The 1st Emirates Paediatric Dentistry Club Conference

By EPDC

DUBAI, UAE: The Emirate Paediatric Dentistry Club (EPDC) has the great honor of hosting the regional Congress of the International Association of Paediatric Dentistry (IAPD) March 1 - 3, 2017. We are committed to make this joint EPDC first dental conference and the prestigious IAPD conference in Dubai, United Arab emirates a very successful and a memorable conference. This will be the first meet of IAPD in the middle-east region. The theme of IAPD Dubai 2017 is Bright Smiles into the Future and this conference will present a very comprehensive scientific program highlighting the latest evidence-based research and clinical topics in the field of paediatric dentistry. These up-to-date topics will be delivered by high profile and renowned international speakers including: Prof Tim Wright (USA), Dr Bill Wagoner (USA), Prof Jorge Luis Castillo (Peru), Prof Richard Wellbury (UK), Prof Zafer Cehreli (Turkey), Dr Azita
Hands on workshops on 1st March, 2017 “Pediatric Zirconia Crowns and Primary Stainless Steel Crowns”

* SPEAKERS *

* Prof. Tim Wright (USA) * Dr. Bill Waggoner (USA) * Prof. Jorge Luis Castillo (Peru)
* Prof. Richard Welbury (UK) * Prof. Zafer Cehreli (Turkey) * Dr. Aziza Al Jobar (Saudi Arabia)
* Dr. Yousif Alawadhi (Kuwait) * Prof. Suhad Al Jundi (Jordan) * Dr. Catherine Hong (Singapore)
* Dr. Ali Aheiladeeb (Saudi Arabia)

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IAPD - Regional Meeting
&

The 1st Emirates Pediatric Dentistry Club Conference (EPDC)
March 1 - 3, 2017
Dubai, United Arab Emirates

Bright Smiles into the Future
An International Association of Pediatric Dentistry (IAPD) Regional Meeting

It gives us great pleasure to invite you all to the joint first EPDC and the regional IAPD conference to be held in Dubai, the beautiful city in the United Arab Emirates. Please note that all registered participants will be entitled to free 2-year IAPD membership. Details of the congress can be found at www.epdc.ae.

The Centre for Advanced Professional Practices (CAPPI) is the official event organizer.

Dr. Sumaya Al Rubaei Board member of EPDC
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Esthetic replacement of two restorations on mandibular second molar

By Dr. Giuseppe Chiodera, Italy

About the Case
Male patient, 28 years old. The patient came to the office for a routine check-up. The mandibular second molar showed two insufficient fillings (occlusal and buccal) with secondary caries, open margins and occlusal wear. Both restorations needed to be replaced. The patient opted for an esthetic, multi-layer composite restoration for a natural looking outcome.

Challenge
Poor accessibility and visibility of this restoration lead to a variety of clinical challenges such as composite placement and proper light curing.

Dr. Chiodera graduated from the University of Brescia with a degree in Dentistry. Winner of a scholarship of Kings College University of London in 2004. Dr. Chiodera is an author of articles in various national and international magazines. At the moment he is working in a private practice in Brescia and specializing primarily in conservative dentistry and endodontics.

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Dr. Maxine Annette Sowden, Zambia
Dr. Stephen Denny, UK Dr. Khadishat Sadulaeva, Dubai

"This is the first course in 20 years when I get so much of new information."
Dr. Khadishat Sadulaeva, Dubai

"The biggest thing that I have learnt from this course is occlusion and tips that I can introduce to my practice."
Dr. Stephen Denny, UK

"You learn fundamentals of dentistry that you will apply to diagnostic dentistry, understanding why your patients is having problems that they’re having..."
Dr. Maxine Annette Sowden, Zambia
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Aesthetic laser therapy correction of physiological gingival hyperpigmentation

By Howard Gluckman, Jonathan Du Toit, South Africa

A beautiful smile is dependent on many factors. One of those factors is the gingival scaffold symmetry, proportion, as well as colour and appearance. The gingiva is critical to an aesthetically pleasing smile. Physiological gingival hyperpigmentation does not present as clinical pathology requiring intervention, nonetheless it may be of aesthetic concern to the patient. Minimal invasive intervention by means of cryosurgery, electrosurgery, laser therapy, or other may produce dramatic change in the appearance of the patient’s smile with a sustainable, long-term aesthetic outcome.

Hereafter a case is presented demonstrating laser therapy removal of gingival hyperpigmentation with stable, pink gingival aesthetics at the 2-year follow-up.

Case report

A 34-year-old female patient of Indian descent presented by referral to a specialist in periodontics and oral medicine at her request for “pink gums.” The patient was a non-smoker and the medical history was non-contributory. Examination of the face noted multiple, poorly defined hyperpigmented macules of the lips, mild in severity and greater in number on the lower lip. The patient’s high smile line was noted with excessive gingival display, the entirety of which involved the mandible and maxilla, with the latter greater in severity (Fig. 2). The initial Oral Pigmentation Index in terms of pigmentation intensity (heavy clinical pigmentation) and scored 2 on the Takashi melanin pigmentation index in terms of its extension (formation of continuous ribbons extending from the neighbouring solitary units). In both the mandible and the maxilla the hyperpigmentation appeared mostly as singular, posteriorly extending, macular lesions with well demarcated borders limited central to the mucogingival junctions. A diagnosis of physiologic gingival hyperpigmentation was made and intervention for aesthetic correction was indicated (the patient initially sought treatment of the mandible only). Digital smile design (DSD) and smile analysis of the patient indicated need for correction of the altered passive eruption. Depigmentation of the affected areas as well as crown lengthening by laser gingivoplasty was opted for. The working field was retracted and isolated (OptiGrip, Ivoval Vivadent), and local anaesthesia achieved by slow infiltration of a 4% articaine with adrenaline (0.2%:0.001%) local anaesthetic solution (Ulstein™ forte, 3% ESPE). The area, mucosa and teeth surfaces, were cleaned with sterile gauze soaked in chlorhexidine gluconate aqueous solution (never use an alcohol solution with medical lasers). An Er:Cr:YSGG laser (Waterlase Plus 3.0, Biolase) was used for all the periodontal soft tissue surgeries.

