Orthodontics goes Digital with CEREC from Sirona

By Dr. AbdelAziz Yehia, UAE

I

I finally happened... Since LDS. 2015, when Sirona unveiled the CEREC Ortho Software, a Software uniquely designed to send accurate 3D full arch scans to World-Class providers like, and in cooperation with Invisalign, SM Inognito, Dolphin Software, and others... well as the possibility to connecting to a Sirona laboratory, and the Dental Market has been waiting the release of this Software; with the Gulf (specifically United Arab Emirates) being no exception.

Now (since December, 2015) Dr. Amro Abdel, General Manager of Sirona Dubai – U.A.E., and 1 Dental Center in Doha – Qatar.

“Damon System Truths versus Myths” during which he said that “Orthodontics is about changing people destiny, so it is not only about straightening teeth.” The lecture of Dr. Tikhonov was followed by Dr. Philippe Van Steenberghen on elastics and how important they are under the title “Early elastics a new world to explore.” During the breaks in between the lectures, the participants could see an interactive display of the Damon System and also displayed Damon System umbrella products displayed in Ormco booth.

Moreover, the new addition to the 2 days agenda were hands-on courses on brackets positioning. The two hands-on courses were given by Dr. Sturart Frost and Dr. Dimitris Mavreas. During the courses the guests could practice on the Ormco trypots and discover further the Damon System.

The special course attracted 11 participants representing 4 Dental Centers in Dubai – U.A.E., and 1 Dental Center in Doha – Qatar.

Sirona Dental System LLC (Dubai – U.A.E.) has officially announced the launch of the CEREC Ortho Software that can be supplied in combinations. First CEREC Ortho Training on 11th of December 2015.

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The day was finished by Dr. Za- karia Benstalah who answered the question “How to improve efficiency with passive self-ligating brackets?” In the end efficiency with passive self-ligating brackets was not only about straightening teeth; but also about changing people destiny, so it is not only about Damon System truth versus myths” during which he said that “Orthodontics is about changing people destiny, so it is not only about straightening teeth.” The lecture of Dr. Tikhonov was followed by Dr. Philippe Van Steenberghen on elastics and how important they are under the title “Early elastics a new world to explore.” During the breaks in between the lectures, the participants could see an interactive display of the Damon System and also displayed Damon System umbrella products displayed in Ormco booth.

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The new imaging plate scanner XIOS Scan completes the intraoral family from Sirona. Whether you’re taking the first steps into the digital world or establishing or updating a fully digital practice, XIOS Scan and XIOS XG Sensors offer perfectly synchronized solutions for every workflow. Enjoy every day. With Sirona.
3M Oral Care at Saudi Dental Society

By SM

On 5-7 January 2016 3M Oral Care Saudi Arabia took part in the 16th King Saud University International Dental Conference and the 27th Saudi Dental Society Conference held at the Riyadh International Convention and Exhibition Center. Newest Oral Care products and solutions were presented and the exhibition booth which was equipped with designated areas for customer hospitality, product demonstrations and hands-on workshops.

Wide range of dental and orthodontic products used and recognized by thousands of oral care professionals worldwide was presented at the booth. Doctors demonstrated keen interest in new 3M products and solutions such as Filtek™ Bulk Fill Posterior Restorative, Ketac™ Universal Glass Ionomer Restorative, 3M™ True Definition Scanner as well as Clarity™ Advanced Ceramic brackets and AHC™ Flash-Free orthodontic systems.

Traditionally core dental products such as Single Bond Universal Adhesive, Filtek™ Z350 XT Universal Restorative, RelyX™ cements range, Pentacure™ impression materials for Pentamix™ mixing units, temporization products including Protemp™ 4, Stainless Steel Crowns, Peds Strip Crowns as well as orthodontic products including Victory Series™ Bracket System, TADS and Incognito™ Appliance System were also displayed at the booth.

A special area equipped with products and all necessary tools for hands-on workshops was allocated at the booth. The workshops were run by 3M Scientific Affairs & Education Team specialists Dr. Haitham Yousef and Dr. Mustafa El Sammaa. The 5-day workshop schedule included sessions on such actual topics as new trends in posterior restorations, precise conventional and digital impressions with innovative 3M™ True Definition Intra Oral Scanner. In the breaks between the workshops doctors could relax with the cup of fresh Arabic coffee and dates in the hospitality lounge with comfortable sofas.

“3M has been working hand in hand with the Dental Industry in the Kingdom of Saudi Arabia for over a decade. We strongly believe in transfer of knowledge and enhancing the level of patient care through a variety of hands-on workshops, lectures and seminars. We believe that once the dentist is convinced on the efficacy and efficiency of our products he will become a lifelong user. 3M tries to cater to the needs of all segments of the industry, be it Government, Private clinics or Universities. To further increase our relevance to the local requirements, 3M has recently started work on the set up of the first manufacturing facility in the Middle East & Africa region. The ground-breaking ceremony was held in December 2015 at the site in Dammam. This step will bring us even more close to the customers as we will be able to customize our products and solutions for the local needs.” – commented Michal Mirovski, General Manager, Health Care Business Group, Saudi Arabia.

Large diastema closure with Filtek™ Z350XT Universal Restorative

By SM

Female patient, 28 years old. Main complaint about the spacing between her teeth with complete rejection of orthodontic treatment and laminate veneers. Direct restoration was made using Filtek™ Z350XT Universal composite (Enamel and Dentine), Single Bond Universal adhesive, Sof-Lex™ finishing and polishing discs and interproximal finishing strips.

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About the Author

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Vintage LD... The Better Lithium Disilicate

**By SHOFU**

Vintage LD is an innovative lithium disilicate system from Shofu that offers you greater flexibility, more treatment options and aesthetic versatility for a variety of all-ceramic anterior and posterior restorations. A combination of three perfectly compatible components comprising of high strength lithium disilicate glass ceramic ingots in varying levels of translucency, a naturally shaded, opalescent silicate based veneering porcelain and a comprehensive range of low fusing fluorescent stains offers the choice of pressing, staining and highly aesthetic cut back or full build-up layering techniques.

Designed to fulfill the demanding aesthetic requisites of discerning dental professionals, Vintage LD exhibits outstanding shade stability even with multiple firings with virtually non-existent reaction layer for a faster, simpler and error-free fabrication cycle.

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**Beautifil Bulk**

A Smart approach to smarter dentistry

**By SHOFU**

Reduce chair time and your inventory too... with Beautifil BULK, the new generation bulk fill resin restorative developed for easier, faster and predictable posterior restoration. Formulated in 2 discrete viscosities to fulfill individual preferences, Beautifil BULK Flow, a flowable variant is ideal for dentin replacement and a sculptable Beautifil BULK restorative to restore to full contour. Excellent chameleon effect is achieved with just two shades (Restorative Universal and A shade) of Beautifil BULK restorative that blends in imperceptibly with surrounding tooth structure.

Developed with S-PRG filler technology, Beautifil BULK Gionner resins come with additional anti-plaque benefits and sustained fluoride release and recharge to protect against recurrent caries. Exceptionally high filler load with unique filler resin structure maximizes light penetration for optimum cure (Up to 4 mm) while lowering polymerization shrinkage stress.
Splyce ID: Designing Bespoke Modern Wonder Clinics Part III (The Color White)

By Nijas Salim, UAE

There's a lot of white at play in clinics. But it seems like we still can't have enough. So what is with the color white I want to know?

That previous line almost plays out in my head like lyrics to a song. But that's what I am asking Ranjit Prasad, the Principal Architect of Splyce. We know the obvious, white is the embodiment of cleanliness, of health and hygiene, the spick-and-span-germ-free hue, the sign that there is nothing sinister, however small in size, lurking, an RGB version of what you see is what you really get.

White has always been symbolic of purity and of freshness but Ranjit will tell you that despite white being a de facto color of use in the healthcare industry, white makes a massive design statement and its use has desired effects. White has the ability to expand the sense of space, and alter the experience of shapes. Though easy on the eye, it still needs utmost care, and this care is transformed into the assimilation of attributes of luxury. White is also quite relaxing and nourishing.

"Choosing the right white in itself is a job. There are unbelievable choices of white available to pick from..."

and suddenly accents get an elevated status. The warmth of wood or gold trimmings, they all finally get maximum exposure. White also brings artificial light sources into play, and the impact of the color of the light gets magnified. White helps natural light seeping in to get a magnificent glow. So much more can be done with finishes when coupled with white. I also like how white accentuates minute details and curves, thus allowing the care, thought, and stand out details of our design to be really seen and experienced.

And suddenly I remember the importance of the color white, the understated king, the one that all colors unite to become. I remember that Krzysztof Kieślowski film, the one that imitates life, the one that is filled with humor, is called, White.

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Predictable Endo 102: Why warm and soft is so good

System ‘S’ for injectable or carrier-based GP

By John J. Stropko, DDS

The author has been in private practice and a continuing education provider for the past 50 years. The first half was spent providing general dentistry, mostly endodontic and the second half in a specialty practice limited to endodontics. On the road to predictability, it became apparent there was a need to establish a relationship or standard of care between root canal treatment, peridontal status, prosthetic principles and techniques. Each operator has to decide what steps for a more predictable outcome they are willing to trust another to do. This article is an attempt to share some “secrets of success” and perhaps serve as a checklist for a system that works in the attempt to achieve predictability of endodontic treatment.

During the earlier years of the past century, several techniques were devised for the obturation of the canal system after removal of the diseased pulp, or necrotic tissue. Some of the most popular were silver points, lateral condensation of gutta-percha (GP), Sargent paste and chloropercha. Currently there are seven techniques that utilize gutta-percha as the obturation material: choice.

1) Single cone
2) Lateral condensation
3) Carrier based (Thermafil)
4) Vertical condensation of warm GP (Schilder, continuous wave, System “B”; McSpadden, System “A”)
5) Pre-softened (Thermafil)
6) Injection of thermo-plasticized GP (often referred to as “squirted” using a Calamus or Obtura unit)
7) Mechanically assisted combination (Mac/Mc)

In 1967, Dr. Herb Schilder, often referred to as “the father of modern endodontics,” introduced the concept of filling the root canals in three dimensions. The Schilder Technique involves a different approach for obturation of the canal system and resulted in much controversy.

Evidently, the controversy did create interest from some doctors, because in the mid 1970s new ideas and techniques evolved that became must of what are currently accepted contemporary endodontic principles and techniques. Today, the numerous clinical reports, published research and the rapid advancements in technology have significantly changed the operator’s obturation preferences. Ease of communication, along with modern marketing, has become a very important determinant when making a choice of techniques. More recent studies have discounted some previous obturation materials that were popular, but some form of GP still remains the most acceptable and widely used. The purpose of this article is to share a simple, six-step protocol (System “S”) in a straightforward manner, to achieve predictable endodontic treatment for the benefit of the patient.

