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## THE EDITOR'S CORNER

### Accelerating Tooth Movement

This year's annual session of the AAO was noteworthy for a number of reasons. First of all, it was great to see the recovery that New Orleans has made since I last visited—in 2006, several months after Hurricane Katrina. At that time, the devastation was unbelievable; the convention center, which had served as an emergency housing center, was unusable, and the entire city smelled of mildew. My heart went out to the people who had to endure that disaster. It was a triumph of human resiliency that has brought New Orleans back as a vibrant city once again, and the convention center back as an excellent venue for the AAO.

Every annual session seems to develop an unstated theme that can be observed primarily in the exhibit hall. Last year in Philadelphia, practically every major manufacturer introduced its own version of intraoral scanning technology. Sales of such devices were apparently brisk following that meeting, but given the cost of acquiring, implementing, and maintaining intraoral scanners in private offices, they have yet to become the primary mode of capturing three-dimensional records of the dentition. Clearly, however, scanners will be pulling ahead of conventional impression techniques in the years ahead; the JCO Study of Orthodontic Diagnosis and Treatment Procedures, which will be conducted this summer on its usual six-year cycle, should give us a more accurate idea of how far that trend has progressed.

The unofficial theme of this year's New Orleans session seemed to be accelerated orthodontics. Although the tooth-movement-acceleration technologies presented in the exhibit hall have all been around for awhile, I noticed a heightened enthusiasm for exploring these devices on the part of visiting orthodontists and their staff members. There are several different approaches to accelerated tooth movement, but all involve inducing intentional trauma in the tissues investing the teeth to be moved. The magnitude of that trauma can serve as a classification scheme for the various techniques.

On the more invasive end of the scale would be the surgical techniques that involve actual degloving of the

gingiva, osteotomies to the interdental cortical bone, and subsequent suturing of the flapped gingiva and mucosa back into place. Though the procedure was actually introduced many years ago, it seems to have an increasingly impressive track record. I have yet to try it on my patients—perhaps because of my reluctance to recommend surgical procedures that I myself would not want to undergo—but since a highly respected periodontist whom I refer to has been effusive in his praise of this method, and since his surgical outcomes are always excellent, my resistance is diminishing. Colleagues who have tried corticotomy-assisted orthodontics tell me that they have been impressed with the results and that their patients have generally been pleased with the procedure. There is no doubt that it speeds up tooth movement; unfortunately, most of my patients would be unwilling to pay the additional surgical fees, which can be considerable, just to accelerate their orthodontic treatment.

A less intrusive form of intentionally induced trauma involves perforation of the cortical plate, either with or without gingival flap surgery. The perforation can be done with bores or trephines, similar to those used to predrill miniscrew insertion sites, or with electric piezotomes. In New Orleans, the mechanical product that I examined at length uses a hand bore rather than a handpiece to provide more control of the perforation process and to allow for tactile sensation by the operator. Judging by the proprietary studies and anecdotal evidence produced by the manufacturer, this modality might be better applied to accelerating the movement of single teeth or segments of teeth rather than the entire

dentition. Certainly, the technique deserves closer attention through formal research studies.

The least traumatic methods for accelerating tooth movement involve vibratory micro-trauma or irradiation with controlled-spectrum visible or laser light. In the former process, a device attached to an interarch pad, resembling a cut-down mouthguard, vibrates the patient's teeth as he or she bites down on the appliance for a prescribed period each day. I tried it myself and found it easily tolerable. Preliminary research indicates that this approach can be quite effective, providing the patient is willing to pay the additional cost for the appliance and—as with any auxiliary device—to comply with the doctor's instructions. Although I did not have the opportunity to personally review the light-irradiation techniques on display, I look forward to seeing more information about them.

There is undoubtedly a strong demand from our patients to accelerate orthodontic treatment—perhaps nearly as strong as for “braceless” orthodontics (i.e., aligner treatment). Fortunately, the tooth-movement-acceleration techniques can be utilized just as well with aligners as with fixed appliances. While both of these relatively new developments have a growing body of literature to support their efficacy, a great deal of research remains to be done. We at JCO welcome the submission of well-designed, controlled clinical trials of accelerated tooth movement, and we will be seeking authors of detailed overviews in the coming months. I, for one, am anxious to find out just how effective each of these techniques can be. RGK