The crown lengthening by gingivectomy was first carried out as per the DSD guide, with a fine tip (MGG6), applied more parallel to the tooth, with the unit’s power settings at 79 Hz, with water and air settings 50 and 40 respectively thereafter. A broader, chisel tip (MCG6) was interchanged for the depigmentation/gross de-epithelialization, with power settings increased to 92 Hz. The tip size and power allowed for faster removal of tissue with water and air settings on for cooling. Broad, gradual strokes de-epithelialized the pigmented areas up to 1–2 mm beyond the lesions’ borders. To conclude the procedure, the unit was set to “laser handpiece” modality, with lowered power settings at 1 × 79 Hz, and water and air off for hemostasis, leaving a layer of coagulum that would aid with the tissue healing. After the entire affected area was de-epithelialized (Fig. 3), postoperative instructions were given (no tooth brushing near the treated area for 1 week, rinse with chlorhexidine mouthwash BID 1 minute, remove food). The patient was recalled at 10 days for the quick healing of the entire treated area (Fig. 4).

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Discussion

Pigmentation of the gingiva may pose an aesthetic concern to the patient seeking cosmetic correction thereof. Laser depigmentation is an evidence-supported, beneficial treatament modality. “Laser” is an acronym for light amplification by stimulated emission of radiation. Possibly the first report of laser radiation on oral soft tissues was as early as 1969. The first commercial laser for use in dentistry, the diode 300-4000 nm YAG laser, was introduced in 1973. At present, a range of laser wavelengths are used in dentistry for a plethora of applications (Table 1). The fundamental mode of action of lasers is that waves consisting of photons (basic unit of radiant energy; light) travel at the speed of light and these waves can be defined by their wavelength and amplitude. Amplitude is the vertical height of the wave, and in lasers this corresponds to “brightness”, its potential energy to do work. Wavelength is the distance between two corresponding points on the wave—the unit typically in laser dentistry is...
The ablative action of the laser over a wider area allowed for removal of the superficial gingival layers rather than the subgingival layers. Oral mucosa is high in water content and the laser effect primarily involves the thermal change in the tissue. When water temperature is raised to 100°C vaporization of the water within the mucosa occurs, called ablation. Incision and excision of oral soft tissues here is at this temperature: Between 60° and 100°C proteins will denature without vaporization of underlying tissue, ideal for the removal of diseased deglutional tissue, for homogenization and coagulation. Charring of the tissues will however occur at temperatures around 100°C. When removing hyperpigmented tissues, lower temperatures are needed, and much less energy is needed since chromophores attract less energy. Conversely, higher energy would be needed to excite fluorite; with less chromophores lasers. Lasers used for the aesthetic correction of physiological hyperpigmentation have been extensively described in the literature, and suggested as superior to other treatments due to the fast healing, reduced pain and discomfort, clean and dry operating field, and stable results.14-16 The formation of procoagulators on the laser treated wound surface reduces postoperative pain. Laser light may also “seal” blood vessels ending.17-18 The patient treated in the case presented here only required a simple local anesthetic infiltration per quadrant delivered segmentally across the working area. The operating field was dry and void of any profuse bleeding. Nearly the entirety of the hypoperfused layers had the superficial layers of tissue layers removed. Healing was rapid with no report of pain, infection, or discomfort.

At an early to as 20 days postoperative the patient was nearly healed entirely healed with radical results in tissue colour and contour. The literature reports the expected chronology and degrees of regeneration following treatment by various modes of treatment. Depigmentation by laser ranks low (<16%) in terms of percent age repigmentation (Table 2).

Conclusion
Laser light therapy for epidermal repigmentation has successfully alteraes blue – black/dark brown gingiva to uniform pink with numerous benefits for both patient and clinician. The patient can be dramatic for patients suffering from hypopigmented skin remaining stable over the long-term, contributing greatly to an aesthetically pleasing smile.

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References
4. Fiorellini JP, Kim DM, Uzel NG. Recent Advances in Surgical Technology. 18 T he patient treated in the case presented here only required a simple local anesthetic infiltration per quadrant delivered segmentally across the working area. The operating field was dry and void of any profuse bleeding. Nearly the entirety of the hypoperfused layers had the superficial layers of tissue layers removed. Healing was rapid with no report of pain, infection, or discomfort. At an early to as 20 days postoperative the patient was nearly healed entirely healed with radical results in tissue colour and contour. The literature reports the expected chronology and degrees of regeneration following treatment by various modes of treatment. Depigmentation by laser ranks low (<16%) in terms of percent age repigmentation (Table 2).

Figure 7: (a) Components of a gas or solid active-medium laser, eg. CO2 or Nd:YAG laser, and (b) a diode laser. Adapted from Principles and Practice of Laser Dentistry 2nd ed (p. 14), by Conversa RA, 2015; St. Louis: Mosby Elsevier

Figure 8: Wavelengths of the various laser lights and their position within the EM spectrum. Adapted from Principles and Practice of Laser Dentistry 2nd ed (p. 14), by Conversa RA, 2015; St. Louis: Mosby Elsevier

Table 2: Literature review 1951 – 2013; pigmentation recurrence rates (%) by random-effects Paolin regression

<table>
<thead>
<tr>
<th>Treatment</th>
<th>No. of studies</th>
<th>Regapimentation rate (%)</th>
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<tr>
<td>Bur ablation</td>
<td>16</td>
<td>8.99</td>
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<tr>
<td>Scalpel gingivoplasty</td>
<td>23</td>
<td>4.25</td>
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<td>Gingival graft</td>
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<td>Electrosurgery</td>
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<td>0.19</td>
</tr>
</tbody>
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Jonathan Du Toit BChD, Dip Implantol, Dip Oral Surg, MSc Dent Department of Periodontics and Oral Medicine, School of Dentistry, Faculty of Health Sciences, University of Pretoria
Seven Keys to Optimize Interdisciplinary Orthodontics

By Dr. Ashok Karad, India

Orthodontics has always been the discipline that sets the stage for dentofacial esthetics. With the increasing demand for aesthetic and rapid intervention has created compromises in treatment outcomes. Lack of fundamental diagnosis and systematically sequenced treatment plans are being circumvented by technology and reliance on laboratory assistance. Diagnostic process, essence of treatment planning and biologic basis seem to be diminishing in importance. Often orthodontic treatment can be of significant assistance in periodontally and restoratively compromised patients. The primary goal of orthodontic therapy in such clinical situations is to reduce or prevent excessive periodontal surgery by establishing a physiologic alveolar crestal topography and to establish better occlusal relationships for predictable long-term prosthesis by customized orthodontic tooth movements. This paper explains the philosophy and treatment approach that brings together a diverse group of professionals into a cohesive interdisciplinary team to provide treatment strategies for adult patients. It explains existing and new orthodontic, periodontic, surgical and restorative techniques that provide the best possible solution to complex dentofacial problems.

