“LEAF IS A GAME CHANGER”

Yan Razdolsky
DDS, BSD, LTD
Diplomate of American Board of Orthodontists

SEE PAGE 5
MANUFACTURING ORTHODONTIC PRODUCTS SINCE 1934
TABLE OF CONTENTS

5 Interview to Dr. Yan Razdolsky

11 Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

19 Ceramic Bracket – Interactive SL (Self-Ligating)

20 Pediatric Orthodontics

21 Leaf Series Expander

22 Leone GoTo1 (Class II Corrector)

23 Where To Find Us: LeoneAmerica Collaborations

Pedodontic Bands

Designed to allow for early treatment of patients with mixed or deciduous teeth.

Self-Ligating Brackets InteractiveSL

The specific shape of the clip and slot allow users to modulate the most appropriate level of friction force between bracket and wire.
“A CHILD WITHOUT SMILE IS LIKE A GARDEN WITHOUT FLOWERS”

PRODUCTS DEDICATED TO PEDIATRIC TREATMENT
Yan Razdolsky, long-term friend of Leone and LeoneAmerica, in this brief interview, shares his experience with the Leaf Expander, highlighting the clinical advantages but also the advantages introduced in the management and organization of his dental practice.

1. How many palatal expansion have you performed during your career?

I have been in practice 32 years. We place great emphasis on early prevention. I would estimate over 40,000 RPEs to date.

2. How did you get to know about the Leaf Expander?

I have met Gabriele Scommegna in mid-nineties. I was heavily involved in Distraction Osteogenesis, bone growth via slow stretching. I owned 5 patents for mandibular, maxillary, and vertical alveolar distraction. Leone was the only company in the world who answered my call and have designed anterior activation screws for us. We have visited Leone facility in Firenze and were met with outmost hospitality! I have lectured on Distraction Osteogenesis all over the world but unfortunately the technique never gained wide spread popularity and my patents have long expired. Gabriele and I kept in touch throughout the years and became very good friends. So when we met at AAO Mid-winter meeting in Scottsdale 2018 he showed me Leone’s new invention – Leaf Expander!

3. How many cases have you treated with the Leaf Expander?

We use Leaf expander on most of our expansion cases now including SARPEs and Herbst. I would estimate over 100 Leafs in the first year of use. Enclosed a case study!

4. What was your main concern about the use of the Leaf Expander?

I knew right away that this is a major breakthrough as far as the clinical efficiency is concerned. I could not wait to test the efficacy of Ni-Ti Leafs. Gabriele has shared with me clinical studies from Italy and I was confident the appliance will deliver. JCO article a bit later was also a confidence builder.

5. On average, how many visits does a patient need during a Leaf Expander treatment and how many during an RPE treatment?

Let’s consider the RPE appointments. If it’s a Bonded RPE we would scan the case and download it on the laboratory server. With banded RPE we learned the hard way that it’s much more precise to fit your own bands, take a rubber base impression and mail it to the lab. So this aspect does not vary between RPE and the Leaf. Delivery is no different either. However, with RPE you have
to give patient few weeks to get used to, get them back to teach parents how to expand, and then continue to manage the case if parents do not perform or are not dexterous enough to deliver the results. We literary have had patients who were unable to turn the screw properly and ended up having patient come back on a weekly basis to activate 3-4 turns a week. So on the average using RPE vs Leaf can add 3-4 extra appointments and what about staff and doctors time?

6. Which are the main advantages of the Leaf Expander?

Improvement in clinical efficiency. You deliver the Leaf, see patient every 6-8 weeks and perform 15 turns every appointment. The whole process is streamlined and many times my staff is already done by the time I come to the chair.

No learning curve for parents or patients. You project much greater value for what they are paying. Why would you pay someone and have to perform the work yourself? People are way too busy now days. Using conventional RPEs adds xtra tasks for them.

No calls from the patients re: instructions, questions, difficulties, etc..

7. How did the Leaf Expander affect the management of your daily activities in the dental office?

To add to my summary in Q6., we see on the average 85 patients/ day. If we can cut out few unnecessary appointments and save our patients an extra trip and aggravation it just makes the whole experience so much greater!

8. Are there any contraindications in the use of the Leaf (patient age, malocclusions class etc.)?

So far I have not found any. In SARPE we see patients every two weeks (instead of 6-8 weeks) because we have a narrow time frame to complete the process before the boney fusion. Patients love the fact that they do not have to activate it themselves as everything is so tender after the surgery. I would love to have a smaller Leaf to be used in tooth borne or TAD supported distallizers.