There are six important components to the System “S” protocol: 1) Proper shaping with patency 2) Adequate cleaning, disinfection and drying 3) Delivery of pre-warmed GP to apex (Calamus/ Obtura) 4) Coronal seal for the rest of the system 5) Respect for the endo-pro relationship 6) Use of the surgical operating microscope (SOM) for the entire endodontic procedure. The author believes that as long as the gutta-percha is introduced to the apical third of the canal system, pre-warmed and pre-softened, the deformation and adaptation to the canal walls is more predictable, resulting in a better seal that is significantly more water-tight. It has been shown that the pre-warmed techniques (Obtura and Thermafil) produce a better seal than lateral condensation.2 Due to the lack of deformity inherent in root temperature, the techniques utilizing non-softened GP are more “sealer-dependent.” The two most popular thermoplastic obturation techniques are the “carrier-based” (e.g., Thermafil) and “direct injection” (e.g., Calamus/Obtura). The pros and cons of each will be discussed, but regardless of the technique used, the “shape” of the prepared canal system is of utmost importance and must be discussed.

Access and shaping the canal system

In the early ’70s, Schilder clearly listed the requirements for the proper shape using GP to achieve three-dimensional obturation of the canal system: 1) The root canal preparation should develop a continuously tapering cone shape. 2) It should have decreasing cross-sectional diameters at every point apically and increasing at each point as the access cavity is approached. 3) It should have multiple planes, which introduces the concept of “flow.” 4) The foramen should not be transported. 5) The apical opening should be kept as small as practical in all cases.

There were several other requirements that were clinically definitive. Following are a few of them: After placement of the rubber dam, appropriate access is necessary. Unless the access is large enough for adequate visibility, appropriate instrumentation may be compromised and canals missed. A perfect example is a maxillary first molar; if there was an MB2, it is amazing how many times an MB2 is found. A general rule of thumb is, if you access for it, you are more likely to find it. A proper access will also facilitate the creation of the continuously tapering shape of the canal, necessary for the warm GP technique. Occasionally after caries or old restorations are removed, a “pre-endodontic” restoration may be required to control and maintain a sterile environment until the endodontic treatment is complete. This can usually be accomplished using a bonded composite technique. Shaping should be confined to the anatomy of the canal system, following the natural curvatures. Instrumentation beyond the apex is unnecessary and may needlessly enlarge and deform the apical foramen.3

Using the Schilder protocol to achieve the desired shape of the canal system was a time-consuming process. It involved the tedious use of pre-curved files and reamers to follow the anatomical curvatures of the canal.

Fig. 1. Typical rotaries, one of several popular brands, efficient/Provided by John J. Stropko, DDS, unless otherwise noted.

Other requirements that caused some controversy (and still does), besides the size of the access opening, was the need to keep the apical foramen as small as possible, and to maintain patency throughout the entire process. The majority of more recently published research and clinical studies have confirmed the rational for an appropriate access and correct shaping. In the early 1990s, technology brought about the introduction of rotary instruments, relaying the operator of considerable time spent creating an acceptable shape. The ProFile rotary bur (Tulsa Dental) with 0.04 and 0.06 taper, was introduced to the profession. Creating the shape necessary for the success of the warm obturation techniques was made easier and faster.

By the beginning of this century, numerous designs gradually evolved utilizing varying tapers, active or passive cutting blades, etc. (Fig. 1). At first, the biggest problem with the rotary files was breakage during use. But modern nickel titanium (NiTi) metallurgy technology has developed more, and more dependable, rotary files. As a result, today the separation of a rotary instrument during use is of virtually little or no concern. It has also been shown that proper shape permits more thorough irrigation and the removal of significantly more debris from the prepared canal system. Disinfecting irrigation should be used between each instrument during the entire shaping process and patency continually maintained with its #10 file. Note the amount of irritants used is not as important as the frequency of use. The irrigation protocol, instruments, fluids, etc., are in constant evolution and becoming more effective. However, a clean and sterile environment of the canal system prior to obturation is still the objective.

Irrigation for cleaning the canal system

After shaping is completed, final cleaning can be effectively accomplished by the alternative use of: 1) Warm 5- to 6-percent NaOCl 2) 17 percent aqueous EDTA for approximately 30 seconds (mechanical removal) 3) Warm 5- to 6-percent NaOCl for 30 seconds (mechanical removal) and 15 seconds (chemical removal) 4) 17 percent sanitary EDTA for 30 seconds (mechanical removal) and 15 seconds (chemical removal) 5) Warm 17 percent EDTA for 30 seconds (mechanical removal) and 15 seconds (chemical removal)

The NaOCl can be effectively warmed by placing the irrigating syringes in a beaker of warm water on a small coffee warmer (Fig. 2). The canals are completely flooded with the desired solution; an Endo Activator (Dentsply) is appropriately used for the “tsunami effect,” then re-irrigated with the same solution for flushing of debris (Fig. 3). The NaOCl is then effectively removed with a capillary tip (Ultradent) attached to a high-speed evacuator. Other...
Fig. 6. When drying canals with air, needles must be notched or sideward (arrows).

Fig. 7. The Chapman-Huffman in-line air regulator and 0.15 psi gauge works well.

Fig. 8. Fresh abraded points are used to remove excess sealer until “blotchy.

Fig. 9. Only a very thin layer of sealer need coat the walls for lubrication. (Photo/ Courtesy of Bob Sharp, Savannah, Ga)

Fig. 10a. A failed perforation to the distal root of a mandibular first molar.

Fig. 10b. Canal filled just apically to failed perforation.

Fig. 10c. MTA placed to repair the perforation.

Fig. 11a. The Calamus Dual unit with a thermal handpiece. (Photo/ Courtesy of Dentsply Tulsa Dental Specialties).

Fig. 11b. An Obtura III Max Pack Dual also has the thermal handpiece.

Fig. 12. The plunger is pressy, short of bleeding, to avoid unnecessary contact with the canal walls during deep preparation of the gutta-percha GP. (Image/Courtesy of Arnaldo Contigliani, Florence, Italy).

Fig. 13. The GuidaCore carriers are just one of many popular products for carrier-based GP. (Photo/ Courtesy of Dentsply Tulsa Dental Specialties).

Solutions (hydroxy peroxide, chlorhexidine, 17 percent aqueous EDTA, MTAD, etc.) can also be used alternately, depending on operator preference.

Close observation with an SOM will clearly indicate complete cleaning of the canal system where no debris is flushed out during the irrigation process. During the evacuation with the capillary tip, it becomes apparent if there is a joining of the canal systems within the root. For example, if using the SOM as the MB1 canal is being evacuated and it is noted that fluid is simultaneously being drawn from the MB2 canal, there is a good indication that the system is complicated and does join at some point (Figs. 4a, b).

There are occasions, especially in lower molars, where the mesial root canal system unexpectedly joins with the distal root canal system (Fig. 5).

On occasion, the maxillary canal system will have the DB or MB canal system connected to the palatal system. These “surprises” are important to be aware of, before obturation of the canal systems, especially when using either carriers or injectable GP.

Drying canals with F4+K+I+E.

The canals (s) are dried with 95 percent ethanolic Ever-Gel (available at local liquor stores), agitated of the fluids are ignited with an activator for the tsunami effect, then re-irrigated with the 95 percent ethanol, and then evacuated with the capillary tip. The canal (s) are then heat dried by using a Stropko irrigator on a dedicated, air-only syringe (DES), but if a three-way syringe is used, be sure to excess air is being expelled from the canal with the use of a thermal handpiece.

Press all water from the line first (Fig. 5). Next, with a 27- or 50-gauge needle or sideward needle (Monoset), fit to the Stropko irrigator and heat as necessary, to dry the canal system (Fig. 6). Important note: It is essential to regulate the flow of air as is no syringe at 1 to 5 psi and use a side-vented or notched needle, to prevent any possibility of inadvertently forcing air through the apical foramen, and this is achieved with an in-line regulator, the Chapman-Huffman Regulator, Fig. 7 (Table 1).

As dentists, we are accustomed to a “blast” of air while using the usual air/water syringe used at high air pressure to the DW syringes. There is regulated air pressure fitted with an appropriate small gauge needle, only, to dry the canal(s) in order to create the flow necessary for thorough air drying of the canal. On occasion, one has to direct the air to a sensitive area on himself or herself to be sure the air is even flowing. Just watching the evaporation that occurs within the canal, while using the SOM, is enough to convince any operator that there is indeed a flow of air.

There is enough physiologic back pressure of the apical envi-

ronment (1.5 mm Hg) to prevent movement of the air past the terminus in the correctly shaped canal. In almost 20 years, with many different doctors using the Stropko Irrigator to “dry” canals, the author has only heard of one unfavorable incident. In that one case, the doctor did not use an activator and did not regulate the air pressure to the air syringe.

To repeat, when the Stropko Irrigator is used with the properly regulated air pressure (1 to 3 psi) and the appropriate 27- to 50-gauge, side-vented/notched needle is used, there is a force of air to aid the fluid to enter into air into apical tissues.

Sealer application

To the SOM user, the ineffective- ness of drying the canal with a paper point is soon realized. It is also easy to observe how differen- tially the Kerr Pulp Canal Sealer EWT (SybronEndo) acts when the canal is in fact not just blotched. After blotting with a paper point, the sealer tends to act like a drop of oil when placed in the canal wall. But when the sur- face is dried, using alcohol and air as described earlier, the sealer readily spreads onto the canal wall, much like a coat of paint. The complete dryness of the canal to the desired working length is checked with a clean abor- point that fits to length. This also gives the operator an excellent chance to recheck the working length and dryness of the canal. Any sealer (Kerr EWT, Roth, AH Plus, etc.) can be used as long as the heat of the warm GP does not give a “flash set.” The end 5 mm of a sterile paper point is coated with the sealer of choice and placed into the canal to the working length.

The author uses Kerr Pulp Canal Sealer EWT, mixed per usual di- lution, but a little “on the thin side.” Using short, rapid apical- lateral, the walls of the canals are completely coated with sealer. The use of the SOM is a great aid for observing when the coating of the canal wall by the sealer is complete. In almost all cases, a sterile absorbent point is used, in the same manner, to remove any excess sealer that may remain.

Depending on the amount of sealer placed at the beginning, more than one absorbent point may be necessary to get the “blotchy appearance” on the final point (Fig. 8). Only a thin coat of sealer is necessary for lubri- cation, so very little remains on the walls of the canal (Fig. 9).

One of the most common mis- takes, made at first, is using too much sealer. When this happens, the excess sealer will be extruded back into the cham- ber, or apically when the warm GP is placed. In some cases, the GP may be prevented from completing the desired “blast” apically. Typically, only one or two points are normally needed once the operator achieves pro- ficiency at applying the correct amount of sealer to begin with. Thermoplastic GP techniques are used here and depend more on the sealer as a lubricant and facilitate the flow of the thermoplastic GP.

