A New Surgical Approach for the Treatment of Chronic Recurrent Temporomandibular Joint Dislocation

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Chronic recurrent temporomandibular joint (TMJ) dislocation is defined as the complete loss of articular relationships, during mouth-wide opening, between the articular fossa of the temporal bone and the condyle-disk complex. The most frequent pathogenetic factors involved in chronic recurrent dislocation of the TMJ are supposed to be trauma, abnormal chewing movements, TMJ ligaments, capsule laxity, and masticatory muscles disorders. In fact, TMJ dislocation occurs more frequently in people with general joint laxity and in patients with internal derangement of the TMJ or with occlusal disturbance.

Management of TMJ dislocation remains a challenge. Eminectomy, whose validity has been demonstrated by several authors, acts on the bony obstacle, preventing condylar locking, but does not have a therapeutic effect on TMJ ligament and capsular laxity or masticatory muscle incoordination, which seem to be the real cause of TMJ dislocation in most cases.

The authors present a mini-invasive modified technique of eminectomy, which aims to act on both the obstacle and the cause with respect and restoration of TMJ biomechanical constraints.

Key Words: TMJ dislocation, eminectomy, reabsorbable device, internal derangement

Temporomandibular joint dislocation can occur as sporadic, recurrent, or chronic recurrent. The latter consists on a temporary TMJ locking sensation that either stops spontaneously or can be reduced with manual self-manipulation and occurs at almost every mouth-wide opening.1,2

The pathogenesis of chronic recurrent dislocation of the TMJ has been attributed to trauma, abnormal chewing movements, TMJ ligaments and capsule laxity, and masticatory muscles disorders. Even some drugs, such as fenotiazine3 or neurological disorders causing muscular hyperactivity (e.g., Parkinson disease), have been considered as having a role in TMJ dislocation.4

Temporomandibular joint dislocation can be found more frequently in people with general joint laxity and in patients with internal derangement of the TMJ or with occlusal disturbances.

Management of chronic dislocation remains a challenge. Nevertheless, many surgical approaches have been proposed by international literature.5-10 The goals of treatment are either to restrict mandibular translation or to remove eminence obstacle, thus preventing mandibular dislocation and locking anterior to the articular eminence, such as eminectomy, which would be the most widely accepted technique.11 Nevertheless, TMJ function is controlled by a series of biomechanical constraints that guide and condition the joint. Thus, it would be necessary act either on biomechanical constraints to restore TMJ function for proper recurrent TMJ dislocation treatment.

The authors propose a variation of the eminectomy technique acting either on the obstacle or on disk, capsule, and ligament.

CLINICAL REPORT

A 21-year-old woman with a 2-month history of 21 consecutive dislocation of the TMJ requiring manual repositioning several times first came to our observation in January 2006. She had no history of
previous mandibular traumas or dental treatments before TMJ dislocation. Moreover, she was not under any drug treatment, and she reported to be healthy. At clinical presentation, she complained about pain on both preauricular regions either at rest or during jaw movements, particularly in wide-mouth opening. Preauricular pain was accompanied by a long-lasting headache on frontoparietal and occipital regions and bilateral cervical pain, which resulted in resistant to high-dose nonsteroidal anti-inflammatory drugs. To better assess orofacial pain features, the patient was evaluated according to visual analogue scale. She reported, on the right side, a value of 80/100 for TMJ pain and tenderness, 80/100 for orofacial pain and headache, and 70/100 for cervical pain, whereas on the left side, she reported 20/100 (left TMJ pain and tenderness), 30/100 (left-sided orofacial pain and headache), and 20/100 (cervical pain), respectively. At clinical examination, her temporalis, masseter, and lateral pterygoid muscles were tender and painful to palpation bilaterally, and reciprocal clicking noises were observed during jaw movements on both preauricular regions. Intraoral examination showed no gross occlusal disturbances without edentulous regions. In addition, we only stated an anxious trait, worsened by the recurrent features of the TMJ dislocation episodes. The RX panoramic view and the TMJ stratigraphy showed an abnormally heightened TMJ articular eminence and a bilateral condylar hypermobility, particularly on the right side. Temporomandibular joint kinesiographic assessment recorded a pattern of bilateral internal derangement with an average value of 50 mm for wide-mouth opening. Thus, diagnosis of chronic recurrent TMJ bilateral dislocation with internal derangement was made, and the patient was first addressed by conservative therapy. Nevertheless, after 3 months of physiotherapy and drug treatment, she did not report any symptoms improvement. Thus, she underwent bilateral TMJ-modified eminectomy.

**TECHNICAL NOTE**

A preauricular pretragic skin incision was performed, and via blunt dissection after ligation and tying up of the temporal vessels, the root of the zygomatic arch was reached, and either the TMJ capsule or the articular eminence was exposed, and heminectomy was performed. After eminectomy, a direct vision of the hypermobility of the condyle due to ligament and capsular laxity was noted. The inferior compartment of the joint was opened, and a completely anteriorly displaced TMJ disk was found (Fig 1). Moreover, the condylar head showed surface erosions. The disk was thus repositioned over the condyle and fixed to the lateral ligament and to the lateral aspect of the condyle with a lactosorb.

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**Fig 1** Performing the eminectomy.

**Fig 2** Placement of the reabsorbable screw.

**Fig 3** Reabsorbable screw placed through the disk.
Many surgical procedures have been treated by conservative 
approach, but nonresponders have to be addressed by surgery, which results to be mandatory in 9% of cases.12 Many surgical procedures have been proposed in times, with the goals to either limit condylar hypermobility or remove the eminence obstacle.5–10 Surgical procedures that involve vertical height enhancement might occasionally be too much invasive and might have untolerated complications and a higher rate of recurrence.10,13 Eminectomy, on the other hand, is considered as having an adequate therapeutic value. Nevertheless, it only acts on the bony obstacle, thus preventing condyle locking, but does not have a therapeutic effect on TMJ ligaments and capsule laxity or masticatory muscle incoordination, which seem to be the real cause of the TMJ dislocation in the great majority of cases.

Temporomandibular joint is thought to be controlled by a series of biomechanical constraints guiding and conditioning its complex movements. The role of biomechanical constraints and their proper surgical restoration either in internal derangement or in chronic TMJ dislocation definitely influences therapeutic outcome. Furthermore, the TMJ disk is thought to be stabilized over the head of the condyle mainly by the lateral capsular ligament.14 This modified technique aims to remove the bony obstacle, and it is supposed to have also a therapeutic effect on TMJ laxity acting on biomechanical constraints.

In fact, fixation of TMJ disk and ligaments to the lateral aspect of the condylar head with the consequent natural scarring formation facilitates recovery of proper condylar mobility throughout TMJ biomechanical constraint restoration.

Furthermore, disk repositioning might prevent either recurrence based on internal derangement or long-lasting TMJ degenerative disorders.

Finally, the fixation device is very well tolerated by the patient and completely absorbed within 3 months.

This modified technique seems to be poorly invasive and widely accepted by the patient and might be indicated in patients with chronic recurrent TMJ dislocation, resistant to functional therapy, and under drug treatment in which internal derangement and capsule and ligament laxity play a major physiopathological role.

REFERENCES