In clinical practice, orthodontic treatment of adults may be somewhat different from that of most adolescents (1). Compared with adolescents, adults are more likely to have dentitions that have undergone some degree of maturation over a period of time and they may have other problems like missing teeth, restored teeth, periodontally compromised teeth, endodontically involved teeth etc., which demand some alterations in treatment strategy. Therefore, in such clinical situations, absence of growth potential in adults as opposed to growing patients is another factor that influences the orthodontic treatment strategy to resolve adult malocclusions.

1) Establish organized approach to diagnostic and treatment planning process

To formulate proper treatment plan, clarity in the final treatment and to prevent any complications and confusion, establishing accurate diagnosis is the most important step. The goal of the diagnostic process in an interdisciplinary treatment is to produce a comprehensive but concise list of patient’s problems and to incorporate various treatment options into a plan that gives maximum benefit to the patient (4). The orthodontist should:

- recognize the various elements of malocclusion contributing to the development of a problem. This can be achieved by developing a comprehensive but concise database of useful information derived from patient’s history, clinical examination and analysis of diagnostic records (study models, full-mouth radiographs and facial and intraoral photographs (Figure 1)).
- have comprehensive knowledge of different disciplines of dentistry to generate the pertinent data other than orthodontics.
- and finally, define the nature of the problem to design a treatment strategy based on the specific needs and desires of the patient.

This database is then well organized in such a way that it gives a systematic description of the patient’s problem. The team involved can easily refer to this during the treatment planning process. While arranging the database of a complex dentofacial problem in a systematic manner, if the problem list becomes very extensive, it is advisable to classify the problem list into various areas like orthodontic problem list, restorative problem list and periodontal problem list (Figure 2).

2) Define treatment goals

In the management of a patient with multiple dental problems, it is extremely important for a clinician to define finishing goals at the beginning of treatment and to focus on them till the finishing stage, in order to achieve them with a combination of appropriate orthodontic treatment mechanics, restorations and periodontal procedures. The treatment goals are mainly focused on establishing optimal oral health, aesthetics, good stomatognathic function and long-term stability.

The clinician should be able to visualize the end result before implementing the definitive treatment plan. This requires clearly defined treatment goals that set the direction to the proposed treatment plan. Ideally, interdisciplinary treatment plan should be the one that addresses maximum number of highest priority problems including the chief complaint and optimizes the treatment results with maximum benefit to the patient with less risk involved. Since complex dentofacial abnormalities frequently present multifaceted problem list involving...
3) Recognize ‘minor dental arch crowding’ as a ‘major’ periodontal concern

Dental arch crowding presents narrow interproximal spaces, which may result in a constriction of the interproximal bone due to reduced interradicular distance (Fig. 5). This compromised bone as a result of dental constriction can be a challenge for both periodontists and prosthodontists. Decrowding of the dentition by orthodontic treatment and to improve deep overbite with orthodontic mechanics for the restoration, provisional tooth bracket attached to temporary crown on lateral incisor. (B) Intraoral periapical view after implant placement and, after abutment loading

Figure 16: (A) Pre-treatment intra-oral photographs showing malformed maxillary lateral incisors and interproximal spacing. (B) Intraoral periapical x-ray after implant placement, and maintenance of the papillae (14).

Thata is important to graphically evaluate the interradicular space. The roots of the adjacent teeth should be parallel to slightly divergent with adequate space between the roots for implant placement (Fig.9A and B)

Once the optimal space has been gained with appropriate treatment mechanics, acrylic teeth of proper size and color shade can be bracketed and attached to the archwire for esthetic purpose (Fig.5). If the space gained for the lateral incisor is in excess, then a crown lengthen can be used as a template, which will help determine the residual space for closure. Clinical evaluation of the edentulous space and radiographic evaluation of the root position of the adjacent teeth should precede appliance removal.

The final implant restoration is significantly influenced by the position and angulation of implant placement. For proper placement of an implant, the minimum space between the adjacent teeth roots is usually 5mm, providing enough room for small diameter implant placement, leaving about 0.75mm of space for the bone between the implant and the adjacent roots (13).

Position adjacent teeth to facilitate restorative treatment

It is a common observation that when an orthodontist is opening up the space for missing lateral incisor, as the force is applied on the crowns of the central and canine teeth, the roots get tipped into the lateral incisor region. This leads to an adequate crown space but the space between the adjacent roots gets reduced, making it impossible for the surgeon to place an implant (Fig.6).

It is equally important to take sufficient

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Figure 10: Orthodontic treatment to redistribute interproximal spaces, correct deep bite and retract maxillary incisors

Figure 17: Orthodontic treatment to redistribute interproximal spaces, correct deep bite and retract maxillary incisors

5) Improve implant site with orthodontics

There are several orthodontic procedures employed to improve implant site for predictable restorations.

Determine the timing of implant placement

Facial growth is the determinant of the age for implant placement in adolescent patients. The oﬀset of the implant's lack of eruption potential makes it to behave like an ankylosed tooth, often causing a discrepancy in the occlusal plane due to continuous eruption of the adjacent teeth. Therefore, early implant placement poses a greater risk of compromised esthetics in the long term. Several studies on young adults who were treated with implant-supported restorations to replace missing teeth have observed discrepancy between implant and adjacent teeth. In a study that followed the vertical changes of maxillary incisors adjacent to implants in a group of adolescent between 15-20 years of age and adults between 40-55 years demonstrated incorporation of the implant-supported restorations, with a vertical step of 0.15 mm and 0.12 –1.86 mm in adolescents and adults respectively (13).