Important consideration between injection or carrier-based obturation Essentially, there is one very significant differ- ence between the two techni- ques. The injection technique fills the canal system from the apical to the coronal, whereas the carrier-based techniques fill from coronal to the apical. This is important to take into account, especially in cases in which the operator does not want to fill the canal to the orifice or needs to control the “depth” of the fill.

A good example would be in the case of treatment of a per- foration using injection. The “fill” can be accomplished rather easily, and both the sealer and GP can be applied to the perforation. MTA can then be added to the repair in a very controlled manner (Figs. 10a-c). When a post space is required, the GP can be injected to any level in the canal, but it is bet- ter to obturate the entire canal first, so uncommonally more coronally in the canal won’t be missed.

Injection of thermo-plasti- cized GP with a Calamus or Obtura

After using the Obtura for more than a decade, the thermo-plastici- zed GP obturation, the author switched to the Calamus when it was introduced many years ago. After thousands of canals were obturated with the 95 percent ethanol, several advantages were noted when comparing the two units (Table 1).

Both units are available as a sin- gle unit, or a dual combination with a thermal handpiece for convenience (Figs. 11a-d). The consistent flow of the Calamus unit does make the learning curve quick and the operator’s system is always greater than the Obtura, because the relative large muscle action of squeezing the air syringe from patient to patient, or day to day, is a great aid for the patient. The current environment (1.5 mm Hg) to prevent air to a sensitive area on the walls of the canal (Fig. 9). One of the most common mistakes, the canal then becomes an ex- tended system, especially when the control is severely handicapped. Shape is of the utmost impor- tance, especially in these tech- niques.

The settings on the Calamus are checked to assure the de- sired set is obtained with the 95 percent ethanol mixture (the author uses 160 C), and the flow rate is set cor- rectly (the author prefers 100 percent). When the unit reaches the desired GP, the ma- teriorized plunger will not initiate the flow of GP. When all is ready, the collar is pressed un- til the initial GP is extruded and then the collar is released. The slight amount of GP at the tip is removed.

The needle is then placed into the canal apically, but in which the collagen is pressed to reposition the GP and initiate the flow of GP. It is good practice to barely move the tip, in a very slight apical-coronal direction. Using the injection, the “fill” can be accomplished rather easily, and both the sealer and GP can be applied to the perforation. MTA can then be added to the repair in a very controlled manner (Figs. 10a-c). When a post space is required, the GP can be injected to any level in the canal, but it is bet- ter to obturate the entire canal first, so uncommonally more coronally in the canal won’t be missed.
Table 1. A comparison of thermo-plasticized GP obturation with Calamus vs. Obtura.

<table>
<thead>
<tr>
<th>Obtura</th>
<th>Calamus</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>7</td>
</tr>
<tr>
<td>No. 2</td>
<td>11</td>
</tr>
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<td>16</td>
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<tr>
<td>No. 7</td>
<td>18</td>
</tr>
<tr>
<td>No. 8</td>
<td>20</td>
</tr>
<tr>
<td>No. 9</td>
<td>22</td>
</tr>
</tbody>
</table>

Legend:
- **No. 1**: 1-2 mm of gutta-percha extruded coronally.
- **No. 2**: 2-3 mm of gutta-percha extruded coronally.
- **No. 3**: 3-4 mm of gutta-percha extruded coronally.
- **No. 4**: 4-5 mm of gutta-percha extruded coronally.
- **No. 5**: 5-6 mm of gutta-percha extruded coronally.
- **No. 6**: 6-7 mm of gutta-percha extruded coronally.
- **No. 7**: 7-8 mm of gutta-percha extruded coronally.
- **No. 8**: 8-9 mm of gutta-percha extruded coronally.
- **No. 9**: 9-10 mm of gutta-percha extruded coronally.

<table>
<thead>
<tr>
<th>Obtura</th>
<th>Calamus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to fill the canal</td>
<td>30 seconds</td>
</tr>
<tr>
<td>Time to compact the gutta-percha</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Time to obturate the canal</td>
<td>90 seconds</td>
</tr>
</tbody>
</table>

Table 1A. A comparison of thermo-plasticized GP obturation with Calamus vs. Obtura.
A good example of an easy-to-use temporary is auto-cure Tenure Uni-lod and Core Post (Denmat). CaOH (Ulbrac by Ultradent) is injected into the canal system and covered with a sterile cotton pellet (Fig. 19b). Then Tenure Uni-lod is used to condition the access opening (Fig. 19b). After a few minutes, the auto-cure Core Post is set completely, the occlusion is ready for any adjustments, to make sure there are no interferences left to irritate the tooth between visits. On occasion, a patient is unable to keep the appointed return visit within the temporary placed between visits and may have to delay his or her return visit for weeks or even months (Fig. 19c). There may be an important change of events in his or her life, or the doctor may also have to change the scheduled visit. If a temporary is placed, such as Cavit, IRM or TempXL, all control of the bacterial environment in the canal systems pass to the patient if the doctor does not return in a timely fashion.

Who would be better to control the final outcome of the tooth following endodontic treatment than the “endo-doer,” while the other isolated with a rubber dam in place? As Dr. Denny Southard of Tulsa, Okla., commented almost 15 years ago, “When we splint in Cavit and turn our heads, the case is destined for contamination or worse [for perforation, for example],”

If a more definitive seal is maintained, that part of the equation becomes a non-issue.

An easy foundation restoration technique

After the obturation of all canals, the gutta-percha is removed to the proper depth in the orifice as required for retention. This is quickly and easily done using a Mucro Bur at approximately 5,000 rpm. If a post space is required using carrier-based GP, a Pro-Fit drill can be used to a little GP at a time, until the desired depth is reached. The remaining portion of the root canal obturer tube of the SOM and a precise flow of air from the Stropro In- riger (a 30 gage) chairside assistant can aid in the removal of all bits of sealer and GP to maintain vision while removing the remaining materials. The access/post space is done.

After the mechanical cleaning of the access is accomplished, it is flooded with 95 percent ethyl alcohol to remove any remaining sealer and scrubbed with a micro-applicator (SybronEndo). Another application may be necessary to achieve a clean surface. If there is a post space, it can be cleaned the same way, but after flooding the space with 95 percent ethyl alcohol, use a Versa brush (Vista) turning at approximately 500 rpm is assured of getting all the space walls free of sealer. After this step, the post used can be selected to be sure it fits passively.

The Fibrecore post (Perrson) has a very high percentage of retention at the root end. However, this has to do all that is possible to prevent it. If multiple visits are required, the doctor is urged to place a “c试ton on end” and maintain sterile conditions. If this is not possible, the temporary between visits should be a bonded composite.
tooth is lost to disease? Once the referring doctors are aware of the favorable benefits that will be derived, it becomes difficult for a consci-entious person to object to this concept of eliminating untoward possibilities that can lead to fail-
ure of treatment.

Conclusion

The System “S” protocol de-
mands thoroughness in treat-
ment of the entire canal system. As a doctor, we can be used with the same de-
gree of success, as long as they are done correctly. System “S” requires a commitment to com-
plete all six steps to avoid the many pitfalls that present them-
selves during treatment of the entire endodontic canal system. A survey of endodontists taken
about nine years ago stated that 56 percent always used an SOM, 50 percent sometimes used it, and 2 percent never used it.12 Hopefully, things have changed. The use of an SOM is essen-
tial for any “endo-doer” to achieve the high level of predict-
ability our current technology al-
lows us to deliver. Only we know what we see, and if we don’t see it we don’t know it. A good ex-
ample is the high percentage of fourth canals (95 percent) that can be found in the maxillary molar segment.

The clinical use of the SOM sig-
nificantly increased the number of canals that were found.13 If these canals are not found,
and the operator doesn’t take the time to locate and treat them, the predictability of success will be far less. It behooves all of us to do everything humanly possible to give our patients dental treat-
ment that will create the health they expect from our profession.

In general, our current endo-
dontic vision has been directed to treatment of the apical half of the root canal system. It should not be a problem in de-
grating the basic principles of bonding technology, restorative prin-
ciples and post core placement into our normal endodontic treatment protocol. We, as a specialty, should be thinking in terms of being responsible for pro-

ing everything humanly possible to increase the predictability of our treatment. When endodon-
tic failure takes place, it seems like everyone “stands around in a circle and points at one another.” Adhering to proven prin-
ciples eliminates the probability of contamination of the canal sys-
tem by providing a solid founda-
tion for the restorative aspect of the patient treatment.

Obviously, those who are so con-
cerned with the endodontic lack of respect for radicular structure have not witnessed what often happens to that same tooth when preparing it for a crown. It is im-
perative for the endodontic and restorative to be a team, work-
ing together for predictability, in the interest of the patient.

Our job as “endo-doers” is to learn, become teachers and educate the patients, staff and doctors we work with, so we can achieve dental health as a team. Let’s not “cave into” the demands of public convenience or political pressure, but rather be governed by proven dental principles, so we can achieve predictable endodontic success, saving the teeth our patients are born with, but isn’t what endodon-
tics is all about?

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Beverly Hills Formula - Over 20 Years Perfecting the Business of Smiling

By Chris Dodd, CEO Beverly Hills Formula

Manufactured in re-
terstate Nevada, Beverly Hills Formula ranges are
rapidly becoming the go-to whitening products, with many people opting to use these safe at-home whitening toothpastes as a safer and cost-effective alternative to the牙科

market. launching in 2013, beverly hills Formula has seen considerable success in the restorative field. Known to the dental community as one of the top five oral care brands. This is an appreciable achievement even when one takes into consideration the vast number of whitening toothpastes available on the market today.

The success of Beverly Hills Formula comes down to a nu-

merous factors:

• The company is streets ahead in terms of new product development.
• In-house range of whitening products are safe to use at home.
• The company has ensured that their products are as ef-

fective as possible, and have proved themselves as leaders in expert stain removal.

Launched in 2012, the Perfect White Range has been viewed as a revolutionary way of al-

lowing the patients to whiten their teeth without opting for pro-

ducts containing high percent-

age of peroxide, potentially
devastating to teeth in the long term. The company responded
to the need for quality and ef-

fective whitening products in

the market. New product devel-

opment has always been some-
thing that Beverly Hills For-
mula held in great importance, and owes much of its success to the fact that they have brought
some of the most innovative and effective products to the market. Launching in 2015, Perfect White Black was the first of its kind on the market. The toothpaste, containing activated charcoal, took the market by storm. Charcoal is a centuries old method of clean-

ing teeth, and this cutting-edge

product was well received by consumers. Although a num-

ber of copy-cat products have
ever been in the market, none have seen the same success as Beverly Hills Formula’s very

own Perfect White Black, with qualified dentists and cosmetic doctor Dr. Martin Kinsella say-
ging: ‘I’ve tried the Beverly Hills Perfect White toothpaste and found it to be effective in removing stains and helping to achieve a whiter, brighter smile.’ Following on from this, the company introduced Per-

fect White Black Mouthwash in 2015, also the first of its kind. The ‘shake to activate’

charcoal mouthwash keeps breath fresh for up to 12 hours, whilst removing stains. Perfect White Gold toothpaste, containing real gold particles was launched later that year. Both of these products have seen considerable success in the market.

