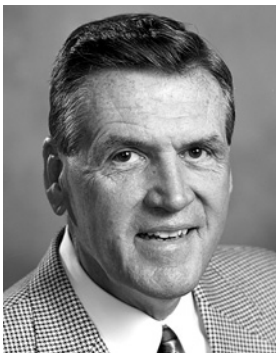
Dental Products Report

Clinician's Comments

Orthodontics

Move...but don't pull

You can treat Class II malocclusion without extraction



Dr. Robert Gerety

Dr. Robert Gerety has provided orthodontic education for thousands of GPs and pediatric dentists over the past two decades. He continues to hone his Straight Wire technique after incorporating it into his practice in 1970. He maintains a private practice in Broken Arrow, Okla.

Two additional case reports and **FAQs** about distalization and appliance therapy can be found along with this article on our Web site. On our home page, run your cursor over the **Dental Products Report** tab and click on Current Issue. Then just follow the prompts.

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A technique involving a single fixed appliance can reliably and conservatively distalize maxillary posteriors and achieve proper bite alignment.

Dr. Robert Gerety

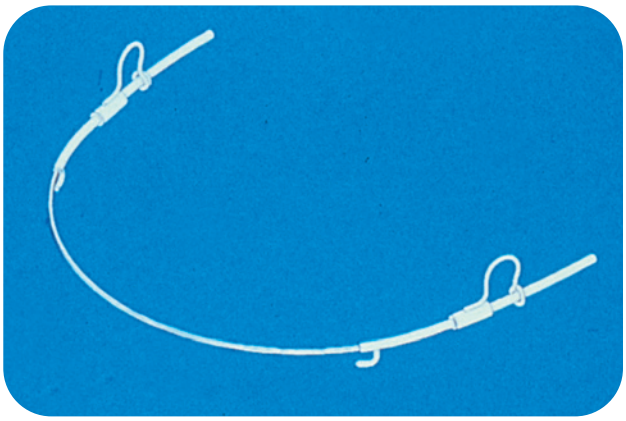
"Roughly one-third of the North American population and half of all orthodontic patients present with some sort of Class II malocclusion. Unfortunately, there seems to be an almost equal number of treatments and treatment 'philosophies' from which to choose." [1]

Distalization is the one technique that allows me to selectively couple the teeth into ideal interdigitation without the need for extracting permanent teeth. I have non-extraction/distalization cases that are more than 15 years post-treatment. I can attest to their long-term clinical stability.

Appliance-based distalization

The techniques of distalization vary and are available in many different forms of mechanics and appliances. I have tried several and have consolidated many of the concepts into a single appliance and procedure. I use the Multi-Distalizing Arch (MDA) appliance (Ortho Organizers Inc., *www.orthoorganizers.com*) to distalize the maxillary posterior dentition. This appliance has a horseshoe-shaped arch form along with a rectangular archwire in the anterior (see illustration, lower right).

Whether you use functional appliances or fixed appliances — such as the MDA appliance, Frankel, headgear, Herbst, pendulum, twin block, orthopedic corrector, etc. — comparable changes occur skeletally.[2,3] The "Class II mechanics" employed by each device produce similar effects — a distalizing force on the maxilla and a forward or mesial force that promotes auto-rotation of the mandible. Additional mandibular growth is *not* stimulated. The maxilla is inhibited or retracted, and the mandible is allowed to grow to its full genetic potential.[4,5] I have clinically observed a greater change in the maxilla than in the mandible, and these findings are substantiated in journal articles.



The Multi-Distalizing Arch fixed appliance can be used with a non-extraction protocol to treat Class II malocclusion and create ideal interdigitation.

CASE REPORT

A 16-year-old male presented with a Class II Division II malocclusion. His soft tissue profile was retrusive, with a broad face and a deep labiomental fold. There was minimal crowding in the lower arch and moderate crowding in the upper arch, with the maxillary left cuspid completely blocked out of the arch. There was a midline deviation to the left side. His chief concern was the blocked-out upper left cuspid and the retroclined maxillary anterior teeth.

Due to the excessive deep bite, the upper first molars were banded and Elite Mini-Twin straight-wire brackets placed second bicuspid to second bicuspid, bypassing the upper left cuspid. A routine archwire sequence was used on the upper arch to level/align and rotate and move the maxillary teeth out. The upper teeth must be moved out to allow proper placement of the lower brackets. Normally, I place occlusal composite on the lower first molars to accommodate bracket placement, so that both arches can be bracketed initially. In some Class II Division II cases, the bite is too deep and the amount of occlusal composite necessary to open the bite sufficiently would be excessive. After three months, we were able to place brackets and bands on the lower teeth. Second molars were picked up the next month and incorporated into the archwire sequence.

Six months of archwire sequence was used to establish the lower arch to a .018 x .025 stainless-steel archwire. The MDA appliance was placed and activated. The distalization process took seven months to complete. With the posterior teeth repositioned, adequate space was created to incorporate the upper left cuspid into the arch. Five months were spent on case finishing and fine-tuning. Active treatment time was 21 months. This case could have benefited significantly from early treatment.

Preoperatively, the patient exhibited a broad face, a deep labiomental fold, and a retrusive soft-tissue profile.

