to enable spontaneous reduction, a process that is accomplished best by eminectomy.

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