2016 will be a huge year for Beverly Hills Formula, with the company planning on in-

troducing an expert whitening product. Perfect White Expert toothpaste, containing effective and safe levels of peroxide, will offer a high performance whit-

ening boost. As well as this, the company has launched a new toothpaste Perfect White Sensitive, the first charcoal toothpaste for sensi-

tive teeth. The brand also add a charcoal dental floss and
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4 mm to success

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whitening products had the lowest abrasion levels on the market. The independent study found that Beverly Hills Formula whitening products have abrasivity levels as low as 89, when compared with some leading stain removal products on the market which scored as high as 186. It is important to note that although there are many leading whitening toothpastes on the market, many of these contain extremely high abrasion levels, which will strip away at the enamel over time. This can cause a range of problems, including increased sensitivity to hot and cold products, as well as causing teeth to appear yellow over time - quite the opposite function of a whitening toothpaste! It is important that patients are well informed of the dangers of using toothpaste which contain high abrasion levels, which generally will do more harm than good to one’s teeth. Beverly Hills Formula strives to help patients achieve optimal, healthy teeth and gum health. Sensitivity is a growing oral health concern influencing purchase. Consumers want products that work well but are also gentle to their teeth enamel and gums. Many people suffer from sensitive teeth and it can start at any time. It is more common in people aged between 20 and 40, although it can affect people in their early teens and when they are over 70. Women are more likely to be affected than men. If sensitivity effects so many people why are they not buying more “sensitive” oral care products?

Research tells us that most consumers, as many as 90%, find it difficult to choose products in-store. So how can we help consumers find the right products for them? It can start at the dentist. Dental professionals recommend that consumers choose toothbrushes with soft bristles as these are gentle on their teeth enamel and gums. They also prefer smaller heads as it is easier to navigate around the mouth and clean difficult areas, especially the back molars where cavities tend to start.

Contact Information

For more information on Beverly Hills Formula products please call +353 1842 6611 email info@beverlyhillsformula.com or visit www.beverlyhillsformula.com.

Teeth and gum sensitivity effects over 50% of adults

By Jordan

Sensitivity is a growing oral care health concern and preventing sensitivity starts by keeping the teeth enamel strong & healthy. Sensitivity is in many markets the No. 1 concern influencing purchase. Consumers want products that work well but are also gentle to their teeth enamel and gums.

Many people suffer from sensitive teeth and it can start at any time. It is more common in people aged between 20 and 40, although it can affect people in their early teens and when they are over 70. Women are more likely to be affected than men. If sensitivity effects so many people why are they not buying more “sensitive” oral care products?

Research tells us that most consumers, as many as 90%, find it difficult to choose products in-store. So how can we help consumers find the right products for them? It can start at the dentist. Dental professionals recommend that consumers choose toothbrushes with soft bristles as these are gentle on their teeth enamel and gums. They also prefer smaller heads as it is easier to navigate around the mouth and clean difficult areas, especially the back molars where cavities tend to start. Manufacturers can also help by making “sensitive” products more attractive and readily available with clear and easy to understand information. In 2014 there was a rise in the number of launches with enamel focus.

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FDI and Royal Philips sign global agreement to promote the importance of oral health

By Philips

GENEVA, Switzerland: FDI and Royal Philips, the makers of the Philips Sonicare toothbrush, will team up to actively promote the importance of oral health and its impact on a person’s overall health, and together promote World Oral Health Day (WOHD) 2016.

World Oral Health Day, celebrated on March 20, is an international day to raise awareness of the connection between oral health and overall health. FDI member national dental associations, dental student associations and other groups, organize a variety of global events.

“I’d like to welcome Philips to our group of sponsors and congratulate them for demonstrating their commitment to the cause of global oral health awareness,” said FDI President, Dr. Patrick Hesquet. “World Oral Health Day is an opportunity to position oral health where it belongs: at the heart of wellbeing and quality of life.”

“For Philips, the FDI World Dental Federation is a great partner,” said Egbert van Acht, CEO, Philips Health & Wellness. “Increasing education around the importance oflooking after oral health is one of our key goals. We are committed to bringing meaningful innovation to address global societal needs. WOHD allows us to engage and encourage people to commit not only to their oral health, but also to systemic and the positive impact on their overall health. At Philips, we are actively promoting the link between oral and systemic health to help improve people’s lives.”

Activities for WOHD include poster, billboard and media campaigns, free dental screenings, oral health camps, literacy sessions and workshops, hook-ups and kits, cultural activities, debates, and festivities such as flashmobs, walkathons and charity sporting events. In some countries, groups have made attempts on world records such as greatest number of people attending an oral health literacy session or brushing their teeth at one time.

For more information, visit www.worldoralhealthday.org.


Humble Brush: Charitable and eco-friendly approach to global oral care

By Kristin Hübner, DTI

STOCKHOLM, Sweden: Considering the more than two billion plastic toothbrushes that end up in landfills every year, wouldn’t anyone rather opt for an eco-friendly and sustainable alternative toothbrush, provided it has the same durability and bristle strength? More and more people are demanding products that are sustainable and reducing our impact on the environment. And such a brush does exist: Humble Brush.

It is an inspiring approach to global oral care with which Swedish company Humble Brush set out to help improve oral health around the world. For every Humble Brush sold, the company donates a toothbrush or alternative oral care to people in need.

Furthermore, its range of eco-friendly bamboo toothbrushes are produced in all-recycled materials. The charitable Humble Brush approach to making a change does not rely on donations. Instead, its business model enables consumers to help produce products that make a difference.

The Humble Brush company mission is to improve oral health is the Humble Smile Foundation. “The donated toothbrushes go to children in need as part of a comprehensive preventive programme. It is imperative that children living in underprivileged areas where there is no option for dental treatment receive the means to prevent oral disease,” Abdayem stressed.

Together with partner organisations, the foundation currently operates at 15 sites around the world. With a help-to-help themselves approach, its projects aim to raise oral health awareness and implement behavioural changes in order to address the critical lack of access to dental care in many of the world’s poorer and remote areas. This involves oral hygiene interventions, such as monitored toothbrushing and dietary adjustments, as well as general oral health education for caretakers and reno- ral and dental clinics.

Founded in 2014, the company now has local offices around the world, including Finland, Latvia, the UK, Greece, Turkey and the USA. “We are planning to open up in 25 new markets in 2016, making Humble Brush the world’s fastest growing brand in the oral care industry,” Abdayem said.

Humble Brushes are available in adult and child sizes, starting from US$4.99 (€4.60). More information about the company and the foundation can be found at www.humblesmile.com and www.humblebrush.com.
A good option for the lifelike recreation of gingival tissue

The flawless reconstruction of gingival tissue requires sound teamwork as well as excellent materials and exceptional skill. Layering with the light-curing laboratory composite SR Nexco takes this procedure to a new level.

By Dr. Patrice Margossian, Marseille, & Pierre Andrieu, France

Careful planning is indispensable in the treatment of an edentulous jaw with implant-supported restorations. The axes and positions of the implants must correspond to the given biological, mechanical and esthetic conditions. In situations where severe bone recession has occurred, the work of the dental team will involve not only the reconstruction of dental but also of gingival tissue. The dentogingival complex must primarily fulfill two aspects: function (chewing and speaking) and esthetics (alignment of the teeth and gums and lip support).

Clinical case presentation

When the 57-year-old female patient presented to our practice her teeth and the related bone structure were in very poor condition (Figs 1 and 2). Numerous teeth were missing in both the upper and lower jaw. Furthermore, the upper jaw showed considerable bone and gingival resorption. The patient wished to have fixed teeth again and regain an attractive appearance. Due to the extensive damage that had occurred, the complete restoration of both jaws with implants was indicated.

Surgical phase

As a result of sufficient bone structure in the lower jaw, this part of the mouth could be restored at once with four immediately loadable implants. During the reconstructive phase, the upper jaw had to be treated with a provisional removable denture due to the atrophied jaw ridge. The tooth extractions in the upper and lower jaw took place during one day. At the same time, the four lower jaw implants were inserted and loaded. An immediate denture was placed in the upper jaw.

During the osseointegration period of the mandibular implants, the bones in the upper jaw were reconstructed. The maxillary sinus and the jaw ridge were augmented in one appointment. At the next appointment, ten implants were placed according to the treatment plan. Six months after this intervention, the implants were exposed. As a result of a well-planned soft tissue management strategy, firm keratinized tissue had formed in adequate form. The permanent restorations for the upper and lower jaw were fabricated two months later (Figs. 3 and 4).

Prosthetic phase

The determination of the occlusal plane and the ideal incisal edge is an important task in the esthetic rehabilitation of the upper jaw. When the upper and lower jaw have to be restored, it is important to start with the upper jaw. Alternatively, both jaws can be restored simultaneously.
Hamdan Bin Mohammed College of Dental Medicine, is the first college established under the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU) at Dubai Healthcare City. The postgraduate college offers residents a three year Master of Science degree in the following six specializations:

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**General Dental Practitioners Lecture Series 2016**

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<th>Speaker</th>
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<td>Feb 8th</td>
<td>Paediatric Dentistry CPQ/CPD/997/15 Hrs, 1.5</td>
<td>Clinical Assistant Professor Iyad Hussein</td>
<td>&quot;The Role of Dental Professionals in Children’s Safeguarding&quot;</td>
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Office No. +971 4 3622861
Articulation of the models

The articulator allows the kinematics of the jaw to be correctly simulated. The aim of the art of the treatment is of a functional nature. It is intended to ensure the optimal occlusal integration of the restorations and the proper jaw movements during chewing, speaking and swallowing. In this particular case, the upper jaw model was positioned with the help of a facebow. Four impression posts were screwed on the implants in order to provide strong support and enhance reliability. Alternatively, this step can take place directly on the immediately loaded provisional restorations. For this purpose, however, the model has to be mounted in the articulator of the dental practice. In the present case, the monoblock model was positioned in the correct relation to the hinge axis-oral plane.

Subsequently, we adjusted the bite patterns in order to record the vertical dimension of occlusion. The centric relationship is regarded as the reference position for adjusting the muscles to the centric and functional jaw relationship. The monoblock model was mounted in the articulator with the help of a jaw simulation record. If the centric and the vertical dimension of occlusion are correct, the immediately loaded provisional restorations can be used for this purpose.

The restorations have to be immobilized when they are mounted in the articulator. The Artex system allows the articulator of the dental practice to be synchronized.

Recording of the major facial criteria

The Ditramax® system was used to transfer the pre-cranial facial structure to the esthetic facial axes to the maxillary model (Figs. 5a and b). Two axes were marked on the plaster base of the model (vertical and horizontal). The vertical axis represents the sagittal/median plane. From the front, the horizontal axis is aligned parallel to the axis of the patient’s maxillary dental arch and from the side to Camper’s plane. These markings, which should be very close to the working area, act as a guide for the dental technician in setting up the teeth. Therefore, the incisal line has a predictable parallel alignment to the bиюpillary line.