9. Did you have issues for the manufacturing and installation of the Leaf Expander?

We have discovered that during the soldering in the laboratory the plastic straps loosen up possibly due to heat. It makes the Leaf expand and therefore harder to deliver. So have been ligating the screw prior shipping them off to the lab along with the case.

10. Do you think that the use of the Leaf Expander needs peculiar expertise?

Very little learning Curve!

11. What about care givers’ and patients overall satisfaction?

People loved us but they love us even more now! My staff is elated!

12. What would you tell to an orthodontist who is still suspicious about the use of the Leaf expander?

Once in a while an invention appears which fundamentally changes the whole game. Leaf is a game changer! Start using it and you will quickly realize the benefit both to you and your patients!
Interview to Dr. Yan Razdolsky - case study

9 yrs old
Class III Skeletal w/Unilateral crossbite

Hyraax – Class III Ectopic #3
Interview to Dr. Yan Razdolsky - case study

Hyraax – Class III Ectopic #3

Leaf delivered May 2018 w/De-impactor spring and Facemask Hooks
3 Leaf Activations x 15 turns performed 6-8 weeks apart
Facemask used at night

Debonded December 2018
Complete resolution of crossbite, crowding, and underbite!

#3 Fully erupted
Nickel Titanium MEMORIA® leaf springs allow the release of calibrated and continuous forces to promote the expansion of the maxillary arch.
Introduction

Rapid palatal expansion represents the gold standard procedure used for the correction of cross-bites. The ossification of the mid-palatal suture is a key factor in the decisional process for the implementation of the correct treatment plan.

Although some studies (1) report that the ossification of the mid-palatal suture can be observed between 15-19 years of age of the patient, some others state that it is not noticeable at 27, 32, 54 and 71 years (1, 2, 3).

Therefore, considering that the biological age is not a valid decisive factor (2,3,4), the vertebrae maturation index and the use of the CBCT (Cone Beam Computed Tomography), both in pubertal and post-pubertal age, are considered the most reliable methods (5,6,7,8).

If it is not possible to perform the mid-palatal suture opening (or only partially), dento-alveolar expansion represents the only achievable result using maxillary expanders. The dento-alveolar expansion is gained in the 39-49% of the cases and represents from the 6% to the 13% of the total expansion (10,11).

Treatment Plan Summary

In light of the adult age of the patient and following the specific patient request to avoid surgical procedure and/or tooth extraction, the severe skeletal malocclusion has been treated with a no-surgical approach.

The patient had a severe mono-lateral cross-bite with dental crowding both in the upper and in the lower arch, misplacing of the inter incisive line, Class I occlusion at left side while Class II, both molar and canine, malocclusion on the other quadrant (Fig. 1).

A Leaf Expander 900 g has been used to treat the maxillary transversal discrepancy.

Leone Leaf Expander is a palatal expander that, in adults, can induce a modification of the transversal dimension mainly through a dento-alveolar remodeling. This result is achievable thanks to the super-elastic properties of the Nickel Titanium unique leaf shaped springs, which release controlled and continuous force.

Since the patient had a asymmetrical transversal discrepancy, the use of cross elastic traction for the right side has been necessary. A lingual arch has been used for the control of the lower anchorage.

In order to guarantee an optimal control of the torque, Straight Wire appliance was used: upper laterals brackets have been placed in advanced stage of therapy, rotated of 180° and then normalized at the end of the therapy.

Fig. 1 Beginning of the treatment: X-Rays
Functional analysis — The patient refers recurrent muscular-tensile pain. Presence of sporadic TMJ bilateral click and pain. The misalignment of the midlines is not noticeable when the mouth is open, highlighting therefore a mandibular shift, probably due to an initial incoordination of the condyle-meniscus. As per patient decision, no further MRI investigation was performed.

Intra-oral analysis (Fig. 3) — Mono lateral cross bite (right), upper and lower severe dental crowding. Misalignment of the mid-line, asymmetric molar and canine occlusion: Class I at left and Class II at right. Cross palatal position of the upper laterals. No OVB, No OVJ.
Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

Model Analysis (Fig. 4)

Upper arch:
- Absence of third molars
- Asymmetric arch
- Severe dental crowding
- Palatal position of upper laterals and vestibular ectopic canines
- Both side molars rotated.

