

Maxilla to Mandible

Fall 2004

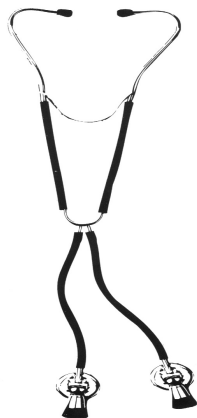
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General Dentistry practice limited to

Temporomandibular Disorders, Orofacial Pain, Oral Reconstruction

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Editorial

Patients who suffer from head, neck and facial pain present a challenge in both diagnosis and treatment. Case management, to be successful requires a multidisciplinary approach which should include a dentist skilled in the field of orofacial pain.

Dentists play a vital role in the management of head, neck and facial pain beyond the traditional role of teeth and their supporting structures. Some dentists have developed skills within the scope of professional licensure to diagnose and treat painful disorders of musculo-skeletal, vascular and neurological origin. As a result dentists bring specialized diagnostic and treatment skills to a health care team.

The temporomandibular joints can play a significant role in the complex area of pain syndromes. As part of the masticatory guidance

system, the joints may be adversely affected by factors such as dental malocclusion, and repetitive strain injuries to the soft tissue, which include direct and indirect blows to the face and jaw. Clinical evidence strongly attributes onset of symptoms from whiplash injuries. Pain and dysfunction is often present delayed for months before the patient finally seeks treatment.



Patients seeking relief will often first report to the dental office. The pain symptoms may be primarily a temporomandibular dysfunction, exacerbated by stress, malocclusion or other odontogenic factors, or it may be only part of the main problem.

The pain may also be primarily non-dental in nature, derived from other factors such as circulatory, neurological, neoplastic, or endocrine. Working in a multidisciplinary team, the trained dentist collaborates with other clinical specialists and, in conjunction with medical colleagues, directs the patient's treatment protocol from the beginning to the successful end of treatment. Modern dentistry can often provide the "missing link" for

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the successful diagnosis and treatment of people suffering from headaches, neck aches and facial pain.

TMD Treatment of Adolescents

This is the first randomized clinical trial to evaluate and compare the effects of different treatments on TMD in adolescents. After 122 patients aged 12-18 years were treated with an occlusal appliance plus brief information, relaxation therapy plus brief information, or only brief information, they were evaluated after six months. Overall, occlusal appliance combined with brief information therapy was superior to the other two methods in reducing both the intensity and frequency of pain.

About two-thirds of the patients had attained a 50% or more pain reduction compared to 32-23% in the other two groups, respectively. Differences in compliance and a limited number of relaxation training sessions (four) may have attributed to the difference between appliance and relaxation therapy. However, there were no differences found between the treatment groups in jaw opening or in muscle/TMJ tenderness.

Acta Odontol Scand 61: 203-211, 2003.

TMJ Pain & Joint Effusion

According to this study of 61 patients with TMJ pain, clinical examination is accurate when predicting joint effusion found with magnetic resonance imaging (MRI). Using six main indicators (pain with lateral palpation, with

posterior palpation, during motion, and during maximum assisted opening, as well as clicking and crepitus sounds), the prediction accuracy was ~79%.

The most reliable predictor of effusion was the presence of pain with lateral palpation. Therefore, MRI may only be required in cases in which the exact relationship needs to be determined.

Oral Surg Oral Med Oral
521-526, 2003.



Pahtol Oral Radiol Endod 96:
521-526, 2003.

Mandibular Adaptive Repositioning

This study focuses on adaptation made by the mandible when maximum intercuspation (MI) and centric relation (CR) are not in harmony. This adaptation, called mandible adaptive repositioning (MAR), occurs because MI is favored by muscles for protection of the teeth. MAR may lead to stomatognathic autodestruction (SAS), which can cause a variety of TMJ dysfunctions. Bruxing and/or clenching can lead to additional problems.

To diagnose this condition, it is important to conduct a thorough analysis of occlusal function, including use of an adjustable articulator and physical examination of the TMJ's and stomatognathic muscles. This analysis reflects mismatched occlusal planes, MAR, parafunction and the status of the TMJ's and muscles.

Treatment should be designed to eliminate the causes of MAR. This effort can include equilibration, orthotics and reconstruction. With orthotics, long-term positive results do not take place unless the mandible is moved into optimum CR and the MI is adjusted from time to time. Orthotics have to be used continuously to eliminate MAR and achieve the result of reversing SAS.

Gen Dent Jan-Feb: 62-67, 2003

Craniomandibular Disorder in Males & Females

Craniomandibular disorder is more prevalent in females than males. This study showed that this trend may be due to differences in muscle endurance between sexes. Both fatigue and recovery ratios were much higher in females than males, especially for the masseter muscle, which may be due to a difference in muscle thickness and distribution of muscle fiber types.

