Maxilla to Mandible

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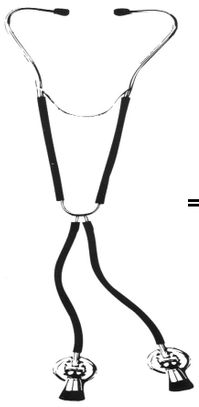

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Topics In This Issue

Editorial

A conservative treatment for snoring and mild to moderate sleep apnea is to make a dental appliance for patients to wear during sleep. Appliances are light and easy to wear. Its purpose is to move the lower jaw forward and downward, causing a positive change in jaw and/or tongue position which opens the airway. An appliance worn during sleep helps prevent the airway from collapsing by creating extra airway space.

Our office refers patients to a sleep physician for a complete medical assessment when we believe our patient may have a sleep disorder. In other cases patients are referred to us by their physician or sleep specialist. As a member of the sleep team, we perform an intra-oral exam to determine if the patient is a sleep appliance candidate. Along with a complete medical and dental history, the exam may also include:

- a screening questionnaire,
- intra-oral habit assessment
- checking gag reflex
- evaluating periodontal health
- diagnostic models
- orthopedic exam
- TMJ disorder/occlusal exam

Because the lower jaw moves in multiple directions (vertically, anteriorly, posteriorly, laterally and with rotation), it is important to establish the best position of the lower jaw to increase the airway. We make full arch impressions for the laboratory to fabricate a airway dilator appliance which is customized and completed in the patients mouth.

Advantages of an airway dilator over other therapies include:

- cost effectiveness
- good patient acceptance
- non-invasive
- reversible

For patients who snore, snore with mild sleep apnea, have mild to moderate apnea, have apnea but cannot tolerate CPAP and refuse surgery, or have found both CPAP and surgery to be unsuccessful; an airway dilator appliance is a conservative and often successful alternative.

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Relationship Between Overbite/Overjet and Clicking or Crepitus of the TMJ

Numerous signs and symptoms are associated with TMD including joint sounds, limited range of motion, deviation on opening, and pain. TMJ joint sounds are the most frequently reported symptom of TMD in the general population. Joint sounds are more frequently associated with pain and severe TMD. It has been hypothesized that malocclusion may promote TMD.

The focus of this study was to determine "whether overbite and overjet are risk factors for the development of TMJ." The authors performed a cross-sectional study of 3,033 subjects investigating the relationship between overbite and overjet and the presence of joint sounds/crepitus. Results indicated that when there is control for age and gender, overbite and overjet were not risk factors for the development of TMJ joint sounds. The authors conclude that wide ranges of overbite and overjet are compatible with normal TMJ function.

J Orafac Pain 19: 218-225.

Dr. Wexler has 28 years experience in the field of jaw treatment. He is a Diplomate, American Board of Orofacial Pain, member of the American Academy of Craniofacial Pain, American Academy of Orofacial Pain, American Headache Society, and the American Academy of Dental Sleep Medicine. He is a Fellow of Academy of General Dentistry, member of the Canadian and Ontario Dental Associations and the Ottawa Dental Society. His practice is limited to treatment of temporomandibular disorders and orofacial pain.

Bite Force Determination in Adolescents With and Without TMD

Measurement of maximum bite force may be an indication of the total force of jaw closing muscles. In patients with TMD, this bite force would be expected to decrease because of dysfunction of the orofacial musculature. The aim of this study was to compare bite force in adolescents with and without TMD. The influence of gender, age, height and weight was also examined. Twenty boys and 20 girls were broken into a control and TMD group, each containing equal numbers of subjects of each gender.

Subjective symptoms were assessed via a self-report questionnaire and objective symptoms were assessed via clinical examination. Two scaled measurements were assessed; Dysfunction index (DI) measures limitations, pain and deviation in mandibular movement, as well as TMJ noise and pain; the Palpation index (PI) measures the prevalence of muscle tenderness.

It was found that overall, patients with TMD exhibited smaller values for bite force when compared to controls. Girls, but not boys, were significantly affected by TMD, with a significantly lower bite force value compared to controls. Also, girls with TMD had reduced bite force compared to boys with TMD. No significant correlation was found between bite force and age, height or weight. A significantly negative correlation was found between bite force and both PI and DI. Bite force magnitude may be multifactorial in nature.

J Oral Rehabil 32: 577-583.

Signs and Symptoms of TMD in Patients Who Received Orthodontic Treatment in Childhood

There is currently an ongoing debate that orthodontic treatment during childhood increases the likelihood of development of TMD signs and symptoms later in life. A number of studies have been published that demonstrate TMD signs and symptoms are neither increased nor decreased following active orthodontic treatment.

The aim of the present study was to determine the long-term outcome of orthodontic therapy on the development of TMD signs and symptoms. The original sample population consisted of 50 consecutive patients that had undergone orthodontic treatment between 1981 and 1983. Patients were treated mainly by fixed appliances with or without extraction of premolars. 3 patients from the sample were treated with activators.

At approximately 17 years following active orthodontic therapy, an attempt was made to contact the patients from the original study and determine whether the original sample population exhibited an increased prevalence of TMD. The results demonstrated that, in general, most patients were satisfied with orthodontic treatment received during childhood. Furthermore, orthodontic outcomes were successful in achieving treatment goals.

61% of individuals reported no TMD signs or symptoms throughout the entire follow-up period. 18% reported problems associated with the masticatory system requiring fabrication of an interocclusal appliance at some point during the follow-up period. At follow-up, 3 patients had TMD signs and symptoms that required some form of treatment.

The authors concluded that the incidence of TMD following orthodontic treatment was low, confirming results from previous published studies.

Angle Orthod 75: 645-650.

MRIs of the TMJs of Patients with Acquired Open Bite

Cases of developing anterior open bites have been noted in a cohort of patients who have utilized a flat-surface splint for the treatment of TMD. The authors attempted to determine if the development of anterior open bite was due to use of the splint or possibly some other undiagnosed rapid destructive joint disease.

Thirteen subject with developing anterior open bites due to TMD disorders (as opposed to other conditions such as tongue thrusting) were screened and included in the study. TMJ magnetic resonance images were taken. From these images, disk position was classified as normal or anterior, the presence or absence of osteoarthrosis was determined, disease was classified as active or inactive, and condylar destruction was classified as horizontal, oblique, or other.

All the included patients experienced common symptoms of internal TMJ derangement. All had anteriorly affected disks and degenerative changes. Horizontal condylar destruction was most often noted, but oblique and “other” destructions were noted. The authors conclude that the development of anterior open bite is not linked to use of a flat-plane splint, but may be associated with bilateral horizontal condylar degeneration and non-reducing displaced disks.

Oral Surg Oral Med Oral Pathol Oral Radiol Endod 99: 734-42, 2005.