Lower Arch
- Absence of third molars
- Severe asymmetric arch
- Severe grade of dental crowding
- Vestibular ectopic position of left canine
- Rotations

Fig. 3 Beginning of the treatment: Intra-oral pictures

Fig. 4 Cast models: before and after treatment
Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

Occlusal relationships-sagittal plane
- Molar and canine occlusion: Class I at left and Class II at right
- No OVJ
- Deep Spee Curve

Occlusal relationships-frontal plane
- No OVB,

Occlusal relationships-transversal plane
- Severe reductions of maxillary and mandibular transversal diameter
- Cross bite at upper laterals due the palatal positions

Treatment Plan — Skeletal age of the patient and the malocclusion type were crucial to determine the treatment plan. Due to the severe reduction of the maxillary transversal dimension and the lateral cross-bite, an important dento-alveolar remodeling was necessary and moreover it was necessary to torque heavily the left bicuspids and first molar, and lightly the right ones.

A Leone Leaf Expander has been used that release 900 gr and allows 6mm of expansion (A2704-06) (Fig 4.a).

The screw activation has been managed fully by the doctor in three treatment sessions during the whole cycle of treatment (Tab.1).

Thanks to this protocol, it was possible to apply constant predetermined and calibrated force that allowed to fully control the expansion movement and the vestibular inclination of “pillar” teeth.

Tab. 1: protocol for Leaf Expander activation

<table>
<thead>
<tr>
<th>EXPANDER ACTIVATION GUIDELINES</th>
<th>LEAF expander cementation</th>
<th>FIRST visit</th>
<th>SECOND visit</th>
<th>THIRD visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 mm A2703-06 - A2704-06</td>
<td>spring activation 0 turns</td>
<td>after 6 weeks</td>
<td>10 turns</td>
<td>after 4 weeks</td>
</tr>
<tr>
<td>9 mm A2703-09 - A2704-09</td>
<td>spring activation 0 turns</td>
<td>after 8 weeks</td>
<td>15 turns</td>
<td>after 6 weeks</td>
</tr>
</tbody>
</table>
As reported in the literature, assuming the device is accurately manufactured with an optimal fit on the “pillar” teeth a high control of vestibular tooth inclination, by means of a corporeal movement in the vestibular direction, could be achieved (13,14,15,16).

Considering the severe maxilla asymmetry, the use of cross bite elastics, on the right, side has been necessary. The excellent compliance of the patient allowed to obtain a good correction in a relatively short time.

Upper laterals were corrected using sequential bonding focusing on the correct positioning of the roots. In particular, the two brackets were placed upside-down in order to exploit a wider correction of the root vestibular torque.

The lower arch was challenging due to the severe dental crowding and the cuspid ectopic vestibular position. The correction has been performed initially keeping a high control of the anchorage and paying attention to the anterior teeth pro-inclination.

Vertical and asymmetric elastics were used to obtain the correction of the malocclusion class and the correct OVB. The pink esthetics and the symmetry of the marginal gums has been obtained with the re-contouring of the gingival margins using a laser diods (Fig. 5).

Results

The whole treatment took 1 year and 10 months. The results can be summarized as follow.

Skeletal — For what concerns the cephalometric parameters, the numerical changes are noticeable in the improvement both of the malocclusion class with a light reduction of the AN/Pg due primary to the mandibular advancement and the skeletal high angle with the reduction of the SN/GoGn angle (Tab.2).

The correction of the maxillary transversal dimension has been obtained thanks to a dento-alveolar remodeling using a Leaf Expander. Since the therapy has been performed on a not growing adult patient, the skeletal changes are minimal (Fig. 6).

Soft tissues — The facial features are noticeably changed with an improvement of the facial symmetry and smile. The musculature is relieved and the labial competency enhanced.

Dentals — A good dental alignment has been obtained with Class I occlusion both at the canine and molar level. The mid lines are aligned, OVI and OVB are within normal value.

After the removal of the orthodontic appliance, the patient underwent to a professional dental whitening procedure and in order to improve the smile, a laser gingivectomy of the upper arch has been performed.

