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THE EDITOR'S CORNER

A New Approach to an Old Problem

Palatal expansion has been an indispensable component of orthodontic treatment since the early history of the profession. Although the technique has traditionally been used to correct posterior crossbites, it is gradually gaining acceptance as a method of opening space in the upper arch. Over the years, many appliances, both removable and fixed, have been designed to address specific problems and doctor preferences. Quad Helices and Porter-W transpalatal appliances (also called Coffin springs), were intended to provide gradual, continuous forces to upright the buccal segments and gently separate the midpalatal suture without the need for patient compliance. While these appliances are effective and convenient when applied as indicated, clinicians frequently found that they wanted a more rapid opening of the midpalatal suture. That dictated the development of appliances with midpalatal jackscrews that could apply intermittent forces in the orthopedic range. The Haas and Hyrax expanders, for example, are highly predictable in their action, with minimal side effects. More recently, we've seen a myriad of variations on these classical themes, including spring-loaded midpalatal jackscrews, nickel titanium Quad Helices and Porter-Ws, and now miniscrew-supported applications of both.

Which appliance to select for any given case depends on the desired force level, the need for orthodontic movement as opposed to orthopedic expansion, and the patient's ability to use and care for the appliance. Many orthodontists simply choose one expander that they are familiar and comfortable with for most cases. All of these devices, however, have one thing in common: The forces they apply are delivered from the midpalatal area to the palatal aspects of the maxillary teeth, which makes contact with the tongue and soft tissues unavoidable.

Some appliances occupy more space in the palatal vault than others. A thin, removable active plate incorporating one or more small midpalatal jackscrews is probably the most comfortable, but the patient can take it out at any time and lose it just as easily as a Hawley retainer.

Another drawback of removable expanders is that they have a tendency to ride up on the maxillary teeth as force levels increase.

The fixed expanders that are billed as "hygienic" do not incorporate palatal acrylic; they are supported by heavy wire frames soldered to bands on the first molars and, sometimes, the first premolars. Although these appliances are easier to clean around, they can be especially irritating to the patient. I remember being shocked during my residency when my first palatal expansion patient came in for a monthly check with an accurate impression of the midpalatal jackscrew in the dorsum of her tongue. The Haas appliance, which incorporates acrylic palatal shelves and a smaller screw than the "hygienic" devices, is kinder to the tongue, but can severely damage the palatal tissues if the midpalatal suture exerts greater-than-usual resistance to separation. The lesions that can develop under the acrylic palatal shelves are not only painful, but horrific to see—and smell.

I have recently been challenged by a case involving expansion of a unilateral cleft palate. Of course, expansion is required in virtually all cleft-palate cases, because of the developmental collapse of the arch segment from the premolar region to the area of the lateral incisor on the cleft side. Since a patient with a complete cleft has never had a midpalatal suture, the only resistance to expansion will come from the soft tissue and from scar tissue secondary to earlier palatal closure surgeries. Therefore, any number of expanders will usually work well, with some minor modifications to allow for asymmetries. Unfortunately, my young patient is mentally challenged and speaks little English, so communicating our instructions to her and having her carry them out are difficult at best. To make matters worse, despite everyone's best intentions and efforts, the girl simply cannot tolerate anything pushing on her tongue from the palatal vault. We have tried a number of different appliances, including the modified fan Hyrax, the Arnold expander (or "E arch"), and a fan-type removable active plate. No

matter what we put in, she pulls it out.

In similar cases, I have often resorted to what one of my former colleagues at the University of Tennessee called an "expansion arch". This is simply an .036" wire bent into a form that is wider than the existing upper arch by a little more than the desired amount of expansion. Adjustment loops are bent into the wire just ahead of the molar tubes, and the appliance is tied into the headgear tubes. If a heavy archwire is in place, the expander can also be ligated to the archwire in the interdental spaces. It can be removed and reactivated by the clinician as needed. I've had good success with this expansion arch, which is well tolerated by even the most sensitive patients because there is no lingual irritation.

In the current issue of JCO, Drs. Samuels and Brezniak introduce a prefabricated version of that old device. Theirs incorporates laser-welded clasps, somewhat reminiscent of diaper pins, that make the appliance removable by the patient, or it can be ligated in place like the expansion arch in the event of poor patient compliance. Actually, there are several articles in this issue that present new approaches to old, familiar problems. I intend to try the Samuels-Brezniak expander on my difficult cleft case. I'm sure you will find applications for this month's other ideas as well. RGK

JCO deeply regrets the passing of Dr. Leo L. Taft (1914-2006). He had a lead role in the start-up of the *Journal of Practical Orthodontics*, which became the *Journal of Clinical Orthodontics* in 1970, and served on the Board of JPO until December 1967. Dr. Taft was President of the New York State Dental Association in 1977-1978. He was also a Clinical Professor of Orthodontics and Director of the Advanced Study of Orthodontics Program for Foreign Students at the New York University College of Dentistry. Our deepest condolences go out to his family.