ORMCO UNVEILS SYMETRI™ CLEAR CERAMIC TWIN BRACKET SYSTEM

**New Bracket Incorporates Advanced Manufacturing Technologies in Polycrystalline-Alumina to Forge Next-Generation of Ceramic Brackets**

*By Ormco*

**ORANGE, Calif.:** Ormco Corporation, a leading manufacturer and provider of advanced orthodontic technologies and services, today announced the next generation of aesthetic-pleasing ceramic twin brackets, Symetri™ Clear. Adding to Ormco’s expansive product portfolio of both lingual and self-ligating bracket systems, Symetri Clear is a refined, aesthetic bracket system incorporating design features that apply expert clinical advice and analysis, end-user feedback and technological advancements and achievements of the Company.

“Over the past 30 years, ceramic materials have evolved to bring more sophistication to manufacturing capabilities, and to deliver an appearance that meets the aesthetic interests of patients. Ormco has been keen on developing proprietary technologies and manufacturing products that leverage the advancements in materials, and also serve clinical demands,” said Matt Turner, president of Ormco. “Backed by over seven years of research and development, we’re pleased to bring our latest innovation, Symetri Clear, to the conventional twin market.”

Boasting a low profile and ample torque and tie-wing strength, Symetri Clear addresses and minimizes the challenges that may come with leveraging a ceramic system—breakage, wire notching and difficulties while debonding. Symetri Clear is designed to debond in one piece without fracturing requiring minimal forces. Initially offered in the McLaughlin, Bennett, Trevisi prescription, Symetri Clear was designed with upwards of seven years of dedicated research and development, focusing on clinical analysis, end-user feedback and Ormco’s proprietary development of technological advancements in ceramics. Serving the needs of doctors and patients, the twin bracket is designed with round surfaces and edges, creating enhanced patient comfort and greater radii on sliding surfaces.

Combining state-of-the-art manufacturing technology and the latest in ceramic materials, Symetri Clear provides the benefit of aesthetics and offers easy, non-destructive, single-piece debonding. Its noteworthy clinical features include:

- **Torque and Tie-Wing Strength.** To better manage treatment flexibility and prevent bracket breakage, Symetri Clear is made of polycrystalline-alumina using a small particle size and is designed to withstand clinically applied forces. The material, combined with advanced processing, promises tie-wing and torque fracture resistance allowing clinicians to confidently treat effectively and efficiently, especially when steel ligatures are needed.

- **Low Profile:** Up until now, a lower profile bracket may have been associated with limited bracket strength or compromised performance. Symetri Clear changes that. With optimized in/out dimensions and a design that angles tie-wings inward on the lower incisors, Symetri Clear is less likely to interfere with opposing occlusions.

- **Advanced Aesthetics:** Symetri Clear has been designed with more rounded surfaces that diffuse light better than a flat surface. This enhances the bracket’s ability to blend with tooth enamel, adding to its aesthetic appeal for patients.

- **Ease of Debonding:** Ormco’s patented laser-etched pad technology allows for a precise, controlled surface that results in reliable bonding and safe, easy, non-destructive single-piece removal.

**To learn more about Symetri Clear, please visit www.ormco.com/products/symetri/ or connect with your Ormco sales representative directly.**

**TIME FOR CHANGE**

Introducing Symetri Clear

**AVAILABLE SOON**

**SAVE THE DATE:**

Digital Orthodontics Symposium 2019

Save the date: 12 April 2019, Dubai, UAE

**By Dental Tribune MEA / CAPPmea**

**DUBAI, UAE:** The event is open to all orthodontists and general practitioners interested in the latest orthodontic progressions in the digital era. The event will attract delegates from across Middle East, Africa and Asia coming April.

The event will gather top key opinion leaders with a focus on the latest trends and developments in digital orthodontics. Digital dentistry can assist us in many ways, by assessing space and measuring the amount of crowding in cases, predicting treatment outcomes, assisting patients’ communication but also storing models digitally and treatment planning. With the introduction of 3D printing in dentistry, the opportunities in orthodontics have expanded from digital impression taking, to developing virtual treatment plans and 3D printing of dental models. The Digital Orthodontics Symposium will illustrate the necessity for orthodontists to look into and highly consider digitalizing their working ways to save time, money and provide more efficient and effective treatments for the patients.

Delegates will have a sneak peek at the latest technologies at the exhibition area where the dental industry will present its latest research, development, equipment and solutions to serve better the dental professionals.
Incisal apical root resorption evaluation after low-friction orthodontic treatment using two-dimensional radiographic imaging and trigonometric correction

By Fabio Savoldi, Stefano Bonetti, Domenico Dalessandri, Gualtiero Mandelli, Conrado Paganielli, Italy

Abstract

Background: Root resorption shall involve deciduous teeth1, root resorption of maxillary and mandibular incisors after low-friction orthodontic treatment, using the combination of panoramic and lateral cephalograms, and applying a trigonometric correction.

Aim: The aim of this investigation was to evaluate the severity of apical root resorption of maxillary and mandibular incisors after low-friction orthodontic treatment, using a low-friction fixed appliance following an integrated straight wire (SW) protocol. The pre- and post-treatment length of the incisors was calculated based on the difference between the pre and post-treatment incisor inclination on lateral cephalograms.