Therefore, lack of proper occlusion and esthetic situations in the anterior region may be common observations due to jaw growth in patients with implant – supported restorations even if the implants are successfully integrated. The best method to determine the position of facial growth is to superimpose sequential lateral orthopantomograms taken at an interval of six months (Fig.8). Generally, the implant should be placed after completion of facial growth (around 17 years in females and 25 years in males.)

Establish optimal implant space

Adquate space gained for the restoration of the normal width of missing lateral incisor based on esthetics and occlusion will determine the appropriate size of the implant to be placed. When selecting the size of the implant, it is important to have 15 to 20mm space between the centerlines of the adjacent teeth for the development and maintenance of the papillae (14). After the appropriate vertical dimension in the implant site, it is important to graphically evaluate the interradicular space. The roots of the adjacent teeth should be parallel to slightly divergent with adequate space between the roots for implant placement (Fig.9A and B)

Multiple disciplines of dentistry, it is important to address the patient’s main concern, whether the patient is seeking treatment for functional or aesthetic improvement or both. Finding a solution to each individual problem leads to the formulation of a definitive treatment plan (g). A well-structured and organized list of problems makes sure that all areas have been evaluated in the diagnostic phase, and also serves as a valuable reference tool during the course of treatment. All specialists involved in formulating the treatment plan for the patients should have possible solutions to individual problems based on their own areas of expertise, and no problem should be treated as less important. Provisional treatment plans are then compared with respect to their overall effects, and the plan that enhances the treatment and provides maximum benefit to the patient, considering the patient’s chief complaint, is then regarded as final and definitive treat- ment plan.

The treatment planning process almost always follows the same events, however, the treatment se- quence varies significantly from event to event. Whether the patient is seeking treatment for functional and esthetic do-

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One of the prerequisites for placing an implant and subsequent good soft-tissue integration for more esthetically pleasing restoration is to have an excellent alveolar ridge. It is a common clinical observation that many patients present with esthetically typical exhibit compromised bone levels due to alveolar bone atrophy. Research studies have shown that the mandibular and maxillary anterior teeth are extracted earlier and the bone loss may not require any intervention. How- ever, if the bone loss is significant, regenerative procedures may be necessary.

Orthodontic implant site development is a process involving the root movement of teeth that can create a desirable ridge width through stretching of the bone in the areas of greater pro- jection. The clinician must plan adequate alveolar ridge width and height for a predictable and more esthetic implant restoration.

6) Optimize pre-restorative orthodontic treatment

Often management of adult patients necessitates modification from usu- ally prescribed orthodontic treatment unless the on- tological disfigurements displayed in common by their dentition are so severe. Interdisciplinary treatment required for the holistic rehabilitation of these individuals can include management with periodontal, esthetic, restorative, orthodontic, surgical, etc. procedures. Pre-restorative orthodontic treatment may play a vital role in repositioning of the mandible and maxilla. Interdisciplinary treatment required for the holistic rehabilitation of these individuals can include management with periodontal, esthetic, restorative, orthodontic, surgical, etc. procedures. Pre-restorative orthodontic treatment may play a vital role in repositioning of the mandible and maxilla.

Figure 1: Orthodontic treatment planning.

The orthodontic treatment planning should take into consideration the overall patient’s desires and expectations. The team must work together to achieve the best possible outcome while maintaining a high level of patient satisfaction. The treatment plan should be based on a thorough assessment of the patient’s medical and dental history, as well as a comprehensive examination of the oral cavity.

7) Use customized orthodontic prostheses to max- imize aesthetics

Contrary to traditional orthodontics that is focused solely on improving the malposed teeth, modern orthodontic treatment approaches consider the whole patient. This holistic approach considers the patient’s overall well-being and aims to achieve a healthy, functional, and balanced smile.

Implant therapy: The importance of interdisciplinary treatment

Interdisciplinary treatment is crucial in providing a comprehensive treatment plan that addresses all aspects of the patient’s oral health. This involves collaboration between dentists, orthodontists, periodontists, and prosthodontists to ensure that each aspect of the patient’s care is managed appropriately.

The role of orthodontists in implant therapy

Orthodontists play a significant role in the success of implant therapy. They are involved in the planning and execution of the orthodontic treatment to achieve the desired outcome. Orthodontists work closely with the restorative dentist to ensure that the final restoration is esthetically pleasing and functional.

The role of restorative dentists in implant therapy

Restorative dentists are responsible for the final restoration of the implant. They work closely with the orthodontist to ensure that the implant is placed in the correct position and orientation. This requires a high level of precision and accuracy.

The importance of communication

Effective communication between the orthodontist and restorative dentist is essential for the success of the treatment. This includes regular consultations, sharing of treatment plans, and providing feedback to ensure that the final outcome meets the patient’s expectations.

The role of periodontists in implant therapy

Periodontists play a crucial role in the treatment planning of implant therapy. They assess the health of the surrounding gum tissue and provide guidance on the treatment approach to achieve optimal bone levels.

The role of oral surgeons in implant therapy

Oral surgeons are involved in the placement of the implant. They are responsible for the surgical portion of the treatment, ensuring that the implant is placed in the correct position and orientation.

The role of prosthodontists in implant therapy

Prosthodontists are involved in the final restoration of the implant. They work closely with the restorative dentist to ensure that the final restoration is esthetically pleasing and functional.

The role of dental technicians in implant therapy

Dental technicians play a crucial role in the fabrication of the final restoration. They work closely with the restorative dentist to ensure that the final restoration is esthetically pleasing and functional.

The importance of patient education

Patient education is an essential component of the treatment process. It is important to educate patients about the treatment plan, the expected outcomes, and the importance of maintaining good oral hygiene.