The incisal axis is aligned parallel to the sagittal/median plane. The Camper’s plane markings indicate the alignment of the occlusal plane. All these elements provide a sound rationale for the tooth set-up according to esthetic and functional principles.

Tooth selection and set-up

We selected the tooth shade and the teeth from the bar of the SR Phonares® II tooth mould chart. Holding the teeth up against the lips of the patient quickly reveals whether or not they are in harmony with the facial features. The set-up of the teeth according to the Ditramax markings (Fig. 6) allows the situation to be clinically validated. In this case, particular attention was given to the esthetic integration of the dentogingival complex when the patient was smiling. The lip dynamics were shown with video clips. The functional criteria were also checked. The vertical dimension of occlusion had to be harmonious in order to achieve a balanced lower facial third and proper phonation.
Case study: Herculeite® XRV Ultra™ and OptiBond™ XTR
Supporting the future generations in dentistry

By Kerr

A 52-year-old patient presented with a request to replace defective, old restorations and improve the aesthetics of the smile.

A decision was made to remove the old restorations from teeth 11, 12, 21 and 22, as well performing coronoplasty to improve the final aesthetic results. For reasons related to the patient’s health, the treatment was performed over two sessions.

For the bonding procedure, the 2-step self-etching bonding system OptiBond XTR was chosen. The clinical procedure consisted of the application of a self-etching primer that changes the morphology of the enamel surface depending on its pH, followed by the application of the adhesive.

The pH of OptiBond XTR Primer is 2.5 and decreases to 1.7 during application. Then it switches to a value of 7, due to a chemical reaction with the calcium ions of the dental tissues. OptiBond XTR performs very well on the dentine surface as well, dissolving the smear layer effectively.

The self-etching primer was applied using a microbrush with gentle and active brushing for at least 20 seconds in order to promote the remineralisation and the infiltration of the sub-strate (“continuous brushing technique”). The solvent was evaporated using an indirect and gentle air stream.

The adhesive was applied using a microbrush with active “scrubbing”, waiting for 15-30 seconds in order to obtain the diffusion of the resin by capillarity into the substrate and the excess was removed through a capillary action into air stream and light substrate, and for 10 seconds, using the LED curing light Kerr Demi Ultra.

The main benefits of using the OptiBond XTR Bonding System are:

1. Fast application and predictable results
2. No need to rinse and therefore no risk of issues related to moisture control of the dentine surface
3. Good bond strength to both enamel and dentine

Knowing the functional and aesthetic features of Herculeite XRV Ultra composite, the cavity was prepared by completely removing the previous restorations and any carious dentine, without removing the discoloured/secondary dentine, which will be perfectly masked by the opacity of the dentine shade of Herculeite XRV Ultra.

The opacity of Herculeite XRV Ultra Dentine shade is able to cover the dentine discoulouration without the need for further opaque shades. The application and sculpting of the composite was performed using the Kerr Comporell, a useful modelling tool that consists of a handle and interchangeable tips with different shapes to use depending on the type of restoration. Moreover, thanks to the unique material of which they are made, the composite doesn’t stick to the tips and therefore its placement is fast and easy.

Polishing and high gloss polishing of the restoration was performed in few fast and simple steps. Unlike other materials, Herculeite XRV Ultra makes it possible to obtain high aesthetic results with a natural appearance in few minutes.

The results achieved show that use of Kerr Herculeite XRV Ultra composite materials in the anterior can achieve a significant aesthetic improvement of the smile using conservative techniques and without recourse to prosthetic solutions.

In addition, the use of Herculeite XRV Ultra as an anterior restorative can achieve a significantly improved aesthetic smile without using indirect restorations.

About the Author

Marco Bambace
Is currently a student at the University of Padova (Department of Dentistry) in his fifth year of studies. He will achieve the degree of Doctor in Dentistry in 2016. With his talent for direct restorations, Marco Bambace performed this in vivo case using Kerr restorative products and filling accessories.
Advanced Restorative Techniques and the Full / Partial Mouth Reconstruction - Part 1

As an introduction to a series of articles, Prof. Paul Tipton looks at restorative techniques and the impact of new dental materials

By Prof. Paul Tipton, UK

Most advanced restorative dentistry techniques, including that of full mouth reconstruction, have changed very little over the last 20 to 50 years. However, the impact of new dental materials, such as titanium and zirconia, has had a major influence on aesthetic dentistry and implantology during this time period. As a result, the profession may have an over-reliance on new materials rather than tried and tested techniques.

Some fundamental techniques are just as relevant today as they were when I started my Masters degree in conservative dentistry at the Eastman Dental Hospital in 1987. During the course of this series of articles on advanced restorative techniques, some old techniques will be revisited in light of today’s aesthetic and restorative requirements and some newer concepts will be discussed in greater detail whilst dealing with the overall topic of full mouth reconstruction. This article previews the restorative techniques that will be discussed during the next 10 clinical articles on advanced restorative techniques.

Occlusal concepts
During my Masters degree at the Eastman and prior to that, my training in occlusion has been in gnathology and its principles as taught at the University of Michigan and by Derek Satchell, Richard Holton and staff at the Eastman Dental Hospital during the last 20 years. This includes the five principles of occlusion, which are:
1. Retruded contact position (ICP) = intercuspal position (RCP) around retruded axis position (RAP)
2. Mutually protected occlusion
3. Anterior guidance
4. No non-working side interferences
5. Posterior stability.
The article on occlusion will review these concepts and also discuss when alternatives, such as long centric, are required (Figures 1-5).

Treatment of severe wear
cases One of the fundamental approaches to partial or full mouth reconstruction (and aesthetic dentistry) is envisaging the end result prior to starting the case. There is no better way to see the end result than the full and complete diagnostic wax-up. The aesthetic ability of both dentist and technician is stretched during this essential procedure. The article on diagnostics will review the procedures to complete a full mouth reconstruction at an increased vertical dimension with establishment of the procedures to complete a full mouth reconstruction at an increased vertical dimension. The programming of these will also be looked at and discussed from ‘fixed’ settings to use of lateral and protrusive check bites, and finally the pantograph and newer ‘Cadi-ax’ machine (Figures 7-9).

Vertical dimension
Changes in vertical dimension are often required for either gaining restorative space during restorative procedures or for improving facial aesthetics. Occlusal splints are used to first verify that the increase in vertical dimension can be tolerated and this is easily accomplished in most cases as long as this increase is done around RAP or centre relation so that the condyles are in their most relaxed, bone bared and reproducible position. Increases and decreases in vertical dimension will be discussed showing positive changes in facial aesthetics as treatment is completed (Figures 10-12).

Dahl appliances
Bjorn Dahl first described the Dahl appliance in the early 1970s. Since then they have gradually been incorporated into the field of restorative dentistry although many Orthodontists still dispute their efficacy and relevance.
The article on Dahl appliances will cover its history and usage in today’s modern restorative dentistry, focusing on the use of traditional chrome cobalt ‘Maryland wings’ style of Dahl appliances and also the use of splinted temporary or prototype restorations used to gain splinted temporary or prototype restorations used to gain maintenance potential (Figures 19-21).

Duralay bonnets

Impression techniques demand a high degree of accuracy for the completion of the advanced restorative case. Often this is a difficult procedure for the restorative dentist when taking impressions both of dentures or implants are not possible (Figures 19-21).

Peter Wohrle bridgework

The duralay bonnet technique also crops up in this article on individual crowns cemented onto gold copings and then onto abutments screwed into dental implants – hence the abbreviated name ‘Peter Wohrle bridgework’ for ease of use after the dentist who first described the technique. Several cases will be described using slightly different techniques to illustrate the technical difficulties in producing this bridgework but demonstrating the overall superior aesthetic result, optimal fit and maintenance potential (Figures 22-24).

Aesthetic periodontics

The last article in the series reviews the latest techniques in periodontology used to enhance optimal aesthetic restorative techniques. The periodontist is an essential team member of the aesthetic restorative practice and an increasing amount of patients are requiring pink as well as white aesthetics. Connective tissue grafting, pontic site development, crown lengthening etc will be reviewed and discussed with step-by-step protocols (Figures 25-27).

Conclusions

Restorative dentistry has gone full circle with old techniques revisited and amended for today’s dentistry. These techniques do not, however, get enough ‘air time’ in many journals as the importance of aesthetics takes over. It is my aim to help the reader understand these advanced restorative techniques and encourage them to put them into their everyday practice in order to help their patients and gain more clinical satisfaction.

For the writing of this article on advanced clinical techniques, I would like to thank certain members of my team, including Dr Ibrahim Hassain, BDS, M. Med. Sci. Implantology – implant surgeon, Mr Bradley Moore – dental technician, ADS Laboratory, Harrogate and Dr Andrew Watson, BDS, MSc, specialist in endodontics.

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About the Author

Prof. Paul A. Tipton BDS, MSc, DGDP UK, gained his MSc from the Eastman Dental Hospital in 1989. In 1999 he was certified as a specialist in prostodontics. During the last 20 years he has established his private practice and established for Tipton Training Ltd on restorative, aesthetic and implant dentistry. Over 2,000 dentists have been through one of his one-year dental programmes of which there are four levels (for more details visit www.tiptontraining.co.uk).

Prof. Tipton is currently president of the British Academy of Implant Dentistry and in clinical practice at the Yorkshire Centre for Advanced Dentistry outside Leeds where he takes referrals for restorative, aesthetic and implant dentistry (www.centreforadvanceddentistry.com).
Clinical Management Approach of Molar Incisor Hypomineralisation. A case report.

Fig. 1 (a, b, c, d & e). Showing a dislodged filling of 36. 16 yellowish brown hypomineralised lesions. 36 and 46 large composite fillings.

By Dr. Shaikha Al Raeesi, UAE & Dr. Manal Al Halabi, UAE

Abstract
Molar incisor hypomineralisation (MIH) is a relatively common dental defect that appears in first permanent molars and incisors and varies in clinical severity. The specific etiological factors remain unclear. Inappropriate diagnosis can result in mismanagement of the condition and results in early loss of first permanent molars (FPM) in particular. Therefore, the early identification of such condition will allow early intervention including monitoring and preventive interventions that might help in remineralisation of the hypomineralised tooth structure. These preventive measures can be instituted as soon as affected surfaces are accessible.

Clinical relevance statement
Failure of early diagnosis and dental management in cases of Molar Incisor Hypomineralisation (MIH) leads to rapid development of dental caries, increased pulpal inflammation and continuous enamel as well as restoration breakdown.

Objective statement
The reader should understand the Molar Incisor Hypomineralisation (MIH) condition and the availability of different management options of this condition.

