Many patients who seek treatment of symptoms relating to a craniomandibular disorder have an internal derangement of the TMJ. It has been defined by Helms et al. as an abnormal relationship of the articular disk to the mandibular condyle, fossa, and articular eminence, with the disk usually displaced anteromedially.\(^1\)

In order for the disk to be displaced, there must be a deformation of the borders of the articular disk, causing it to lose its normal self-seating capacity. In addition, sufficient damage to the collateral diskal ligaments must be present to allow sliding movement to occur between the disk and the condyle. The degree of displacement is related to the extent of deterioration of the ligaments. These conditions can occur instantaneously as a result of a traumatic injury or gradually due to functional and parafunctional overloading of the joint.\(^2\,3\)

Internal derangements occurring during the course of a normal transatory cycle may be classified as follows:

1. Partial anterior disk displacement,
2. Anterior disk displacement with reduction,
3. Anterior disk, displacement with intermittent locking,

Some of the less severe cases of an internal derangement will respond to the temporary placement of the mandible into a protrusive position to allow the disk to regain a functional relationship with the condyle and eminence, thereby allowing some healing to occur in the joint structures. Anterior repositioning splints are often used to achieve this objective. They are usually hard acrylic appliances with “hills and valleys” or a ramp to guide the mandible into the desired therapeutic position and can be fabricated for either the maxillary or the mandibular arch.

A frequently used repositioning appliance is the MORA, which has high patient acceptance because of its small size. The MORA is a partial coverage appliance and consists of two pads of acrylic, which sit on the mandibular bicuspids and molars and are connected by a metal lingual bar.\(^4\) It is more esthetic than other splints and usually does not present any great problems while speaking or eating. Since it is worn only on the lower arch, the MORA does not bind any cranial sutures.

There are, however, definite disadvantages to the use of the MORA:
1. It is difficult to construct a guide ramp to direct the mandible into a protrusive position.
2. During sleep or while reclining, the mandible can retrace even with the appliance in place.
3. With prolonged wearing and/or heavy clenching, there may be intrusion of posterior teeth.
4. Eruption of mandibular incisors may occur if contact between the maxillary and mandibular incisors is not achieved during function.
5. Disclusion of posterior teeth may be difficult to obtain during eccentric mandibular movements.
6. In patients with an anterior open bite, anterior guidance cannot be achieved.

To overcome these disadvantages, the original MORA has been modified at the UMDNJ TMJ and Orofacial Pain Center by incorporating the mandibular cuspids into the design. This added occlusal support reduces the possibility of intrusion of posterior teeth. It also facilitates disclusion of posterior teeth during mandibular excursions which, according to Williamson and Lundquist,\(^5\) will reduce the EMG activity in the anterior temporalis and masseter.
A maxillary anterior resistance appliance (MAR) is also used at night to supplement the MORA, which is worn only during the waking hours. The MAR appliance covers all of the maxillary teeth but maintains contact only against the mandibular incisors and cuspids. However, it can be easily modified to the needs of the patient and serves several functions.

Figure 1–3
Existing centric occlusion.

Figure 4–6
MAR appliance with cuspid rise and molar contacts.
1. It allows the mandibular posterior teeth to "recover and rebound" from any intrusive force induced by the MORA. This is particularly important when the patient is a heavy clencher.
2. EMG activity of the anterior temporalis and masseter is reduced during eccentric movements of the mandible.
3. The appliance achieves anterior guidance in patients with an anterior open bite.
4. A guide ramp can easily be incorporated to encourage a protrusive mandibular position.
5. Should excessive joint loading with reported discomfort occur as a result of heavy clenching, molar stops can be added. The UMDNJ protocol generally starts the patient with the MAR appliance on a full-time basis for one week to deprogram the muscles. Then the MORA is placed for daytime use, with the patient continuing to wear the MAR at night. Finally, the MAR may be modified by placement of a ramp and/or molar stops according to patient need. This sequence can be modified depending upon the category of internal derangement.

Case Presentation

A 32-year-old woman presented for evaluation and treatment with a chief complaint of sharp, stabbing, almost constant pain in and around the left ear. The pain had been present for about 10 days and had started suddenly. Antibiotics did not alleviate the pain and an ear examination was negative. Extraction of the mandibular left third molar failed to reduce the symptoms and narcotic medications brought little relief.

Examination of the patient revealed slight swelling and tenderness to palpation over the left TMJ area. Palpation via the external auditory meatus was moderately painful. A click in the left TMJ at terminal closure and at 29 mm of opening was detected by a stethoscopic examination. Transcranial radiographs were negative.

Diagnosis

The patient was diagnosed as having capsulitis and synovitis of the left TMJ and an anterior disk displacement with reduction.

Treatment

The patient was immediately placed on 200 mg of Clinoril twice a day for one week. Improvement was noted after two days and a course of occlusal splint therapy was started four days after the initial visit (Figures 1-14). Physiotherapy and stress reduction using biofeedback were used along with appliance therapy. After two months of treatment, the symptoms were significantly reduced.

In order to be successful, splint therapy must be based upon an accurate diagnosis with specific treatment objectives in mind and should be coordinated with other forms of treatment when indicated.

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References


In Memoriam

Harry B. Stapler

Harry Stapler, renowned journalist and editor, died April 30, 1987, in Sutons Bay, Michigan. Mr. Stapler had been instrumental in helping establish The Journal of Craniomandibular Practice.

Mr. Stapler received his B.A. in economics from Wooster College in Wooster, Ohio, and M.A. in journalism from Central Michigan University. He served as a U.S. Navy photographer during World War II and later worked for the Associated Press and several Michigan newspapers.

In 1962 he founded the Towne Courier in East Lansing, Michigan, and served as editor and publisher until 1973. In 1971, the paper earned a record nine National Newspaper Association awards. He was associated with several other papers and earned many honors and awards for his outstanding work.

He had taught at Ferris State College in Michigan and at Michigan State University. In 1982 he joined the University of Florida, Gainesville, as assistant professor of journalism. He was promoted to associate professor in 1986, and his tenure at the University of Florida had been announced just prior to his death. He was also executive director of the Florida Scholastic Press Association and director of its Summer Journalism Institute for high school students.

Mr. Stapler had served as a consultant for numerous publications. At the time of his death, he had returned to Michigan for his fourth summer as editor of the Traverse City Record-Eagle’s Summer Magazine. He also helped redesign newspapers in Michigan, Florida, Ohio, and elsewhere.

Mr. Stapler had been Editorial Consultant for Cranio since 1982. He provided expertise and many practical suggestions in getting the journal started, and he guided Cranio’s early staff through design, layout, and paste-up of the first issues. He had also helped redesign the journal after its second year. His recommendations over the years had always been thoughtful and innovative.

Expressions of sympathy may be made in the form of donations to the:

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