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THE EDITOR'S CORNER

Corticotomy-Assisted Orthodontics

One of the most frequently heard questions during orthodontic case presentations is, “Why does it have to take so long?” Of course, there is a biomechanical rationale for the length of treatment, but there are also many reasons for the orthodontist to seek means of shortening overall treatment time. These include both a lesser demand for patient compliance and the economic benefits involved in shorter treatment with fewer total appointments.

A variety of approaches to accelerating tooth movement have been described in the literature, ranging from surgical and pharmacological approaches to gene therapy, from low-level laser therapy to devices designed to vibrate the teeth as patients bite on them—all with the goal of speeding up orthodontic treatment. (There is even one report of the administration of “extracorporeal shock-wave therapy”, but considering the visual imagery that conjures, I think I would have to pass.)

One of the most promising (and most published) areas of research into accelerated tooth movement is the technique known as corticotomy-assisted orthodontics. Of course, the surgical reduction of alveolar bone as a means of diminishing osseous resistance to tooth movement is not really new; I remember discussing it in an elective orthodontic class I took in dental school back in the 1970s. But the procedure began to gain traction in 1998 with the introduction of Accelerated Osteogenic Orthodontics, a procedure patented by Wilckodontics, Inc.

Since that time, a number of different applications of corticotomy-assisted orthodontics have been reported. Many orthodontists initially regarded these techniques as weird science, but as the evidence builds in the scientific literature, the corticotomy-assisted approach is becoming more and more mainstream. Even though patients tend to balk at the mention of any kind of surgery, when they hear that tooth movement can be accelerated by two to four times compared to conventional orthodontics, and that overall treatment times can thus be reduced by many months, their interest is considerably heightened.

Speeding up comprehensive orthodontic therapy is

not the only application of corticotomies. They can also be used regionally to facilitate bodily movement of alveolar segments, or even applied to individual teeth. As an example of the latter, in this issue of JCO, Drs. Vittorio Grenga and Mauro Bovi present a case report entitled "Corticotomy-Enhanced Intrusion of an Overerupted Molar Using Skeletal Anchorage and Ultrasonic Surgery". In this unique modification of corticotomy, the authors apply a piezoelectric surgical technique previously published by them in JCO (August 2004) for the simple purpose of intruding an overerupted molar in a shorter time than with conventional treatment. The results are impressive, to say the least.

The theory behind corticotomy-assisted orthodontics is succinctly stated on the Wickodontics website (www.wilckodontics.com): "To date, most major advances in orthodontics have been mechanical in nature. Brackets have become bondable and smaller, pure tipping mechanics have evolved into the straight-wire philosophy, and archwires have gone through a dramatic metallurgical metamorphosis from stiff wires that deliver heavy short-term forces to temperature reactive wires that deliver more gentle longer-term forces. Continued progress in orthodontics

will require broadening our focus to not only include the efficient application of forces to the teeth, but to exploit the potential of the surrounding bone to respond to these forces."

I could not agree more. In upcoming issues, we will present several other case reports by various authors detailing alveolar-surgical approaches for protracting molars and erupting impacted canines. I'm sure that others will follow. The concept of corticotomy-assisted orthodontic treatment acceleration is one whose time has come.

RGK

The **2013 JCO Orthodontic Practice Study** will be the first in which U.S. orthodontists will be able to enter their responses, securely and anonymously, via an online questionnaire. It will not only be easier to complete, but faster and more accurate to analyze. Watch your inbox and mailbox in the spring for instructions on how to complete the online form (or how to print out and mail a paper questionnaire); a link will also be provided on the JCO homepage at www.jco-online.com. Results will be published, as usual, in a series of JCO articles in the fall.