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THE EDITOR'S CORNER

Learning from Experience

Orthodontics is a complex field. The challenge to the orthodontist is to consider all the variables present in each case and to design a treatment plan that sets reasonable priorities without jeopardizing the dental health or facial esthetics of the patient.

Variations exist in jaw size and jaw relations. Discrepancies exist in tooth size in relation to jaw size. Imbalances exist within and between the arches. Treatment must consider all three planes of space. Archform resists mathematical description, yet must be taken into account when dealing with tooth-size problems. Each tooth must be oriented according to tip, torque, and in-out. Facial esthetics can dictate an occlusal scheme that tests the limits of tooth positions. Asymmetry is the rule rather than the exception in nature. Growth prediction continues to be a tenuous proposition. Compliance is always an important consideration. Then there is the question of stability, a subject about which we still know too little.

The history of orthodontics is replete with examples of proposals for simplifying the complexities of treatment planning. A single angle or line is proclaimed as the ideal position of the maxillary or mandibular incisor. Teeth should always be extracted, or never be extracted, if a particular angle exceeds a certain number. Many orthodontists travel from coast to coast taking courses and seeking the ultimate truth. They are told that if only they would use a certain bracket, or a new articulator, or a special archwire configuration, they would get the results they desire. A year or two later, they are likely to find they have the same problems, only with a different set of appliances.

Unfortunately, there is no magic formula for orthodontic success. Constant study, reading the journals, conferring with colleagues, and, most important, studying your own cases are the keys to excellence. Review your treatment plans; you may be surprised to learn that many of the decisions that lead to compromised results are made before the first bracket is placed. For example, the

extraction of four first bicuspid in Class II adults or children with poor skeletal patterns who have significant mandibular crowding is destined to fail, because the crowding may require much of the extraction space, allowing little or no molar translation to achieve a Class I relationship. Poor patient cooperation cannot be blamed for a poor result in such a case—it is the treatment plan that is at fault.

Clinical experience can be a valuable teacher—if we review our material carefully. Of course, making the same mistakes over and over is a form of experience, but is not very valuable. It is fashionable in scientific circles to dismiss clinical evidence as “anecdotal”, yet aspirin, curare, penicillin, and insulin were all developed before the rules of modern clinical trials were set out. Consciously or unconsciously, we all adopt tentative hypotheses based on our clinical experience. We cling to these hypotheses until new experience either refutes or refines our beliefs.

Recently, one of my chairside assistants requested that we correct the mild crowding of her mandibular incisors. An associate bonded brackets to the six anterior teeth and placed a light sectional archwire. He intended to strip the mandibular anterior teeth at a later appointment. The next day, the assistant experienced exquisite pre-auricular pain. One of the brackets was causing a premature anterior occlusal contact. While the bracket was being equilibrated, the adhesive failed. I did not replace the bracket, because I was eager to relieve the assistant's pain. Within hours, the pain abated. Two days later, the associate was told what happened, but did not believe the anterior interference could have caused the pain. He replaced the bracket, and within a few hours the pain returned. Articulating paper revealed a prematurity on the replaced bracket.

This type of experience may not show up in a scientific study, because not every patient with anterior occlusal prematurities will experience pre-auricular pain, and vice-versa. Perhaps there are some patients who are more susceptible to TMD than others. Some people develop excess mobility of the tooth in premature contact instead of pain. Others may abrade away the prematurity, as seen in patients with extensive wear facets on the lingual surfaces of the maxillary anterior teeth. Still, the experience confirmed my clinical

impression of a relationship between TMD and occlusion. I continue to use occlusal splints as an early step in TMD treatment, and the amelioration of symptoms in a high percentage of cases reinforces the validity of my clinical approach.

Stability of the final result has always been considered the ultimate test of orthodontic therapy. The ABO's requirement that cases be shown at least a year out of retention reflects this view. But is stability always possible? Many untreated teen-agers with excellent occlusions develop significant crowding in their 30s and 40s. In truth, it may be preferable in some cases to abandon stability to achieve a better occlusion with good facial esthetics. Diastemas and severely rotated teeth are often unstable after even the best orthodontic treatment, including fiberotomies and frenectomies.

Fortunately, today's adhesives make it possible to place bonded retainers, conceivably for the life of the patient. Stability should be a goal of treatment, but clinical experience shows that it is not attainable in all cases. Since it is seldom possible to predict which cases will be stable and which will not, it is prudent to err on the side of prolonged retention.

I do not want to imply that every anecdote or clinical impression should be accepted as irrefutable fact. Research is necessary to test hypotheses. In a complex system, however, testing for one factor at a time may indicate no significant outcome. Statistical analysis may fail to reveal nonlinear, multifactorial etiological relationships. Prospective studies with randomized samples, along with provocation studies, are the next generation in orthodontic research.

In the meantime, orthodontic treatment planning will continue to be a fascinating exercise worthy of our best efforts. There are no simple answers. As a noted consultant once said, “Every complex problem has a simple solution that is invariably wrong.” A conscientious orthodontist, in dialogue with an informed patient or parent, has the best chance of success. Orthodontics is still both an art and a science, and while we should continue to apply scientific methods to improve our knowledge, we should remember that not all the answers are to be found in that realm.

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