Here is the patient after 21 months of active treatment. He could have benefited from earlier intervention.

Fixed or removable?

Many functional clinicians think removable appliances result in better facial esthetics than fixed appliances. This is not always true. Skeletal changes and facial esthetics are the same, regardless of the treatment used. Although we are eager to attribute beautiful profiles and smiles to our orthodontic treatment, genetics and favorable growth patterns are primarily responsible for these attributes. While there is an advantage to selecting non-extraction treatment over extraction treatment to enhance smile esthetics and broad smile lines, the treatment mechanics of fixed versus removable have little to no effect on the facial profile.

The key to success with any technique is to find the application most suitable for you personally. I prefer a fixed appliance to a removable one because it eliminates the "patient compliance" factor as much as possible. Additionally, the fixed MDA can easily be used unilaterally. Rarely do I find the severity of Class II to be identical on both sides — and one side can be distalized more than the other quite easily using this appliance.

Some fixed appliance techniques differ significantly from that of the MDA appliance in that the molars are moved distally while freezing the premolars and cuspids. Once the molars are distalized, this technique requires holding them in that position using some type of Nance appliance while the other teeth are mechanically retracted.

The MDA appliance effectively distalizes the molars bodily. At the same time, if the patient is compliant about elastic wear, the premolars, cuspids, and anterior teeth translate distally, requiring little, if any, mechanical space closure. This added benefit minimizes anterior retraction mechanics, thus significantly reducing treatment time.

Fine-tuning

I frequently hear questions concerning fine-tuning and case finishing. From the most novice GP practicing orthodontics to the veteran specialist, everyone seems to struggle with case-finishing skills. Placement of the brackets, archwire sequence, leveling, aligning, and rotating the teeth comprise the simple phase of orthodontics — or the period I often refer to as the "honeymoon" period of treatment.

The challenge comes when you individually move the teeth to meet Andrews' "Six Keys to Optimal Occlusion," or case finishing.

Among the preoperative conditions—the maxillary left cuspid was completely blocked out of the arch, the midline deviated to the left side, and retroclined maxillary anteriors.

To complete the case, six months of archwire treatment was followed by seven months of distalization with the MDA appliance and five months of finishing and fine-tuning. The upper left cuspid now is incorporated into the arch.

During case review sessions, I typically observe cases that are "close" or "almost there." Clinically, I have experienced limited (or no) success using Class II elastics to correct this discrepancy and to lock in posterior occlusion. My recommendations for treatment are the same in the finishing stages as they are in the diagnostic and treatment planning stages: To achieve the proper midline, overjet, overbite, and inner-incisal angle, you must follow a disciplined sequence.

My overall treatment objectives are as follows:

- Establish the lower arch dentally.
- Reposition the maxillary posterior teeth (premolars and molars) into a super Class I position.
- Move the cuspids into a Class I position.
- Position the incisors with proper midline, overbite, overjet, and torque.

Establish the lower arch

Regardless of the severity of the maxillary arch, the case can be managed in less time if minimum mechanics are necessary to establish the lower arch. The most simple of all malocclusions is presented when the mandibular arch is free of significant crowding and requires nothing more than leveling, aligning, and rotating. Conversely, a mandibular arch that is severely crowded with blocked-out teeth, requiring arch development and distalization, demands significantly longer treatment time. My treatment philosophy is non-extraction, so I use arch development techniques and distalization mechanics that avoid removing teeth. Depending on the severity of crowding and the age of the patient, I would choose either a lip bumper or 3-D lingual arch, a lip bumper in conjunction with Class III elastic mechanics, or a CD distalizer appliance to establish the lower arch.

Reposition maxillary posterior teeth

Once the lower arch is established, leveled, and free of rotations, you need to reposition the maxillary molars and premolars into a super Class I relationship. In my clinical observation during the past 35 years, more than 85% of the cases require maxillary posterior teeth to be distalized to achieve a Class I occlusion. Although the mechanics for distalization are varied, I prefer to use the Multi-Distalizing Arch (MDA) appliance to reposition the posterior teeth into the embrasures. You cannot begin to finish the case, correct the midline, or retract the anterior teeth until you have corrected the posterior occlusion. Once the posterior teeth are correct, you can easily position the cuspids, retract the anteriors, and line up the midline.

The following is a treatment sequence outline for using the MDA appliance.

1. Band all first and second molars that are present, upper and lower.
2. Bracket all available teeth, upper and lower.
3. Do not bracket teeth that cannot be incorporated into the arch, such as blocked-out cuspids.
4. Progress through the archwire sequence as you would in routine treatment (.0175, .016, .018, .020, .016 x .022, .018 x .025)
5. The lower (anchorage) arch must be in a minimum of .018 x .025 stainless- steel (not thermal or nitanium) archwire before starting the MDA appliance.
6. The upper arch needs to be in a minimum of .020 archwire.
7. The position of the second molars on the upper arch is important. If the second molars are erupted into the arch, they should be banded and incorporated in the archwire sequence. Prior to seating and activating the MDA appliance, a .019 x .025 braided segmental wire is placed on the upper first and second molars to prevent extrusion and buccal movement of the second molar. DPR

References

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