The smile present a valid esthetic line and is more expressive and harmonious with the patient face (Fig. 7, Fig.8, Fig.9 and 10).
Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

Tab. 2: Summary table of dental and cephalometric parameters

<table>
<thead>
<tr>
<th>OCCLUSAL RELATIONSHIPS-SAGITTAL PLANE</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxilla position S.N/A</td>
<td>82° +/- 3,5°</td>
<td>76°</td>
<td>76,5°</td>
</tr>
<tr>
<td>Mandibular position S.N. Pg</td>
<td>80° +/- 3,5°</td>
<td>71°</td>
<td>73°</td>
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<tr>
<td>Sagittal Inter-Maxillary relations A.N./Pg</td>
<td>2° +/- 2,5°</td>
<td>5°</td>
<td>3,5°</td>
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<table>
<thead>
<tr>
<th>OCCLUSAL RELATIONSHIPS-FRONTALE PLANE</th>
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</thead>
<tbody>
<tr>
<td>Palatal plane inclination S.N./ANS.PNS</td>
<td>8° +/- 3,0°</td>
<td>16,5°</td>
<td>14°</td>
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<tr>
<td>Mandibular plane angle S.N./Go.Gn</td>
<td>33° +/- 2,5°</td>
<td>44,5°</td>
<td>42,5°</td>
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<tr>
<td>Vertical Inter-Maxillary relation ANS.PNS/Go. Gn</td>
<td>25° +/- 6,0°</td>
<td>28°</td>
<td>28,5°</td>
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<table>
<thead>
<tr>
<th>DENTAL BASAL RELATIONSHIP</th>
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<tbody>
<tr>
<td>Upper Incisor inclination +1/ANS.PNS</td>
<td>110° +/- 6,0°</td>
<td>113°</td>
<td>111°</td>
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<tr>
<td>Lower Incisor inclination -1/Go.Gn</td>
<td>94° +/- 7,0°</td>
<td>102°</td>
<td>95°</td>
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<tr>
<td>Lower Incisor compensation -1/A.Pg. (mm)</td>
<td>2 +/- 2 mm</td>
<td>5 mm</td>
<td>XXX</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DENTAL RELATIONS</th>
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<tbody>
<tr>
<td>Overjet (mm)</td>
<td>3,5 +/- 2,5 mm</td>
<td>0</td>
<td>XXX</td>
</tr>
<tr>
<td>Overbite (mm)</td>
<td>2,5 +/- 2,5 mm</td>
<td>0</td>
<td>2 mm</td>
</tr>
<tr>
<td>Inter incisive angle</td>
<td>132° +/- 6,0°</td>
<td>117°</td>
<td>124,5°</td>
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</table>

Fig. 6: Comparison of X-Rays Images and cephalometric tracing before and after treatment.
Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

Fig. 7 End of the treatment: extra-oral pictures

Fig. 8 End of the treatment: Intra-oral pictures
Use of the Leaf Expander® in the treatment of transversal discrepancy in adults: a clinical case

Fig. 9 Comparison before-after treatment digital upper arch cast

Fig. 10 Digital cast palatal rugae super-imposition

Reference
**D.B. METAL BRACKETS**

**Interactive control**
The specific shape of clip and slot of InterActive brackets allows the user to modulate the most appropriate level of friction force between bracket and wire, depending on the needs of the various stages of treatment.

**Interactive phase**
Rectangular arch wires, used for space closure, rotation, and torque control, work to elastically deform the clip for the biomechanical control necessary in these stages of treatment.

**Passive phase**
First stage round arches are not bound by the clip; the low friction will facilitate the process of alignment and leveling.

**Active phase**
Rectangular arches for finishing and detailing completely fill the slot while going into active contact with clip; this allows the exploitation of elastic properties in order to obtain minimal movements for finishing of treatment.

**Easy open/close**
The clip has a central hole and does not require any special tool for opening and closing.

**Opening**
Insert the tip of a probe or utility tool into the hole in the clip and move towards the occlusal plane.

**Closing**
Slide the clip with a slight pressure towards the gums using a tool tip or even just a finger.

---

**InterActive Self Ligating D.B. Brackets ROTH System**

| F1100-11 | +12° +5° 1 |
| F1100-21 | +12° +5° 1 |
| F1100-10 | +8° +9° 2 |
| F1100-22 | +8° +9° 2 |
| F1100-13 | -2° +13° 3  |
| F1100-23 | -2° +13° 3  |
| F1100-14 | -7° 0° 4   |
| F1100-24 | -7° 0° 4   |
| F1100-15 | -7° 0° 5   |
| F1100-25 | -7° 0° 5   |

