Oral and Maxillofacial Surgeons at the Penn Center for Temporomandibular Joint Disease are performing procedures both arthroscopically and through open approaches in order to prevent recurrent dislocation of the temporomandibular joint (TMJ).

Temporomandibular joint (TMJ) dislocation occurs when the condyle of the jaw moves forward, out of its functional position within the glenoid fossa and posterior articular eminence, so that the condyle is anterior to the eminence. This stretches the ligaments and muscles, provoking intense local orofacial pain. TMJ dislocation should not be confused with subluxation, a similar, but self-limiting condition that often resolves spontaneously.

Acute TMJ dislocation can be caused by factors that range in severity from mild distress (yawning, prolonged dental procedures) to acute trauma and epileptic seizure.

Recurrent TMJ dislocations, by comparison have a much more complicated etiology, and a much greater impact overall on quality of life. The origins of recurrent TMJ dislocation are as often endogenous as they are extracorporeal. Recurrent dislocation can be attributed to the structure of the TMJ (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 aberrations.

The treatment for acute and recurrent TMJ differs, as well. A 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, however, that reduction and other nonsurgical interventions generally fail to decrease the frequency of dislocation or 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. At the Penn Center for Temporomandibular Joint Disease, surgeons are using an open technique, arthroplastic eminoplasty, to treat recurrent TMJ. Eminoplasty of the TMJ involves safely scarring the articular eminence without markedly altering the bony anatomy to

CASE STUDY

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 Center for Temporomandibular Joint Disease at Penn Medicine.

After a discussion of his options, Mr. F opted to have an open TMJ eminoplasty. During the procedure, Mr. F's 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 (Figs. 1 & 2, next page). The effect of these procedures is to diminish impedance to joint reduction. Mr. F was placed in intermaxillary fixation for one week following the procedure.

As of his 1-year follow-up, Mr. F has remained free of TMJ dislocations. His jaw function remained within normal limits and he maintains a regular diet. His associated myofascial muscle pain resolved.
allow the condyle to move freely back into its normal position and prevent dislocation.\textsuperscript{[1]} The technique, which employs a specially designed diamond rasp to minimize bone reduction, has the advantage of avoiding down-fracturing of the eminence. In studies, eminoplasty has been shown to produce clinical outcomes as effective as those obtained with the use of conventional open eminectomy.\textsuperscript{[2]}

\textbf{References}

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

\textbf{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.

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