How might dental eruption be affected by an orofacial myofunctional disorder?

A perspective related to how dental eruption might be affected by an orofacial myofunctional disorder can be appreciated and understood if one first distinguishes between: 1) A functional orofacial myofunctional disorder; and 2) a postural orofacial myofunctional disorder.

In the first instance, a functional orofacial myofunctional disorder would not affect dental eruption since the pressure applications of whatever functional activity is involved are too short in duration to change dental alignment. Also, the amount of intermittent force applied by any functional orofacial myofunctional disorder is also insufficient to move teeth; thus, short-term functional disorders such as an abnormal swallow pattern characterized by an interdental protrusion of the tongue are not going to change the alignment of teeth. In all, functional activities referred to as OMD's can be said to represent "opportunistic" behaviors in which a dental alignment condition was present first, and the tongue has then exhibited a behavioral pattern that is viewed as an adaptive response to the abnormal dental alignment seen, such as filling a dental space with the tongue tip during swallowing or speaking.

In the second instance of a posture-related orofacial myofunctional disorder, dental changes can be created by long-term (6 or more hours per day) abnormal postures of the mandible, tongue and lips. One example is a condition in dentistry described as "differential dental eruption"; that is, eruption occurring differentially within the maxillary dental arch, meaning that the dentition in one part of the maxillary dental arch is signaled by the brain to restart a process of dental eruption, while no further eruption occurs in another part of the dentition. If, for example, the mandible is habitually hinged open at rest and the tongue protrudes interdentally, and the vertical rest dimension (the freeway space) is opened beyond the normal range for hours per day, this posture signals the brain to restart dental eruption. The dental result is posterior teeth continuing to erupt while anterior teeth cannot erupt further due to the presence of the resting tongue interdentally. The result of this abnormal posture and additional, unwanted posterior eruption is an anterior open bite that occurs because, as the mandible closes down, the posterior segments then contact sooner, and an anterior open bite is the dental result.

In another scenario where the mandible is habitually hinged open while the margins of the tongue splay over all occlusal surfaces of lower teeth, with the mandible again hinged open beyond the normal range, the brain is again signaled to restart eruption of the entire upper dentition, while no further eruption of lower teeth will occur. This scenario involves dental eruption" involving all maxillary dental segments erupting equally. Since the eruption pattern of upper posterior teeth follows a downward and forward curvilinear pattern, the result over time is the development of a Class II division 1 malocclusion.

If the two dental alignment scenarios can be identified early in the mixed or adult dentition, and if the freeway space is normalized in therapy, these abnormal dental conditions can be avoided. This question highlights the importance of evaluating and treating an abnormal rest posture of the mandible and tongue, and also highlights the importance of correcting a freeway space open beyond the normal vertical rest dimension that can signal the brain to initiate additional dental eruption. Establishing or recapturing a normal freeway space should be a primary goal of orofacial myofunctional therapy. Prior to any therapy, the posterior airway needs to be cleared of all interferences for any subsequent therapy intervention to be successful.

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