**InterActive Self Ligating D.B. Brackets MBT® System**

| F1102-11 | +17° +4° 1 |
| F1102-21 | +17° +4° 1 |
| F1102-12 | +10° +8° 2 |
| F1102-22 | +10° +8° 2 |
| F1102-13 | -7° +8° 3 |
| F1102-23 | -7° +8° 3 |
| F1102-14 | -7° 0° 4 |
| F1102-24 | -7° 0° 4 |
| F1102-15 | -7° 0° 5 |
| F1102-25 | -7° 0° 5 |

**InterActive Self Ligating D.B. Brackets Kit ROTH System**

- 1 case 20 Brackets
- 10 kits of 1 case

**F1100-91** 022” x .030”

**InterActive Self Ligating D.B. Brackets Kit MBT® System**

- 1 case 20 Brackets
- 10 kits of 1 case

**F1100-92** 022” x .030”

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*MBT is a 3M Unitek Trademark

All the orthodontic brackets illustrated in this brochure are not intended to be a duplication of any other existing bracket nor does Leone Spa imply that they are endorsed by the above mentioned doctors or Schools.
ORTHODONTICS FOR KIDS (OK) PEDIATRICS

Early treatment options are continuously a popular topic in the world of orthodontics. By developing products that correspond with this goal, LeoneAmerica hopes to meet the needs of the orthodontists and pediatric dentists working to optimize treatment for their patients. Wherever the OK Orthodontics for Kids logo is found, clinicians can rest assured that the particular product is appropriate and recommended especially for pediatric treatment. To get a copy of the new OK Orthodontics for Kids catalog, call us at (805) 487-9860.

PEDODONTIC BANDS

Designed to respond to the current needs of pediatric orthodontics and allow for early treatment of patient with mixed or deciduous teeth. Made of biomedical stainless steel in a softer medium temper, the pedodontic bands are designed for the particular anatomy and shape of the deciduous molars. These bands feature an easy fit to the pyramid shape of the primary molars, and are useful in the construction of palatal expanders or space maintainers. The laser etched identification number makes distinguishing between the ten sizes of upper or lower bands a cinch.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>E6100-00</td>
<td>Upper - PU sizes 1-10</td>
<td>5</td>
</tr>
<tr>
<td>E6500-00</td>
<td>Lower – PL sizes 1-10</td>
<td>5</td>
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</table>

ASSORTMENT PEDODONTIC BANDS UNIVERSAL - KIT

This kit is composed of 5 universal pedodontic bands per size for both maxillary and mandibular for a total of 100 pieces. The tray is not autoclavable.
The **MEMORIA®** Leaf Spring and Leaf Self Expanders are an evolution in the design of previous spring-loaded expanders. These innovative solutions rely on the flexible properties of nickel titanium springs to release calibrated and constant forces throughout treatment, providing expansion without the need for any patient compliance. The standard Leaf is activated periodically by the clinician in order to reload the springs, while the Leaf Self requires no re-activation at all. Both members of the series are available in either 6 or 9mm, with forces of either 450 or 900g.

<table>
<thead>
<tr>
<th>Model</th>
<th>Springs</th>
<th>Force</th>
<th>Length/Profile</th>
<th>Activation Turns</th>
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<td>A2703-06</td>
<td>4</td>
<td>450 g approx</td>
<td>1.5 mm / 12 mm / 6 mm</td>
<td>60</td>
</tr>
<tr>
<td>A2704-06</td>
<td>2</td>
<td>900 g approx</td>
<td>1.5 mm / 12 mm / 6 mm</td>
<td>30</td>
</tr>
<tr>
<td>A2703-09</td>
<td>3</td>
<td>450 g approx</td>
<td>1.5 mm / 12 mm / 9 mm</td>
<td>45</td>
</tr>
<tr>
<td>A2704-09</td>
<td>3</td>
<td>900 g approx</td>
<td>1.5 mm / 12 mm / 9 mm</td>
<td>45</td>
</tr>
</tbody>
</table>
The non-compliance device for Class II correction. The small sizes of the device all for optimal patient comfort while the constant and light force delivered by the spring MEMORIA 200g, located inside the plunger, stimulates the mandibular advancement. In this new version, the fluidity of movement and the strength of the telescopic mechanism are improved. The packages include all the needed parts for the application of a bilateral correction device.

Available in three lengths with both mesial and distal fitting to the upper molar tube, for a total of six possible positions in the mouth. When used in the mesial position, it can be placed on a single direct-bonding tube, without the need for a band of round tube.
WHERE TO FIND US

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