The role of the patient in implant therapy

The patient’s active participation is crucial for the success of the treatment. This includes maintaining good oral hygiene, attending regular follow-up appointments, and following the treatment plan. It is important to keep the patient informed and involved throughout the treatment process.
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¹ Versus a manual toothbrush
³ Data on file, 2010
**Interview:** “The focus should be on maximum preservation of tooth structure”

By Dr David Alexander, Singapore

With the Minamata Convention on Mercury signed in 2013 and its pro- posed phase-out of mercury containing products, including dental fillings, dentistry has entered a zero amalgam era in which new and less harmful filling materials than amalgam are increasingly being considered. This year at IADM, an entire symposium will be dedicated to that topic. Science news editor Dr David Alexander spoke with presenter Prof. Hien Ngo from the University of Queensland in Australia about the post-amalgam era and its impact on dental practice.

**Dr David Alexander: Why is now the time to be organising such a detailed symposium on dental restorative materials?**

By Hien Ngo: The scope of the Minamata Convention is much wider than just amalgam. While the Minamata Convention focuses on mercury, the Minamata Convention on Mercury and the Minamata Convention on Mercury are complementary and the Minamata Convention has not been taken into account in this symposium.

**As far as dentistry is concerned, what will be the main changes in everyday practice?**

The main changes include focusing on managing dental diseases, early detection and empowering patients to take better care of their teeth. When repair is required, the focus should be on maximum preservation of tooth structure. This can be achieved by using adhesives and restorative materials.

**In order to gain public confidence, dental practitioners should demonstrate their commitment to the use of evidence-based treatment in their practice?**

Yes, it is important that the dental profession is transparent about the rationale behind the use of amalgam and be ready to phase out the use of amalgam and to gain a detailed and complete update on the latest advances in dental materials and the optimal techniques for clinical use.

**By the end of the symposium, participants will have gained practical knowledge of how to deliver effective, evidence-based and patient-centred restorative and preventive solutions in the everyday practice of dentistry.**

We have assembled a panel of international dental leaders, scientists and clinical experts to discuss the rationale behind the phase-out of amalgam and the benefits of evidence-based treatment in everyday practice.

**What is the major learning outcome for students of this symposium?**

The symposium is intended to provide participants with an understanding of the rationale behind the phase-down of amalgam, and participants will gain detailed knowledge on tooth-coloured restorative materials, learn new skills on the selection and application of these materials, and most importantly, be able to communicate the significance of the changes to members of the dental team and patients. At the end of the day, participants will feel ready and empowered to embark on this new phase of dental practice.

**Clear communication is at the heart of the debate and the case for change?**

Yes, clear communication is at the heart of the debate and the case for change. However, contractual challenges, namely the costs involved and the lack of evidence to support the new materials, are being addressed through a range of techniques.

By attending the symposium, participants will be able to gain sufficient knowledge and skills to initiate the changes required in their practices.

**The success in responding to this call to action is to focus on preparing for the new era.**

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Clearly, the environment is at the heart of the debate and the case for change. However, contractual challenges, namely the costs involved and the lack of evidence to support the new materials, are being addressed through a range of techniques. By attending the symposium, participants will be able to gain sufficient knowledge and skills to initiate the changes required in their practices.

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* Love your teeth
Where the magic happens

What goes on behind the scenes at Philips? We find out how in-lab research and years of innovation helped create Philips Zoom! whitening

By Philips

Tooth whitening has been at the forefront of cosmetic dentistry for years – centuries, even. Its history can be traced back thousands of years, long before the toothbrush was invented, and certainly before dentists were around.

Philips has been at the centre of this journey for years. Away from oral healthcare, the first Philips’ patent dates back to 1905 – an invention by Gerard Philips to extend the burning time of a light bulb. The company has been innovating light research ever since, so you can bet Philips knows a thing or two about adapting light for optimum tooth whitening.

Six shades lighter

Last month, Aesthetic Dentistry Today attended a live demonstration of Philips Zoom! Whitening in its lab, learning about the science behind light and basic colour theory along the way.

Dr Nigel Young, lead researcher, says that when it comes to whitening, patients want something that works – which may sound obvious. But most of the time, patients are looking for ‘instant gratification’, and often, home whitening will not last as long, or be as effective, as professional chairside whitening.

Here’s where Philips comes in: Zoom! is an in-office tooth whitening procedure, with a blue light-activated system. The action of the lamp activates the stains on the teeth and makes them react faster with the hydrogen peroxide. Essentially, this means that whitening lasts longer: set at the optimum pH level (approximately eight), and with the incorporation of amorphous calcium phosphate (ACP) in a dual barrel syringe, Zoom! ensures that teeth are not damaged and that the patient does not experience sensitivity.

The process is cool too, the team wants to debunk the myth that heat activates whitening (which only causes dehydration and ‘false’ whitening). It achieves up to six shades of whitening with 6% hydrogen peroxide, in compliance with EU regulations and only blue light activated whitening can achieve this. But how?

The face lift

In basic colour theory, yellow light naturally absorbs blue. (Think of yellow light as the ‘stains’ on teeth.) The energy absorbed by the chromophore (which is yellow) excites its bonds, making them easier to break – called photobleaching. Once excited, the bonds are more likely to interact with peroxide, which breaks the network of double and single bonds and decolours the molecule. Blue light greatly enhances the reaction rate.

Light-cured restoratives work on the same principle: a yellow pigment (camphorquinone) is added to the restorative (so little is required that it still appears white). The light absorbed by the pigment activates the chromophore and that energy causes a set of fast cross-linking reactions that solidify the restorative.

Dr Zaki Kanaan, a dentist in London and a past president of the British Academy of Cosmetic Dentistry, describes tooth whitening as a ‘scalpel-free face lift’.

According to Dr Kanaan, it is the most common treatment in practice, increasing revenue and offering patients a choice; home tooth whitening is still the ‘gold standard’, he says, but if you don’t offer tooth whitening in practice, someone else will.

Zoom! can be done in 90 minutes, but Dr Kanaan is quick to point out that one session will not be enough. ‘It reduces what you have to do at home, and that’s important to patients,’ he says. ‘It helps kick-start the process, and patients who really want this procedure will be happy to watch a 90-minute film while they have it done.’

He adds, ‘It offers huge PR and marketing potential, too – patients come into practice and ask for Zoom! by name, showing they trust it as much as professional.’