Introduction
Molar Incisor Hypomineralisation (MIH) is a developmentally derived dental defect that involves hypomineralisation of 1 to 4 first permanent molars (FPM), frequently associated with similarly affected permanent incisors. The pattern of enamel defects consists of asymmetric, well-demarcated defects affecting the enamel of the FPMs and is associated with similar defects in permanent incisors and canines tips. (1)

~ Prevalence
Available modern clinical prevalence data for MIH, mostly from Northern Europe, ranges between 3.6% and 25% and seems to differ between countries and birth cohorts. (2)

~ An etiology
An etiology of this condition is poorly understood, with many associated factors (including environmental changes, breast feeding, respiratory diseases, oxygen shortage of ameloblasts and high fever diseases) but few proven causative agents. (3)

~ Clinical Features
Fairly large demarcated opacities, whitish-yellow or yellowish-brown in colour that may or may not be associated with post eruptive enamel breakdown. Hypomineralised enamel can be soft, porous and look like discoloured chalk or Old Dutch cheese. Subsurface porosity leads to breakdown after eruption, especially under occlusal forces, resulting in exposed dentine and sensitivity. (4)

~ Management
Permanent molars affected by hypomineralisation are prone to rapid development of dental caries and repeated breakdown of restorations. Therefore, careful planning is required, taking into account patient’s age (behaviour management issues), degree of crowding and co-operation. Sensitivity of affected teeth plays a major role in difficulty of achieving anaesthesia and thus behavioural issues.

- Preventive
  • Diet advice
  • Higher fluoride toothpaste (at least 1450 ppm F)
  • Topical fluoride varnish
  • Casein phosphopeptide-amorphous calcium phosphate (CPP-ACP)

- Restorative:
  • A small lesion can be treated with localized composite, where the enamel is soft, or fissure sealants, where the hardness of the enamel appears no different from the unaffected enamel.
  • GIC is recommended as dentine replacement or as an interim restoration due to ease of placement, fluoride release and chemical bonding.
  • For extensive lesions with post-eruptive breakdown especially if the cusps are involved, preformed stainless steel crowns (SSCs) are preferred as an effective medium-term restoration. SSCs can preserve the FPM until cast restorations are feasible. (5)(6)

- To save the tooth or not?
  • The first decision in the management of the MIH FPM is whether the tooth should be saved or not. The decision to extract or restore will depend upon a number of different factors, some of these being the degree/extent of hypomineralisation, post-eruptive breakdown, sensitivity, age and cooperation of the patient, any

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developmentally absent teeth. Consultation with an orthodontist is advised.

According to the Royal College of Clinical Radiographic examination for the Extraction of First Permanent Molars in Children the ideal timing of first permanent molar extraction is between 8-10 years of age after the eruption of the second primary molars and first premolars. Additionally, for the most optimum mesial movement of the second premolar, a diagnostic wax to the inserted FPM and produce the best occlusal position. It has been suggested that the second permanent molar is demonstrating radiographic evidence of calcification in the root bifurcation.

Case report

A ten-year-old patient (S.S) with no significant medical history or allergies presented to the Department of Paediatric Dentistry at Hamdan Bin Mohammed College of Dental Medicine (HBMCMD) in Dubai Healthcare City, Dubai (UAE).

Complaining of slight pain in the upper left region. Presently the tooth is asymptomatic. The pain is described as intermittent during the day, lasts for a while (hour or less), does not affect her playing or affect her sleep.

Detailed history was taken from the father. The father reported that (S.S) had a significant number of upper respiratory tract infections and tonsillitis during early years of life. It was reported that (S.S) had a significant number of upper respiratory tract infections and tonsillitis. The patient was apprehensive in the beginning of the dental treatment but was willing to have the treatment. The patient was educated and accepted by parents. The treatment plan was accepted by parents. The treatment plan was accepted by parents. the treatment plan was accepted by parents. the treatment plan was accepted by parents. the treatment plan was accepted by parents.

Aims and objectives of treatment

• To alleviate the pain and sensitivity.
• To preserve the structure of the weakened FPMs.
• To formulate an individualized realistic preventive scheme and reinforce it regularly.
• To monitor the occlusion of developing dentition and treat as necessary.
• To maintain good oral health in the long term.

Treatment

The treatment plan was set in two phases including Short/ Medium term and long term. The short term will start with Emergency phase for restoring the 26 with GI as a temporary filling. An extensive preventive programme was implemented in addition to diet assessment, analysis, and advice and fluoride application. In several visit crown preparation was done under local anesthesia for 36, 46, 47, and 26 followed by stain-

Fig. 4 (a & b). Biting radiographs takes 6 months post treatment completion. Radiographic findings, fully crowned crowns of all first permanent molars with no progression of any pathological lesion underneath the SSC.

Radiographic investigations were done including (OPT and PA radiographs) to assess the proximity of the coronal defect to the pulp and to evaluate the periodontal region and to ascertain the presence and stage of development of remaining primary dentition (especially lower 5s, 7s, and 8s).

MHI was diagnosed based on clinical appearance. See Figures 1 (a, b, c, & d) for clinical features of MIH. (a, b, & c) for radiographic findings.

A diagnostic list and treatment plan was formulated by a specialist of Paediatric dentist as well as orthodontist and explained in detail to the father.

Diagnosis

A fit and healthy 10-year-old girl in the late mixed dentition with molar incisor hypoplasmineralisation (MIH) was diagnosed based on clinical appearance.

Aims and objectives of treatment

• To alleviate the pain and sensitivity.
• To preserve the structure of the weakened FPMs.
• To formulate an individualized realistic preventive scheme and reinforce it regularly.
• To monitor the occlusion of developing dentition and treat as necessary.
• To maintain good oral health in the long term.

Treatment Plan

Short/medium term

• Emergency phase 
  o Sedative filling 26 
  o Preventive care phase 
  o Oral hygiene instructions 
  o Diet analysis and advice 
  o Fluoride therapy 
  o Restorative treatment phase 
  o Stainless steel crowns for all permanent first molars 
  o Recall and reviews 
  o Regular recall 3 months, radiographs every 6 months and fluoride varnish application every 3 months

Medium/long term

• Monitor the eruption of permanent dentition
• Interdisciplinary management

Density in the pulp of hypomineralised molars is significantly greater than of normal molars. This can explain why lower left 6 was hard to be anaesthetised. Due to poor quality of the FPM teeth of S.S and significant tooth break down full coverage by preformed metal crowns was done. Preformed metal crowns prevent further tooth loss, control sensitivity, establish correct interproximal and proper occlusal contacts, are not costly and require little time to prepare and insert.

Conclusions

• The presence of MIH molars not only requires the dentist to identify problems at the earliest stage but also requires the dentist to clarify the problem thoroughly and explain the treatment options to the patient and child.
• It is advisable to consider children with a poor general health in the first four years after birth at risk for MIH. These children should be monitored more frequently during eruption of the first permanent molars.
• Whilst many potential approaches exist for the restorative management of molar incisor hypomineralisation, few are yet supported by good quality clinical research data. Preformed Metal crowns have been recommended as the prosthesis of choice in MIH affected posterior teeth with post-eruptive enamel breakdown in majority of the literature available.
• The use of nitrous oxide inhalation sedation can be a useful adjunct in obtaining satisfactory anaesthesia in MHI patients. Nitrous oxide was not used in the case of S.S due to parental refusal because of limited financial resources.
• Had this patient presented earlier, consideration for enforced extraction of FPM would have been considered.

References


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Evaluation of dental implant therapy – peri-implantitis

By Dr. Olivier Carcuac, UAE

Peri-implantitis is one of the most common complications affecting patients with dental implants. The condition is characterised by an inflammation in peri-implant soft tissue and loss of supporting bone. Despite several similarities in clinical features with its counterpart at teeth, the disease progression of peri-implantitis is faster than that of periodontitis. Peri-implant mucositis is the precursor to peri-implantitis as is gingivitis to periodontitis.

Clinical and experimental studies demonstrated that peri-implant mucositis and gingivitis lesions are similar in size and cell composition (Laug et al 2011). Both lesions may progress and thereby influence supporting tissues at teeth and implants. Established peri-implantitis lesions exhibit critical histopathological differences when compared to periodontitis lesions (Berglundh et al 2011). Pre-clinical in vivo studies comparing the two lesions have used experimental techniques to induce periodontitis and peri-implantitis. In one such study, Carcuac et al (2015) demonstrated that disease progression differed at teeth and implants over a six-month period. Bone loss was more pronounced at implants with modified surfaces compared to teeth and implants with non-modified surfaces. Histological analysis also demonstrated that periodontitis lesions were well contained and separated from the alveolar bone by a zone of non-inflamed connective tissue, while a similar border between the lesion and the supporting bone was absent in peri-implantitis sites (Figure 1). In addition, the most apical part of the peri-implantitis lesion was open towards the biofilm in the pocket, as the pocket epithelium only covered about 60-70% of the lesion. The lateral and apical portions of the peri-implantitis lesion extended to the bone crest, the surface of which was lined with osteoclasts. The histopathological discrepancies between the two types of lesions may be explained by the structural differences in the supporting tissues at teeth and implants. In a comprehensive study based on human soft tissue biopsies obtained from 40 patients with severe periodontitis and 40 patients suffering from severe peri-implantitis, Carcuac et Berglundh (2014) reported further differences between periodontitis and peri-implantitis lesions. In contrast to periodontitis samples, peri-implantitis lesions were more than twice as large and contained significantly larger area proportions, numbers, and densities of macrophages, plasma cells and neutrophil granulocytes than periodontitis lesions (Figure 2). These findings indicate a more severe disease character for peri-implantitis, which may, in part, explain the higher rate of progression.

Peri-implantitis is diagnosed, as is periodontitis, in the presence of bleeding on probing and loss of supporting tissues. The discussion regarding the diagnosis of peri-implantitis usually focuses on radiographic thresholds of bone loss. In this context, recommendations for clinical research and diagnostic guidelines for everyday clinical
practice have been confused. Studies evaluating the prevalence of peri-implantitis used so-called case definitions. While there is consensus concerning the use of bleeding on probing as a clinical criterion, the use of at least seven different radiographic thresholds of bone loss has been suggested to determine peri-implantitis (Tomasi et Derks 2012).

