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THE EDITOR'S CORNER

The Challenge of Bimaxillary Protrusion

The condition of bimaxillary protrusion—characterized by proclined and protrusive upper and lower incisors and a tendency toward a hyperdivergent facial pattern—was recognized early in the profession of orthodontics as a highly undesirable outcome of nonextraction therapy. In fact, the successful treatment of bimaxillary protrusion and the resulting improvements in facial esthetics are probably what sealed Charles Tweed's legendary status in our specialty. All of us have heard the many arguments made by both sides in the seemingly endless debate on extraction vs. nonextraction. Edward Angle himself argued against the extraction of teeth for "orthodontic expediency", having felt that the facial outcomes of some of his early extraction cases were less than desirable. He also presented what could ultimately be considered a teleological argument against the extraction of teeth for orthodontic indications. This was something along the lines of, "God gave us 32 teeth and, therefore, we should be able to fit all 32 teeth into the patient's God-given dental arches." Who are we to argue with the cosmic design of the human occlusion? The skull that Dr. Angle used as an example of the perfect, ideal occlusion—called "Old Glory"—did indeed have 32 teeth naturally arranged in what he deemed to be the perfect, ideal occlusion. On closer anatomical and historical examination, however, Old Glory was hardly representative of what we would consider an ideal or even esthetically acceptable dentofacial arrangement, being severely bimaxillary protrusive.

According to the folklore surrounding the orthodontist who could be considered Dr. Angle's most famous student, it was Dr. Tweed's recognition of the deleterious facial outcomes of an inviolable nonextraction philosophy that led him to codify his approach to orthodontic treatment planning. This approach almost always involves extraction of teeth, especially in patients demonstrating crowding or bimaxillary protrusion. In cases with crowded dentitions, teeth are extracted in a symmetrical pattern with respect to sidedness—for example, right and left first premolars. The resulting edentulous space allows for the "unraveling"

of crowded anterior teeth. In cases of bimaxillary protrusion, symmetrical extraction of premolars—either first or second, depending on the severity of the protrusion—allows for retraction and uprighting of the upper and lower anterior segments, along with retraction of the underlying bony components. This produces a more normal interincisal angle and a concomitant improvement in the patient's labial profile and overall facial appearance.

In the Tweedian ideal, patients always start with 32 healthy teeth that unfortunately happen to be arranged into various malocclusions. Symmetrical extractions are performed, teeth are retracted as needed, and the teeth are positioned accordingly, resulting in a functional and esthetic orthodontic outcome. In reality, though, many patients present with mutilated dentitions, "bombed-out" teeth, or asymmetrical missing teeth. In these all-too-frequent scenarios, the ordained symmetrical extraction of premolars and symmetrical retraction of protrusive anterior segments will not be the best treatment plan. Such patients demand individual consideration of extraction patterns and retraction mechanics. Dealing with mutilated dentitions can be challenging, to say the least, since the physics involved in achieving appropriate forces, torques, and moments require significant adjustment to the techniques we use routinely.

In this issue of JCO, Drs. Un-Bong Baik, Jae Hyun Park, and Yoon-Ah Kook present just such a case. Their patient, a 22-year-old female, exhibited the typical manifestations of bimaxillary protrusion: excessive dental and lip protrusion, lip incompetence, and an unpleasant profile. Unfortunately, she also presented with significant dental caries. Several teeth had temporary restorations, fractures, and prior endodontic treatments of questionable prognosis. Given the degree of bimaxillary protrusion, this was clearly a maximum-anchorage case, but several of the teeth with the highest anchorage values were severely broken down. The innovative treatment plan devised by the authors involved a unique extraction pattern and the use of skeletal anchorage. The end result was highly successful, even exemplary. The authors' discussion of their treatment-planning rationale, their explanation of the force systems involved, and the clear illustrations of this difficult case make it a valuable addition to the literature on the treatment of bimaxillary protrusion. RGK