Safety first

Tooth whitening is a complex mix of chemistry and physics, and Philips has ensured that it works with the right researchers to understand the process behind whitening.

Philips works with four of the world’s top 10 universities and partners with leading academic institutes in the UK for oral healthcare, including the Eastman Dental Institute and King’s College London.

Dr Young says the lab at Philips headquarters in Cambridge is where the magic happens. The team assessed Philips Zoom! whitening here, looking at pH levels, sensitivity tests, experiments in a dark room, as well as ensuring extracted bovine and human teeth were not dehydrated to skew results. In vitro testing of coffee, tea and red wine stains on extracted human teeth were also conducted.

Follow-up, Dr Young says, is essential, the team has been researching this area and product since 2002, and made ‘absolutely sure that Zoom! was safe and effective for use’.

The only way is up

Philips is keen to invest, research and innovate in oral healthcare, maintaining its position as one of the key figures in the dental industry. The company aims to improve the lives of three billion people by 2025 on a daily basis, and bring this healthy living into prevention, diagnosis and therapy.

Dr Young also emphasised Philips’ role in future oral healthcare, saying: ‘Our aim is to push oral healthcare to the forefront of general wellbeing. The main question we ask ourselves is: how can we make people more aware of how to take care of their body?’

‘We came to Cambridge for a reason – we work with some of the best researchers in the world, and we hope to continue this learning and innovating long into the future.’

Originally Published by: Carlotta Eden, Managing Editor, Aesthetic Dentistry Today (FMC Publishers), August 2006, UK.

Myths about whitening

• Heat does not accelerate whitening
• Hydrogen peroxide is not activated by blue light (as it is colourless)
• Dehydration actually causes ‘false’ whitening
• Home care whitening has a place, but it can take longer to achieve ideal results
• Zoom! does not harm enamel or exacerbate tooth sensitivity

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WHITE IS BLACK

Brush your TEETH WHITE and toughen up your ORAL HEALTH.

TAKE BLACK GET WHITE
Advanced Restorative Techniques and the Full Mouth Reconstruction. Vertical Dimension And Changes During Restorative Treatment. Part 5

By Prof. Paul A. Tipton, UK

A highly respected specialist in Prostodontics, Paul has published many scientific articles in the dental press and is an expert lecturer in his field with Tipton Training Academies in Manchester, Leeds, London and Dublin. After gaining his Masters Degree in Conservative Dentistry in 1986, he was awarded the Diploma in General Dental Practice by the Royal College of Surgeons four years later and received Specialist status in Prosthodontics in 1999 from the GDC. An ex-professional cricketer with Lancashire County Cricket Club, he is currently the President of the British Academy of Restorative Dentistry (www.bard.org.uk). He is one of the UK’s most successful dental teachers in the fields of Restorative, Cosmetic and Implant Dentistry over the last 20 years with more than 2000 dentists completing a yearlong certification course from one of the Tipton Training Academies (www.tipton-training.co.uk).

Introduction
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 retracted, bone braced and reproducible positions. Increases and decreases in vertical dimension will be discussed showing positive changes in facial aesthetics as treatment is completed.

Increasing VDO
There is some debate among professionals as to what constitutes the need to open VDO (vertical dimension of occlusion) in the restoration of anterior teeth or partial or full mouth reconstruction. In most cases, clinicians look to alter vertical dimension for one or all of the following reasons: to gain space for the restoration of the teeth; to improve aesthetics; to correct occlusal relationships. Understanding what determines the VDO and what the effects of altering it have on the temporomandibular joint (TMJ), muscle comfort, bite force, speech, and long-term occlusal stability are prerequisites to restoring the worn dentition. Speak clearly outlines the principles of VDO and concludes that “patients can function at many acceptable vertical dimensions, provided the condyles are functioning from centre relation and the joint complex is healthy.” He states that “vertical is a highly adaptable position, and there is no single correct vertical dimension.” He further concludes that the best vertical dimension is the one that satisfies the patient’s aesthetic desires and the practitioner’s functional goals with the most conservative approach. Article no. 3 in the series dealt with the diagnostic wax-up (Figs 5 and 6) followed by diagnostic wax-up at the increased vertical dimension (Figs 7 and 8).

Her anterior teeth showed severe wear in the lower and poor width/length ratio of her upper crowns (Fig 9) together with a centre line shift of approximately 2 mm. Crown-lengthening procedures were done (Fig 10) followed by tooth preparations (Figs 11-14) and placement of prototypes in sections as per the previous article. The stages in full mouth reconstruction were followed in as in article no. 4 of the series and the final result can be seen in Figs 15-19 showing a facial improvement, and a younger looking patient.

Reduction of VDO
Conversely, although not as predictable a procedure, reduction or shortening of vertical dimension is both possible and often advisable. It cases where there may be an overall anterior open bite, a simple posterior occlusal adjustment (reduction in vertical dimension) will result in anterior teeth meeting with the condyles in retracted anterior position. This then allows for the development of a mutually protected occlusion and anterior guidance on the anterior teeth. The following case study will show how occlusal adjustment can improve patient comfort. A reduction in vertical dimension can also have a positive effect in facial aesthetics. Since a long, thin face and making it look more in proportion. However, a word of warning. While increases in vertical dimension can be tried out without any tooth destruction so an occlusal劈裂 cannot be tried out prior to tooth preparation and so is not reversible. A great deal of experience is required before taking on a case such as this.

Case Study 1
Mrs S (Fig 1) was referred to me by her General Dental Practitioner for a full mouth reconstruction because of the poor aesthetics of her upper crowns (Fig 2) and the wear taking place on her lower anterior teeth (Fig 3) and because she wanted an improvement of her smile (Fig 4).

As part of the initial diagnosis, an assessment was made of her vertical facial height by using an intra-oral face and wax jaw registration as described in article no. 3 (Figs 5 and 6). It showed that increasing VDO resulted in a younger looking patient.

Case Study 2
This lady was referred to me because of her failing upper anterior com-
upper anterior crowns (Fig 35). The final restorations show better overjet and overbite with anterior guidance now on the anterior teeth and full interdigitation of all teeth around RAP, and no slide between RCP and ICP (co-incident position) (Fig 36). Careful post restorative adjustment was performed after fitting of the crowns and a post restorative splint fabricated, for right-time use Figs 37, 38.