Following a meta-analysis of data from different studies, Derks and Tomasi (2015) recently reported that about 22% of patients with dental implants suffered from peri-implantitis. Similar results have been presented in other literature reviews (Mombelli et al 2012). In a recently published nation-wide project, data from 596 patients were used to study the prevalence of peri-implantitis (Derks et al 2015). While about 45% of the patients presented with signs of peri-implantitis, 14.5% had moderate/severe forms of the disease (bleeding on probing ≥2mm bone loss) at disease (bleeding on probing ≥2mm bone loss) at different implants, but also differences regarding the time of onset (Mir-Mari et al 2012). In order to identify risk factors related to patients, clinicians, and/or implants, large and randomly selected patient cohorts are required. The nationwide project aforementioned includes such an evaluation of effectiveness (Derks et al 2015). Results of the different regression analyses revealed that several of the clinician-, patient-, and therapy-related factors were associated with moderate/severe peri-implantitis. Patients presenting with periodontitis were more likely to suffer from moderate/severe peri-implantitis. Factors related to clinicians were associated with moderate/severe peri-implantitis: patients provided with prosthesis therapy performed by general practitioners presented with a higher odds ratio (4.5). In addition, certain implant brands were associated with a higher risk for peri-implantitis: Straumann implants show the lowest rates of moderate/severe peri-implantitis when compared to Nobel Biocare, Astra Tech and the other implants represented in this observational study (including Biomet 5i, CrescoTi, Xive, Frilial, Lifecoire, Implamed and API). Finally, a higher odds ratio (2.5) for moderate/severe peri-implantitis was observed for implants with a reduced distance (≤1.5 mm) from the prosthetic margin to the crestal bone as measured in baseline radiographs.

References

Editorial note: The full list of references is available from the publisher.
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* Rinse twice daily after brushing with a fluoride toothpaste.

Sinus Lift. Don’t Dream It: Do It!

By Dr. Dominique Caron, UAE

Do you know you are about to perform yourself your next sinus lift procedure? Once it is done, you will wonder why you have been waiting for so long. The issue that often fails is: one, two, three teeth missing, framed by no tooth, weak teeth, living teeth...

What is the best option to be ethical and efficient?

First option: a bridge. It means to damage several teeth, to do root canal treatments, to overload several roots, as well, the pontics are hard to clean, and the cosmetic effect is not always perfect...

Never forget: PRIMUM NON NOCERE! First don’t harm!

The smart way, of course, is to do implants: you will fix the problem where the problem is, without damaging the neighbors.

This solution would be nice except that it cannot work like this. The sinus may “disagree” and will have no strength. What you dream of is that: “strong implants fit into a strong support”.

Simple, except that you never did it!

If you are ethical:
- You will leave the bridge to stone age
- You will manage to have the implants done in the best conditions.

To do so you can subcontract the implants surgical step with a colleague who knows how to do it, it is safe and professional, but who can you fully trust?

However, if you feel there is nothing beyond you and that you have learned, that you have been on training courses, you will need to take the plunge!

I don’t know if you feel the same but during a lecture everything seems easy, quick, simple, it is like magic!

But now that you are alone without safety net, you don’t know where to begin. It is time for you to become your own specialist.

All this is first a matter of state of mind: YES YOU CAN!

Yes, all what we have to do in this dental case is simple: it is a matter of screws and plank. If you can assemble an IKEA cupboard, you can do implants. You should never lose the sight that what we do on every day basis is a matter of building and civil engineering works. It is just at a very smaller scale. Nevertheless, we have the same constraints and an additional foe “the bacteria”.

Don’t lose your common sense, consider the stairs case step by step and “THINK SIMPLE”. You don’t have a plank thick enough for your screw, add a back plate! The idea is the same, may be some more details to take into account, and the support is a living body you are supposed to “keep alive”... it is appreciated. (Joke)

The most accurate and safe in the market is the cone beam system. With a Cone Beam, you have:

- Safety: 70 to 100 times less radiations than with a CT scan.
- Accuracy: the image is much more detailed and you can navigate in 3D to lookout for the exact information you need. Then you will be able to set virtually your implants to stick perfectly with the needs.

7. Stitch well
8. Have a coffee with the patient

1. Study the Case
2. Open the way
3. Raise the “schneiderian membrane”
4. Fill the new empty space with the graft
5. Set the implants through the bone and the graft
6. Cover the window

Sion at least one tooth front and one tooth back to have an easy access without a long vertical incision.

Make sure the incisions will not be close to the graft. You need to see easily what you are doing, it is a priority. The more you peel off the gums, the less you cut, the better your patient will heal. So you should always be smooth!
I will come back later on this technique. Peel of the gums smoothly on the buccal side with the periostecut. Take off high enough to help you “SEE WHAT YOU DO”. Surprisingly, you will see it is helping a lot!

Now, big question: graft and implant in 1 or 2 times?
You came to all the conferences of CAP, you read a lot, you have watched many videos.

The result may be as follows: “The more you try to learn, the less you know!”
For the same question in the same conditions, you may be told anything and its opposite... Maybe this is not really helping but the state of mind is often: big graft, big delay!

Once more, I can tell you what I have done for more than 20 years. Don’t lose your common sense: a graft set in the bottom of a sinus is like a loose cargo in the bottom of a hold.

As soon your patient walks or goes down the stairs, you can imagine how it is shaking. Beyond the mechanical properties of the graft itself, what we will talk about in a minute, you can expect the fragile Schneiderian membrane will not be a great help.

Once more you should be practical. Put a screw in the middle! If your graft is rolling, there will be no healing, not fiber growth, no new blood vessel, and you will fail. A stable graft is compulsory to get a predictable healing, with a stake in the middle; you make it a stiffer.

Now softly lift off the membrane from the bottom of the sinus, the same way you would lift a carpet! Once more avoid “Parkinson” and take your time. This step is important, it is not a race! You will see many “movie stars” proud to say they are very fast. As a matter of fact, the quicker you work, the better is the healing, but the main point is to be accurate and smooth. The stop watch comes next...

One more benefit: you will save 5 months on the process and you have now a welcoming cavity for your counter plate and the way in. Look at the membrane it should move following the pace of the breathing like bellows:

2 options:
- You stab the membrane, you rip it up. You need first to set a patch to protect it.
- Resorbable
- Osteocondutive
1. Easy to use.
Most of you have often got to fight with granulates sticking to everything but the cavity you want to fill. The bone substitute may be too soft and must not crumble.
- To get a homogenous bone, it is better to make an homogenous draft.
- Granulates outside the cavity, between the cortical and soft tissues, uncease the healing and may be an open way for bacteria.

With a kind of sponge mixing collagen and mineral phase, your graft will be repositionable, malleable, stable, clean and will not migrate.

Now a big question: What kind of graft?
You have attended many lectures, read many reports, gone on internet: each time the material considered is the best and fits 100%.

All the materials are the best! How can you make your mind?
To enter the problem in a relaxing way “EVERY KIND OF GRAFT CAN MATCH!” and the market is wide.

First of course, you have the bones:
- Autologous bone: seen as the best.
- No immunogenic reaction, but you need to harvest. If you take the graft on the chin or the ramus you may have pain, inflammation and pain syndrome. If you use the hip or the skull, you get involved in a heavy process, too heavy.

Allo graft, xenograft are dry bone despecified with slow remodeling and a granular display which is not helping or a cubic display not easily matching. You have coral, hydroxyapatite, calcium carbonates, brucites, phospho calcic, ceramics, tricalcium phosphates, biphasic ceramics, polymers, bioglass, calcium sulphates, composites... The list is long...

All materials can fit. Anyway, same as for your car. Four wheels and an engine means a car. Except some brands are better than the others!

Again think simple: What do you need? The graft must be: Easy to use
- Hemostatic
- Under 80 mm ; too small granules create inflammation and resorption; avoid
- Between 80 mm and 200 mm;
- Granulates outside the cavity, between the cortical and soft tissues, uncease the healing and may be an open way for bacteria.
- Granulates: Why?
3 mm above the bottom of the sinus: Why?

- To keep the bottom of the sinus as a “howl” for the graft
- To make sure the edge of the crest will not explode under the pressure of the implants.

You are now facing an attractive wall of bone asking for a window, you can now drill the way you want: ultrasonic, diamond bur... If you have no “Parkinson”, I feel and I recommend the diamond bur... it is perfectly safe and much quicker.

Open the window from 2 to 3 mm above the bottom of the sinus: Why?
- To keep the bottom of the sinus as a “howl” for the graft
- To make sure the edge of the crest will not explode under the pressure of the implants.

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1. Easy to use.
Most of you have often got to fight with granulates sticking to everything but the cavity you want to fill. The bone substitute may be too soft and must not crumble.
- To get a homogenous bone, it is better to make an homogenous draft.
- Granulates outside the cavity, between the cortical and soft tissues, uncease the healing and may be an open way for bacteria.

With a kind of sponge mixing collagen and mineral phase, your graft will be repositionable, malleable, stable, clean and will not migrate.

Now a big question: What kind of graft?
You have attended many lectures, read many reports, gone on internet: each time the material considered is the best and fits 100%.

All the materials are the best! How can you make your mind?
To enter the problem in a relaxing way “EVERY KIND OF GRAFT CAN MATCH!” and the market is wide.

First of course, you have the bones:
- Autologous bone: seen as the best.
- No immunogenic reaction, but you need to harvest. If you take the graft on the chin or the ramus you may have pain, inflammation and pain syndrome. If you use the hip or the skull, you get involved in a heavy process, too heavy.

Allo graft, xenograft are dry bone despecified with slow remodeling and a granular display which is not helping or a cubic display not easily matching. You have coral, hydroxyapatite, calcium carbonates, brucites, phospho calcic, ceramics, tricalcium phosphates, biphasic ceramics, polymers, bioglass, calcium sulphates, composites... The list is long...

All materials can fit. Anyway, same as for your car. Four wheels and an engine means a car. Except some brands are better than the others!

Again think simple: What do you need? The graft must be: Easy to use
- Hemostatic
- Under 80 mm ; too small granules create inflammation and resorption; avoid
- Between 80 mm and 200 mm;
- Granulates outside the cavity, between the cortical and soft tissues, uncease the healing and may be an open way for bacteria.
- Granulates: Why?
3 mm above the bottom of the sinus: Why?

- To keep the bottom of the sinus as a “howl” for the graft
- To make sure the edge of the crest will not explode under the pressure of the implants.
New coating could eliminate implant failure risk

By Dental Tribune International

TORONTO, Canada:

Although their success rate has been reported as about 98 percent, dental implants can fail owing to biological and technical issues over time. In many cases, the body’s inflammatory response causes rejection. Canadian research has now presented a new implant coating that helps disrupt this immune mechanism to prevent both the risk of implant failure and the need for anti-inflammatory drugs.

The disruptive new anti-inflammatory polymer was developed by Dr. Kyle Battiston, a postdoctoral fellow at the Faculty of Dentistry and a recent graduate from the Institute of Biomaterials and Biomedical Engineering at the University of Toronto. It was originally designed as a tissue-engineering scaffold that allows tissue engineers to grow cells successfully.

Battiston and his colleagues were able to coat implants with the biomaterial, which is derived from a family of polymers found to reduce inflammation, specifically when it interacts with white blood cells, and discovered that the coating calms the body’s immune response.

“We’ve learned this family of materials can retain its anti-inflammatory character while adapting diverse physical properties,” said Battiston. The material could thus be used for a wide variety of medical treatments.

Battiston plans to market the coating through his new startup company KSP2 within the next five years.