J Oral Rehabil 29: 575-582, 2002

Post-Traumatic TMJ, Internal Derangement & Facial Growth

Twenty-five patients 14 years old or younger who had undergone trauma to the face or mandible were followed for five years after being treated by physiotherapy. A majority of patients had at least one abnormal and internally deranged TMJ, with some showing a mandibular asymmetry with chin deviation from the midline to the smaller or more degenerated TMJ. Of the eight retrognathic patients, five were found to have bilateral TMJ derangement.

Because fractures can cause sudden changes in vertical dimension within either the joint space or the mandibular condyle and may go undetected with radiography, it is important to use other imaging methods like magnetic resonance or

computed tomography. If such fractures go untreated, asymmetries and/or malocclusions may occur.

J. Chin Pediatr Dent 27: 297-303, 2003

Determining Presence of TMJ Osteoarthritis

A six-degrees-of-freedom measuring device (consisting of six high-resolution linear CCD cameras, a computer, etc.) and helical computed tomography were used to evaluate 25 patients with Angle Class I and Class II. There were significant differences in antero-posterior, supero-inferior and absolute lateromedial incisal and condylar intercuspal position (IP)-retruded contact position (RCP) slides due to the uni/bilaterality of bone change and different kinds of condylar bone change. The erosion subgroup showed large posterior and absolute latero-medial condylar IP-RCP slides, whereas the osteophyte subgroup showed a large posterior condylar IP-RCP slide.

Hard and soft tissue morphological changes were attributed to these results since the erosion and osteophyte subgroups showed high ratios of anterior disk derangement without reduction. Thus, the condyles might be free to move due to the stretching and deformation of their articular disks, ligaments, and capsules. The large condylar IP-RCP slides may therefore be useful as clinical indices of TMJ osteoarthritis as large incisal IP-RCP slides are.

J Craniomandib Prac 21: 240-247, 2003.

TMD, Occlusion & Orthodontic Treatment

Female patients with Class II malocclusion who received orthodontic treatment were compared to untreated patients and patients with normal occlusion. Two years later all three groups had some degree of TMD and an increase in joint clicking. The orthodontic group showed a decrease

in functional occlusal interference whereas the other groups did not show any change. This decrease, along with a better occlusal stability, may have contributed to an early decrease in the prevalence of tender muscles. Overall, orthodontic treatment did not increase the TMD signs and symptoms.

Individually, the degree of TMD fluctuated substantially over time with no predictable pattern. Therefore, the authors recommend a conservative treatment approach should be considered when treating children and adolescents. However, on a group basis, the type of occlusion may contribute to the development of TMD.

J Orthod 30: 129-137, 2003.

Temporomandibular Opening Index vs. Linear Mouth Opening

The temporomandibular opening index (TOI), which is calculated from measurements of the maximum voluntary oral opening and passive oral opening, overcomes limitations with using linear mouth opening. The latter is dependent on such variables as age, gender and ramus length.

This study found that the TOI is independent these variables, as well as gonial angle. The TOI also can differentiate various categories of TMD patients more effectively than conventional methods using mouth opening, including the type of muscle group. Other advantages of TOI are its simplicity, quickness and cost effectiveness. TOI can also be used to follow treatment progress in certain TMD patients.

Another study found as the TOI decreased, treatment success increased. As treatment progressed, the mean TOI approached that of patients without TMD. The lower TOI values were attributed to a reduction of muscle hyperactivity,

which led to a lowering of pain and fatigue with an increase in voluntary opening.

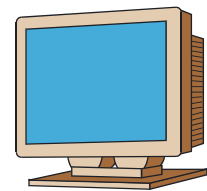
J Oral Rehabil 30: 1195-1199 & 668-670, 2003.

Management of Traumatic Dislocation of the Mandibular Condyle into the Middle Crania Fossa

Although traumatic dislocation of the mandibular condyle into the middle cranial fossa is rare, it can be life threatening and thus must be carefully managed. Potential clinical signs include a history of severe trauma to the chin, limitation of jaw mobility, and deviation of the chin toward the side of injury. A neurological consultation involving computed tomography is mandatory if loss of consciousness, nausea, evidence of cerebrospinal fluid leak, paralysis of facial muscles, or deafness occurs.

A total of 33 cases of this type of dislocation have been reported, with the average age of around 25 years and nearly twice as many females. Motor vehicle accidents are the primary cause of injury, followed by bicycle accidents. Because injuries to the middle cranial fossa are easily overlooked, a thorough clinical examination is required. Treating this injury usually requires closed reduction surgery and, if this procedure fails, open reduction may be needed. Long-term follow-up is required because of the potential for developing craniofacial asymmetries and TMD.

J Can Dent Assoc 68: 676-680, 2002



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