The Consequences of OMDs

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The consequence of a freeway space open beyond the normal range for 6 or more hours per day due to airway interferences or allergies can result in changes to the dentition that can take three basic forms: (1) when the tongue assumes a forward, interdental rest posture with mandible hinged open, posterior teeth can over-erupt while anterior teeth are inhibited from further eruption because of the interposed tongue. This process is known as "differential dental eruption" [3,4], the result of which is an anterior open bite. (2) The second scenario of additional, unwanted dental eruption with the mandible hinged open, occurs when the tongue at rest is splayed over the occlusal surface of all mandibular teeth. In this scenario, upper teeth can continue to erupt downward and forward, following their normal curvilinear path of eruption while the lower teeth do not undergo any further vertical eruption. The result is the development of a Class II malocclusion with maxillary incisor protrusion [4]. (3) In this scenario, the mandible is habitually hinged open and the blade of the tongue follows the mandible and is repositioned inferiorly. When this occurs, the tongue loses the normal balancing and opposing pressure relationship with the cheek muscles in maintaining the position of the maxillary posterior dental arches. The buccinator complex of cheek muscles become more activate when the tongue is repositioned inferiorly with the mandible. Over time, the maxillary posterior dental arch narrows to create a posterior maxillary crossbite. The hard palatal vault may also appear to be heightened as the maxillary lateral dental arches are displaced downward along with the narrowing of the maxillary posterior arch segments [3,4].

When unwanted additional dental eruption occurs as in scenarios (1) and (2), the roots of teeth are not further exposed during the over-eruption process because the supporting alveolar bone follows along. This process is termed "vertical drift" of alveolar bone [4].

With the mandible habitually hinged open, changes in facial and oral structures can develop that may include, variably, a high and narrow hard palatal vault, posterior dental crossbite, a recessed chin, mandibular retrognathia, a short upper lip, lip incompetence, and hyperactive/strained mentalis muscle activity.

Conversely, some patients have a habit pattern of clenching that involves keeping the bite closed for hours per day. Closure of the normal freeway space for extended periods can lead to dental trauma and dysfunction of the temporomandibular joint apparatus [2]. Altogether, a change in the normal resting dental freeway space, either too far open or closed, can create negative consequences in dental eruption or the position of teeth.

While an open resting posture of the mandible with a forward resting tongue posture is the primary link with the development of selected dental malocclusions, the functional activity of tongue thrusting continues to be blamed by some clinicians inappropriately for the dental changes often seen [4]. The reasons for this are logical: tongue thrusting during speaking or swallowing is easily observed, while an accompanying abnormal open rest posture of the mandible is easy to miss in evaluations. Consequently, tongue thrusting continues to be incorrectly linked with any dental alignment changes observed. The false claim of dental changes resulting from tongue thrusting will likely continue until the proper roles of resting abnormal postures of the mandible and tongue in creating malocclusions are understood, accepted and appreciated [4].

References

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