According to the American Academy of Implant Dentistry, 5 million Americans already have dental implants and this number is growing by 500,000 a year. About 10 percent of all U.S. dentists place implants today. The association estimates that the U.S. and European market for dental implants will reach $4.2 billion by 2022.

By Dental Tribune International

Dr. Dominique Caron
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- Lecture Paris V Chirurgie Pre Prothetique
- Versailles Dental Clinic, 2008–2015
- Follow up of four different kind of Allogene Graft in Sinus Lift
- Versailles Dental Clinic, 2013–2015
- Thirty cases of Sinus Lift by Lateral Approach with Matri-Bone and Cova Max
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Cast mounting using MaxAlign: The clinical component

By Dr. Les Kalman, Canada

The importance of records cannot be overstated. Records are a legal requirement, are vital in assisting with diagnoses, and facilitate treatment planning, patient comprehension and laboratory communication.1,2 The clinician has the choice between virtual or tangible records, which may include casts, a facemask, articulation and photographs.3,4 Accurately mounted diagnostic casts provide an immense amount of information for treatment and that information will have an impact on the final prosthetic plan.1

Just as the correct mounting of casts provides valuable information, so too does incorrect mounting provide inaccurate information. In addition, incorrect mounting may result in false diagnoses and possibly even altered treatment plans, based on errors in inter-arch space, occlusal contacts and force directions (Fig. 1).3 Laboratory communication with the clinician remains an important aspect, yet this has been lacking.6 Without records, communication with the laboratory can be even more limited. Communication tools must be employed1 to provide information so that laboratory technicians can satisfy laboratory requisitions. Lack of information results in guesswork, assumptions and incorrect dental work that is ultimately returned to the dental laboratory.6

Background: MaxAlign
The MaxAlign application (Max, Whip Mix) is a communication tool for the clinician that captures essential patient information. It is a tablet-based technology that offers a unique set of records, enabling the accurate mounting of casts complete with a patient image. Max provides a calibrated photograph with clinical information and a novel technique for the mounting of casts. This case report will explore the effective use of Max to acquire clinical information that is vital for the laboratory, third-party insurance, the clinician and the patient.

Clinical protocol
A healthy 36-year-old female patient with a non-contributory medical history presented for consultation regarding elective anterior aesthetic treatment. Records consisted of alginate impressions using stock trays, which were poured in JADE STONE (Whip Mix), and utilisation of Max.

The Max app was downloaded onto a Samsung tablet (provided) and launched (Fig. 2). Patient information was input (Fig. 3). The tablet was positioned in the tablet clamps (provided) and the clamps were tightened to ensure a vertical orientation (Fig. 4). The tablet must be placed such that the Samsung logo is on the right, so that the camera is located to the right. The patient was in the upright position, with the occlusal plane parallel to the floor, while the tablet was placed on the instrument delivery stand (Fig. 5). Max has anatomical guides for positioning: maxillary incisor midline and edge, location of orbits and inferior facial outline.

The delivery stand was positioned close enough to the patient for her facial features to line up with the guides on Max (Fig. 6). Cheek retractors were employed to offer a clear view of the dentition (Fig. 6). Once the patient was in the correct position, the “arm auto capture” button was pressed. The tablet then captured a photograph, with a flash, of the patient (Fig. 7). Once the photograph has been taken, the clinician has the ability to maximise patient position by sizing or moving the image.

The width of the central incisors can be selected from the boxes (Fig. 7). Once completed, the image is saved. The next step is to verify occlusion. This was done with standard 8 μ shimstock while the patient is in maximum intercuspation (Fig. 8).

The contacts were observed and input into the second Max screen (Fig. 9). This screen represents the quadrants of the dentition, and each box represents a tooth. In order to record occlusion, one touches the box that corresponds to the teeth contacting (Fig. 9). The image and record of occlusion are saved and the operator has the...
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Philips Sonicare AirFloss Ultra gives your inconsistent flossers everything they need for improved interproximal health. With our new high-performance nozzle design and triple-burst technology, it creates three bursts of micro-droplets to remove plaque biofilm.

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* Survey of U.S. patients
** When used in conjunction with a manual toothbrush and anti-microbial rinse in patients with mild to moderate gingivitis. AirFloss Ultra is designed to help inconsistent flossers develop a healthy self-interdental cleaning routine. For more information, please visit www.philips.com/airfloss or reference the QR code.
*** Vivo study to assess the effects of Philips Sonicare AirFloss Ultra, when used with antimicrobial rinse, on gum health and plaque removal.
† In a lab study, actual in-mouth results may vary.
option to exit the app or proceed with the laboratory component. If the mounting will be delegated to a laboratory, this concludes the clinical component of Max. The clinical information can then be e-mailed to the respective laboratory as a JPEG or PDF file. The laboratory would utilise the information according to the instructions in Max, as well as the peripherals, to mount a set of casts accurately (Fig. 10).

Discussion

Based on the records and examination, the following were determined: Class I occlusion, 20% overbite, 0/2 mm overjet; canine guidance and evidence of a parafunctional habit. The diagnosis included mildly discoloured anterior composites and bruxism. The patient was presented with several treatment plans, ranging from preoperative whitening followed by minimally invasive composite replacement overtime, 0/2 mm overjet, canine guidance and evidence of a parafunctional habit. The diagnosis included mildly discoloured anterior composites and bruxism. The patient was presented with several treatment plans, ranging from preoperative whitening followed by minimally invasive composite replacement...
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to anterior porcelain veneers. An occlusal splint was also re-
commended. Although she was undeclared on the treatment
modality, the records obtained
with Max provided valuable in-
formation for the clinician, the
patient and third-party insur-
ance. If treatment is to proceed,
important information on oc-
cclusion, guidance and aesthetic
determinants will be accurately
conveyed to the laboratory.
Utilisation of the clinical com-
ponent of Max provided a very
simple approach to capturing
the clinical data. The process
was straight-forward, the ana-
tomical guides proved very use-
ful and the record of occlusion
provided additional crucial in-
formation that is often omitted.
There were no software glitches
or errors during operation. The
patient also found the process
extremely quick and comfort-
able.
Max has several safeguards to
guarantee optimisation. There
is a sensor to ensure it is prop-
erly positioned when taking the
photograph of the patient. If it is
not properly positioned, image
capture will not occur. Calibra-
tion may be required in order
to ensure that the sensor is cor-
rectly set. This is achieved by po-
sitioning the tablet vertically in
the stand and then pressing the
“calibrate sensor” button.
The sensitivity of the position-
ing sensor may also be adjusted
with the “adjust sensitivity” but-
ton.
If the clinician has become frus-
trated and must take the image
immediately, there is a “force
capture” button that will over-
ride the sensor and take an im-
age.
Future development may con-
sider the option of saving the im-
age in STL format. This would
enable various output options
and use with other digital image
and design software.

Conclusion
Max provides a novel and inno-
ervative approach to the mounting
of casts using a tablet, reinforc-
ing the anatomical and aesthetic
considerations when establish-
ing a simulated patient case.
The accurately mounted tan-
gible casts provide substantial
information for diagnostic and
treatment planning, beneficial
to dental students, new gradu-
ates and experienced clinicians.
Compared with traditional ap-
proaches, such as facebow
transfer, Max provides an easy,
efficient and accurate method
for clinical information acqui-
sition that has benefits for both
the clinician and patient. Its ease
of use would perhaps encourage
clinicians to consider utilising
Max as a vehicle for obtaining
crucial clinical data. This would
enable greater overall com-
munication, improved success
in prosthesis fabrication, and a
more satisfying experience for
the patient and clinician.

Editorial note: The list of refer-
ences is available from the pub-
lisher.

About the Author
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cine and Dentistry at Western
University in London, Canada.

www.KerrDental.eu
DUBAI UAE: The 2nd Ormco MENA Symposium took place on 4 and 5 December 2015 at the Jumeirah Emirates Towers in Dubai. UAE Dental Tribune Middle East had the opportunity to catch up with Xavier Cherbavaz, Director for France and Middle East of Ormco.

DTMEA/CAPPmea: Could you tell us where is Ormco today?

Dr. Xavier Cherbavaz: Ormco is the largest company worldwide in orthodontics at this point, existing for over 50 years. At this moment the company is the big part of Ormco mission. Also, most probably we are the company with the largest range of products, from the traditional to the twin brackets were you end wires toward the digital one were deliver customized brackets with the right regulation and the wires that prevented that so the doctors spent time on adding value on the treatment plan and not spent lots of time in bandings. With this whole range we need to train our end user in order for them to be able to get to know the product.

DTMEA/CAPPmea: What is the main focus of today’s Symposium?

Our main aim is to keep a relationship with the costumer we serve, through the product to the education so that’s why we are here at this 2nd MENA Symposium. Additionally, Insignia and DAMON are the main high end products of Ormco that we are presenting today during the Symposium in order for our users to expand their knowledge on those products.

DTMEA/CAPPmea: Do you spend lots of time with the end user?

Yes, we travel all the time to reach our costumer. We spend a lot of time with the end user. We are the innovating company, we try to launch new product, but also try to simplify the life of our client. Today, the training part is a big part behind so we try to spend as much time with them as possible in order to teach them about the new developments.

In the country where we are, orthodontics is a rich market, with limited number of people, they are all specialists. So generally there is in each country corresponding body where we know the orthodontists. Ormco is existing for over 50 years where we have relation where in almost each country someone has a product from us, which is a single spring or bracket or wires, maybe not all the range but some for sure. Orthodontics is a service industry so bring close to the costumer is the top priority for us.

Our primary focus is to work with orthodontists, now in some countries there are also cases where GPs are doing orthodontics, like let’s take Spain for example there is no orthodontists, there are mainly dentists. They don’t have a title of orthodontists because it doesn’t exist, in Italy, the specialization exists for only 4 years so for them is also something new so before there were mainly GPs. We are working market by market, France is a specialist market, people with strong specialty, scientific bodies so we work with them a lot. We are the company that adapts by markets.

DTMEA/CAPPmea: During last year’s Symposium you shared with us that there are aspirations on organizing education programs. How is this going on?

It is going very well at this point. “Special Day” in Italy was a huge success due to the participants had; the other software, and the existing knowledge of the orthodontists. This year we have organized 50 courses and we have 2400 and we organize that all across the countries from Qatar to Egypt to Lebanon. Our aim is to be as close to the costumer as possible, so we organize courses as much as we can to their offices. Here we have selected Dubai as it is convenient to come and this is Symposium.

DTMEA/CAPPmea: Do you already have plans for the next Symposium?

Yes, of course. Next year we will have another Symposium in India, it will be the first one, we had one in South Africa last year and this was also the first one. Traditionally, when we enter the market for the first time, we organize Symposium and then a range of courses with different speakers in order to adapt to local needs from basic level to the advanced. We strongly believe in education, we are committed to be more present in the region. This is what we did in last three years and what we continue to do. Ormco is the largest company worldwide so we have almost every philosophy of product to serve the orthodontics.