Commentary

A review of: Ambiguities of Angle's classification, by Donald J. Rinchuse and Daniel J. Rinchuse (1989)

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Ambiguities of Angle's Classification

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In this article, Drs. Donald and Daniel Rinchuse share their research on the evolution of Angle's system of classification of dental occlusion, point out its weaknesses and suggest that it might be upgraded to a more accurate classification system. Both authors are Associate Professors of Orthodontics at the University of Pittsburgh and are engaged in private practice. Their article is directed primarily at orthodontists. However, the information is also of value and interest to the orofacial myologist who is concerned with relationships between structures and functions.

The authors acknowledge the widespread use of Angle's system in practice and in the literature and its acceptance by the legal profession. Of interest is their review of Angle's publications and the changes over time in his ideas about occlusion. In 1900, Angle wrote that all teeth should be accounted for when considering occlusion. He assigned special significance to the maxillary permanent first molars and maxillary permanent canines. From these, the mesio-distal interarch relationships could be determined. Later, in 1907, he emphasized the maxillary first molars only as the key to occlusion. He assigned them this status for their size, firmness of attachment, key location, crown length, "normal" position, effect on neighboring teeth, consistency in their timing of eruption and their "locking" with the mandibular first molars.

The article includes a review of Angle's criteria for normal occlusion and malocclusion. Yet, in quoting Angle, the Rinchuses clearly illustrate his ambiguity. In normal occlusion (Class I), the mesiobuccal cusp of the upper first molar occludes in the buccal groove of the lower first molar. Angle defines Class II and Class III malocclusions, respectively, as distal and mesial locking of the lower first molar with the upper first molar to the extent of more than one-half width of one cusp on each side. How, then, the Rinchuses ask, should an occlusion be classified which is less than one-half cusp? Which of the three available classifications describes asymmetrical lateral halves where there is mesial migration on one side and distal migration on the other?

Angle's theories have other shortcomings. Modern cephalograms show that the position of the upper first molars in relation to other skeletal landmarks is not relatively immutable as Angle proposed. "Facial harmony and balance" do not depend on preservation of all permanent teeth in a Class I relationship. Charles Tweed and others demonstrated successfully that positive results could be achieved satisfactorily with premolar extraction.

The authors' examples are legitimate criticisms of Angle's system. However, such criticisms have been voiced before and alternate systems of classifications proposed. In their references, the Rinchuses include an excellent article by Ackerman and Proffit (1969). Twenty years ago, these authors combined systematic enhancement of Angle's classification with a modified Venn diagram in which malocclusion is represented by sets based on morphologic deviations. Profile, lateral, anteroposterior and vertical dimensions and their interrelationships are all considered. The Ackerman-Proffit system takes into account all spacial planes, not just the sagittal plane addressed by Angle. Ackerman and Proffit proposed that such a comprehensive system leads more effectively to diagnosis and treatment planning.

The Rinchuses, unlike their predecessors, do not detail a solution to the problems inherent in Angle's system. Rather, they suggest that a continuous variable instead of a three class system might better meet the needs of orthodontists. Finally, they propose that the American Association of Orthodontists and the American Board of Orthodontics "interpret and define Angle's Classification in a manner which is less subject to error."

It is not the role of the orofacial myologist, certainly, to classify occlusion. As the authors of this article point out, such classification can be a complex task, even for those engaged in the measurement and movement of teeth. Instead, it is the responsibility of the orofacial myologist to observe oral structures closely, to analyse function, determine its potential effect on the dentition, and evaluate the potential for changing muscle patterns. The more knowledge the orofacial myologist acquires about orthodontic concerns, the more effective s/he can be at making these determinations. The information presented by these authors is, in this vein, pertinent to our specialty.

References

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