Settings and design: A hospital based retrospective study at the orthodontic Department Dental School, University of Brescia, Speciali Civili di Brescia, Brescia, Italy.

Materials and Methods: Ninety-three subjects (53 females and 40 males, mean age 14 years) with mild to moderate crowding and consequent low orthodontic treatment. Each patient had his/her pre and post-treatment panoramic and cephalometric radiographs taken using the Nemorex NXR software. The change of inclination of maxillary and mandibular incisors was then measured (with reference to the long axis of the tooth, from the incisal edge to the root apex).

Pre and post-treatment panoramic radiographs were evaluated using Adobe Photoshop CS6® (Fig. 7). Initial and final tooth lengths of maxillary and mandibular incisors (with reference to the long axis of the tooth, from the incisal edge to the root apex, through the midpoint of the crown of the mandibular right first molar was measured in pixels, and then all the measurements were converted using this value as the specific unit for each patient. This procedure ensured the normalisation of the data for intra-patient comparison, assuming no change in the angular diameter, despite the changes in the root length. Two different clinicians performed each measurement.

In order to ensure that the measurement of the leaflets showed in the front plane was not a result of the change of inclination of the teeth in the sagittal plane (Fig. 3), the values of the pre-treatment leaflets were calculated using the following formula:

\[ L_{\text{OPT post}} = L_{\text{OPT pre}} + \alpha \times (C - A) \]

where \( L_{\text{OPT post}} \) is the predicted post-treatment length, \( L_{\text{OPT pre}} \) is the predicted pre-treatment length, \( \alpha \) is the change of inclination of the tooth, \( C \) is the incisal angle of the crown of the mandibular right first molar, and \( A \) is the root apex angle of the same molar.

Results:

- Maxillary central incisors showed no changes (0.3%, 0.6%), a statistically significant difference between the pre and post-treatment root length was calculated (p<0.05).
- Mandibular central and lateral incisors showed no changes (0.3%, 0.6%).
- Maxillary incisors had a statistically significant difference between the pre and post-treatment root length was calculated (p<0.05).

Discussion:

The use of a trigonometric correction in the panoramic radiograph analysis may reduce the limitation of this 2D evaluation.
The values of pre- and post-treatment measurements, representing the inter-rater absolute agreement in the measurement of the parameters are shown in (Table 4).

The data sets for the tooth measurements were normally distributed in both the Kolmogorov-Smirnov and Shapiro-Wilk tests p>0.05 taken as significant. Then, a two-sided Student’s t-test was used for paired values to evaluate the differences between the pre- and post-treatment measurements p>0.05 taken as significant. We estimated the inter-rater absolute agreement in the measurement of the parameters are shown in (Table 4).

The values of pre- and post-treatment average tooth length was calculated. Then, depending on the differential inclination, the respective trigosometric correction was applied to obtain a pre-treatment length that was comparable to the post-treatment length without an inclination bias (Table 3). (Table 3) summarizes the outcomes of our measurements.

Table 2: Mean pre- and post-treatment length values of the maxillary incisors and their respective confidence intervals. The measurements use the mesiodistal diameter of the crown of the maxillary right first molar as unit. Results

Table 3: Analysis of the normal distribution of the tooth length data

Table 4: Intraclass correlation coefficient (ICC) values of the pre- and post-treatment measurements, representing the inter-rater absolute agreement

Table 5: Analysis of the differences between pre and post-treatment tooth lengths AV= average; DS= standard deviation; CI= respective confidence interval; n= number of patients.

Table 6: Analysis of the differences between pre and post-treatment tooth lengths AV= average; DS= standard deviation; CI= respective confidence interval; n= number of patients.
evident than the results reported by the literature. As reported by other authors, a slight increase in root lengths was shown in the mandibular lateral incisors (3.4 ± 0.0%), although this was not statistically significant in our study p > 0.05. This could be attributed to the completion of root development in younger patients, which would be in accordance with the median age of our sample (9 years) and with the root completion sequence.

Limitations

Even though we followed a stand- ardized procedure during the X-ray exams, a different level of distortion may exist between pre-and post-treatment radiographs. This bias was reduced by measuring the mesiodistal diameter of the crown of the mandibular right first molar and using it as a baseline unit for all the other measurements on the same X-ray, in order to normalize the in- tratemporal comparison. However, a certain degree of distortion may still be present.

To distinguish between the left and right central incisors on the cephalometric radiograph is difficult, so we therefore selected the most inclined tooth in the maxillary and mandib- ular arch and then applied the ob- tained correction to both the central and lateral incisors. Even though our estimate was specific for the central incisor, it was useful for the laterals but less effective. Therefore, the lat- eral incisors values reported in our results may be less realistic than the values related to the central incisors. Further researches including different amount of crowding and compar- isons with other X-ray examinations, e.g. high accuracy CBCT linear measurements24, shall assess the re- liability of the methods used in this preliminary study.

Conclusion

In patients with mild crowding and consequent low amount of root movement, a straight wire low-friction orthodontic treatment can lead to a decrease in the mesiodistal and central lateral incisor root lengths on both the right and left side approximately of 3%. However, our analysis on panoramic radiographs found no evidence that resorption involved the mandibular incisors. The use of a trigonometric correction may reduce the limita- tion of the 2D radiographs, but fur- ther studies are needed to assess its accuracy.

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