The final smile shows the aesthetic improvements (Figs 39, 40).

I would like to thank the following for their help in preparing these articles:

- Dr Ibrahim Hussain, BDS, MMed Sci, Implantology – Implant Surgeon
- Dr Andrew Watson, BDS, MSc, Specialist in Endodontics
- Dr Amit Patel, BDS, MSc, MClin Dent, MFDS, RCSEd, MRD, RCSEng, Specialist in Periodontics
- Mr Jeff Caddick – Dental Technician, Castle Ceramics, Staffordshire
Wisdom Teeth in Adults. Strategy and Management Based on a Rare Case.

By Dr. Benoît Philippe, UAE

Extractions of wisdom teeth in adults are known to have sometimes certain peculiarities in particular ankylosis and increased frequency of extensive cystic lesions favouring immediate or secondary iatrogenic fractures.

The objective of this publication is to present, from a specimen case as per the size and two-dimensionality of the abnormalities noted, the thinking that preceded the surgical procedure and the execution of the surgical act.

Diagnosis Circumstances

The patient is an adult male aged 48, without specific medical and surgical history. He was referred for medi- cal advice and possible surgical care with regard to his asymptomatic im- pacted third molars. The clinical si- tuation contrast with the radiographic table found.

Dental Pan

Four (4) impacted third molars are highlighted 38 which is positioned along the dental pedicle, inverted and shows a pericoronal cyst in the vicin- ity of the dental pedicle, inverted and shows a pericoronal cyst in the vic- inity of the dental pedicle, inverted and extremely large stresses its tentative character (Figures 2a to 2d). Figure 2a, vertically positioned, is locat- ed on the lingual side of the inferior alveolar nerve; its roots contained in the lingual table. The apexes are located below the mylohyoid mus- cle in immediate contact with the submandibular gland and near "the facial artery that runs through the posterior superior part of the gland before turning around the bottom edge of the mandible."

Concerning 48, a pericoronal cyst developed mainly on the distal side of its crown. (Figures 3a to 3d).

The histological analysis of the man- datory on the flat.

Given the mandibular anatomical lesions and especially their bilateral nature, the information provided to the patient insists on the increased in- traoperative and postoperative risk of mandibular fracture and destruc- tion of the alveolar nerve by direct hit (section, burning) or indirect hit (in case of fracture). The information stresses the same way on the risk of direct or indirect hit of the lingual nerve itself particularly fragile and located in the immediate vicinity of the roots of 48. Because of the high- localization of 28 and the divergence of its roots, the risk of oral sinus com- munication is clearly indicated.

Surgical Strategy

In order to perform the surgery in the best technical conditions (espe- cially in the absence of trauma as a result of an iatrogenic decompen- sation) it is recommended to perform these extractions ‘in cold situation’ and in two times (high fracture risk) 38 and 28 programmed in a first phase and 48 in a second phase to 6 months.

Figure 4a: Hernia of the submandibular gland.

Figure 4b: 28, pericoronal cyst and polyd endo-antral.

Figure 4c: 48, lingual and alveolar aspect.

Figure 4d: 48, lingual and alveolar aspect and Retromolar Triangle (2 fragments).

Postoperative, Medium Term Monitoring

Apart from an acute painful episode on the right side that occurred dur- ing chewing on the third postopera- tive day, the patient did not report any complication.

Concerning 48, despite a widened approach path (in 47, the vestibula- ry and lingual submucous incisions are extended from the distal surface of the tooth until the anterior edge of the ramus), the procedure is to keep intact the outer table and the basilar margin of the mandible. The extraction is performed through the lingual path. Careful subperiosteal separation concerns the lingual table with regard to 47 and the retromolar triangle. A malleable blade to protect the lingual nerve is gradually posi- tioned in the separation space. The double vertical osteotomy of the lingual table framing 48 impacted is performed with ultrasound under heavy irrigation with refrigerated serum. A controlled fracture of the lingual bone flap made with Wegener raspatory will complete the procedure, 48 lingually dislocated (Figures 6a to 6c).

In addition to the systematic recom- mendations given to the patient, preoperative and postoperative in- formation insist particularly on the prevention of secondary mandibu- lar fracture (soft diet for 45 days) and on the prevention of oro-antral com- munication (sterning mouth open and gentle nose blowing during 45 days).

The histological analysis of the man- dibular lesion confirms the diagnosis of cystic lesion and eliminates any unusual or suspi- cious element of malignancy.

References


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Dr. Benoit PILLIPE - FRANCE | Oral and Maxillofacial surgeon

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Early Childhood Caries
A Continuing Epidemic Oral Health Problem in the United Arab Emirates

By Dr Mawlood Kowash, UAE

Early Childhood Caries (ECC) is a chronic, transmissible infectious disease affecting the primary (milk) teeth. The etiology of the condition is a combination of factors includ-
ing frequent consumption of fermentable carbohydrates as liquids, especially when the baby is sleeping, with on-demand breast- or bottle-
feeding. Other factors include oral colonization by cariogenic bacteria (especially mutans streptococci), poor oral hygiene and poor parent-
ing. It is the most common chronic disease among children. The preva-
ience of ECC in infants and preschool children has been reported to vary between 3% and 94% world-wide. In United Arab Emirates (UAE) the prevalence is one of the highest and reported to be over 90% in Abu Dhabi emirate. ECC can result in con-
siderable suffering, pain, disfigure-
ment and frequently compromises future (permanent) dentition. This ultimately leads to a reduction in the quality of life of affected children.

This paper provides an updated review of ECC covering its defini-
tion, aetiology, prevalence, clinical picture, complications and manage-
ment and a solution to the continu-
ing problem of ECC is suggested.

