Penn Medicine

CLINICAL BRIEFING™

Department of Oral & Maxillofacial Surgery • Center for Temporomandibular Joint Disease

Management of Recurrent Dislocation of the Temporomandibular Joint (TMJ)

Oral and Maxillofacial Surgeons at the **Penn Center for Temporomandibular Joint Disease** are performing arthroplastic eminoplasty to prevent recurrent dislocation of the temporomandibular joint.

Temporomandibular joint (TMJ) dislocation occurs when the condyle of the jaw moves forward, from its functional position within the glenoid fossa and posterior articular eminence to a position in front of these structures. This stretches the ligaments and muscles, provoking intense local orofacial pain.

TMJ dislocation can occur as acute or recurrent events, and each has different causes.

The etiology of acute TMJ dislocations includes factors ranging in severity from mild distress (yawning, prolonged dental procedures) to acute trauma and epileptic seizure.

By contrast, recurrent TMJ dislocation has a much more complicated etiology and a much greater impact on overall quality of life.

The origins of recurrent TMJ dislocation can be attributed to bone structure (eg, capsular weakness, internal derangement), facial morphology (diminished articular eminence, ligamentous laxity, uneven jaw growth), habit (prolonged abnormal mastication), disease (osteoporotic bone loss, systemic disorders) and a host of other internal and external disturbances.

Treatment for TMJ Dislocation

The standard treatment for acute TMJ dislocation is reduction of the mandible, a technique by which the dislocated jaw is pushed downward and backward into its normal position. TMJ reduction frequently takes place in emergency rooms under sedation or general anesthesia.

Studies suggest that outside of the acute setting, reduction and other nonsurgical approaches are ineffective because they fail to decrease the frequency of dislocation and the rate of repeat ER visits caused by persistent recurrent TMJ dislocation.

Open and arthroscopic interventions, however, have been shown to both diminish the frequency of occurrence and the intensity and duration of orofacial pain associated with chronic TMJ dislocation.

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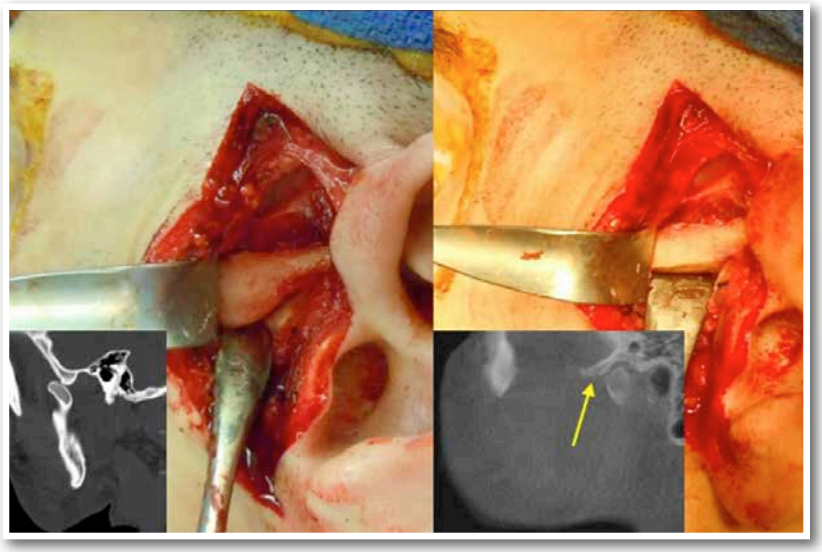

Figure 1: Left: An intraoperative exposure of the left TMJ with a prominent articular eminence and the disc and condylar protected with a retractor. CT (insert) shows a left dislocated TMJ. Right: Reduction of the articular eminence of the TMJ following eminoplasty with a diamond rasp. CT (insert) post-op, shows reduced articular eminence (arrow).

CASE STUDY: RECURRENT TMJ DISLOCATION

Mr. F, a 27-year-old male with a history of recent traumatic brain injury, presented following multiple visits to his community hospital emergency room with bilaterally dislocated temporomandibular joints.

Following his sixth visit to the ER, Mr. F required reduction of the mandible under sedation. At the time of his most recent ER visit, the providers were unable to reduce his jaw. Consequently, Mr. F was taken to the OR for muscle paralysis and TMJ reduction under general anesthesia.

Following the procedure, he was placed in inter-maxillary fixation (jaw wiring) for several weeks. When he suffered a recurrent dislocation following release from intermaxillary fixation, Mr. F was referred to the Penn Center for Temporomandibular Joint Disease.

After a discussion of his options, Mr. F opted to have an open TMJ eminoplasty. During the procedure, his temporomandibular joint was exposed. Then, while the disc and articular cartilage were shielded for protection, a diamond rasp was used to reduce the articular eminence of the glenoid fossa and create a scar along the capsule (Figures. 1 & 2).

The effect of these procedures was to diminish impedance to joint reduction. Immediately thereafter, Mr. F was placed in intermaxillary fixation for one week.

As of his one-year follow-up, Mr. F has remained free of TMJ dislocations. His jaw function remains within normal limits and he maintains a regular diet. His associated myofascial muscle pain has resolved, as well.

References

1. Undt G. Temporomandibular Joint Eminectomy for Recurrent Dislocation. Atlas Oral Maxillofac Surg. 19:189, 2011.

2. Sato, et al. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;95:390-5).

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At the **Penn Center for Temporomandibular Joint Disease**, surgeons are using an open technique, arthrosplastic eminoplasty, to treat recurrent TMJ. Eminoplasty of the TMJ involves safely scarring the articular eminence without markedly altering the bony anatomy to allow the condyle to move freely back into its normal position and prevent dislocation.[1]

The technique employs a specially designed diamond rasp to minimize bone reduction, and has the advantage of avoiding down-fracturing of the eminence.

Figure 2: Reciprocating diamond rasp used to reduce the articular eminence of the glenoid fossa of the temporomandibular joint (eminoplasty).

In studies, eminoplasty has been shown to produce clinical outcomes as effective as those obtained with the use of conventional open eminectomy.[2]

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FACULTY TEAM

The faculty at Penn Oral & Maxillofacial Surgery includes internationally known surgeons and pioneers in TMJ surgery. Penn surgeons have extensive experience in treating conditions involving the temporomandibular joint, including complex joint and combined jaw surgeries, and see one of the highest volumes of joint surgery in the country.

The mission of the Penn Center for Temporomandibular Joint Disease at the Department of Oral & Maxillofacial Surgery is to advance the understanding and treatment of temporomandibular joint disease. Finding the source of the pain to define the etiology of TMJ is one of the Center's key services. In addition to practical evaluations, diagnostic tools include Panorex, MRI and CT imaging.

Treatment at the Center is directed at the origin of pain. The first-line therapy for TMJ disorders is short-term conservative management. Patients who continue to have symptoms of TMJ disease or progression despite optimal conservative management may benefit from interventional therapy.

Treating Recurrent TMJ Dislocation at Penn Medicine

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FY19-050819_000