Introduction
Caries or dental decay in children has been known to exist for many centu-
ries [1]. Early Childhood Caries (ECC) is a chronic, transmissible infectious disease affecting the primary (milk) teeth. It is defined as the presence of one or more decayed, filled or miss-
ing tooth surfaces in any primary tooth in a child 71 months of age or younger [2,3]. It can result in consid-
erable suffering, pain, reduction of quality of life of affected children

and disfigurement and frequently can compromise their future denti-
tion. The etiology of the condition is a combination of frequent consump-
tion of fermentable carbohydrates as liquids, especially at night, with
-on-demand breast- or bottle feeding, oral colonization by cariogenic bac-
teria (especially mutans streptococci) and poor oral hygiene [4].

In most cases, the aetiology will be a combination of several of these factors. The prevalence has been reported to vary worldwide. Higher prevalence has occurred in children from lower socio-economic status families, migrant and ethnic minor-
ity populations [5].

In the United Arab Emirates (UAE), ECC is the most common childhood disease. The prevalence of ECC in the UAE has been reported as 93.8% in 5-year-old children [6].

Prevention of ECC can be achieved by the education of prospective and new parents, as well as by the iden-
tification of ‘high risk’ children [7]. Strategies have focused on the indi-
vidual mother and child by prevent-
ing transfer of cariogenic bacteria from mother to her infant, using pre-
ventive agents such as fluoride and teaching good oral hygiene practices [8]. Community-based approaches
have been attempted. An example of a successful program was reported by Kowash et al. [9] which investi-
gated the effect of dental health edu-
cation provided by trained, non pro-
fessionals (not dentists) carrying out regular home visits in a low socioeco-

(pic3)nomic high caries area in Leeds, UK. The study was able to demonstrate a significantly reduced occurrence of ECC after three years.

The treatment of ECC is very costly, time consuming and in most cases, requires full dental rehabilitation under general anaesthesia by a pae-
diatric dentist. Unfortunately, in many countries, even in the devel-
oped world, these carious teeth end up being extracted.

This paper provides an updated ev-
idence-based review of ECC. The lit-
erature in regards to ECC definition and terminolo-
y, aetiology, prevalence, clinical picture and manage-
ment is discussed. A solution to the continuing problem of ECC is sugg-
gested.

Definition and Terminology
of ECC
ECC has been defined as “the pres-
ence of one or more decayed (non-
cavitated or cavitated lesions), miss-
ing (due to caries) or filled tooth surfaces” in any primary tooth in a
child 71 months of age or younger [2]. In children younger than 3 years of age, any sign of smooth-
surface caries is indicative of severe early childhood caries (S-ECC). From ages three through five, one or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a de-

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cayed, missing, or filled score of 84 (age three), 115 (age four), or 116 (age five) teeth surfaces constitutes 5-40% [3].

Dental caries is commonly referred to as a “sweet tooth” condition. There are several causes of dental caries, including age and socio-economic groups, certain individuals, and time.

The prevalence of ECC varies greatly in different countries. The prevalence of ECC worldwide has been reported to vary from 30% to 50%. This wide range may be due to several factors such as: 1) children studied, their age and socio-economic status, 2) the definition of ECC, 3) the method of data collection.

The prevalence of ECC in one country usually cannot be compared with that in another country. It has been reported that even results from one ethnic group cannot be extrapolated to other ethnic groups.

ECC is a common problem in young children, and its prevalence and severity vary between different studies. The prevalence of ECC in one country may also be affected by the definition of ECC.

ECC is a complex disease, and the factors associated with ECC are multifactorial. The factors that influence the prevalence and severity of ECC include: 1) the difficulty of studying the caries process, 2) the timing of the eruption of the teeth, 3) the presence of decayed, missing, and filled teeth.

In most cases of ECC, the first clinical sign is a blemish of white demineralization along the gingival line of the maxillary incisors. As the lesion progresses, the white blemish becomes a brown or black collar around the necks of the incisors. In advanced cases, the affected area may be very severe that the crowns of the teeth are amputated leaving only dental roots. The treatment for ECC is complex and requires the expertise of dental professionals.

The American Academy of Paediatrics (AAPD) recommends the following prevention strategies for ECC:

1. Breastfeeding should be encouraged to have infants drink from a cup after one year of age. Parents should avoid giving infants and children sugary drinks or snacks (e.g. juice, soda) the increase the risk of caries.
2. Infants should not be put to sleep with a bottle of milk. Parents should establish and implement bedtime brushing.
3. Fluoride: Optimal exposure to fluoride is important to all dentate infants and children. The use of fluoride for the prevention and control of caries is documented to be effective and beneficial.
4. Establishment of the dental home: A dental consultation visit no later than one year of age is recommended to educate parents and provide anticipatory guidance for dental care.

In severe cases, pulpal necrosis in primary teeth may lead to a dental abscess formation which can cause pain and damage the developing permanent tooth. There is no effective cure for premature extraction.

Consequences and complications of ECC: The consequences of untreated caries include pain, discomfort, and failure to thrive [31]. In severe cases, pulpal necrosis in primary teeth may lead to a dental abscess formation which can cause pain and damage the developing permanent tooth. There is no effective cure for premature extraction.

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2. Infants should not be put to sleep with a bottle of milk. Parents should establish and implement bedtime brushing.
3. Fluoride: Optimal exposure to fluoride is important to all dentate infants and children. The use of fluoride for the prevention and control of caries is documented to be effective.
4. Establishment of the dental home: A dental consultation visit no later than one year of age is recommended to educate parents and provide anticipatory guidance for dental care.

In severe cases, pulpal necrosis in primary teeth may lead to a dental abscess formation which can cause pain and damage the developing permanent tooth. There is no effective cure for premature extraction.

Consequences and complications of ECC: The consequences of untreated caries include pain, discomfort, and failure to thrive [31]. In severe cases, pulpal necrosis in primary teeth may lead to a dental abscess formation which can cause pain and damage the developing permanent tooth. There is no effective cure for premature extraction.

The AACD recommends the following prevention strategies for ECC:

1. Breastfeeding should be encouraged to have infants drink from a cup after one year of age. Parents should avoid giving infants and children sugary drinks or snacks (e.g. juice, soda) the increase the risk of caries.
2. Infants should not be put to sleep with a bottle of milk. Parents should establish and implement bedtime brushing.
3. Fluoride: Optimal exposure to fluoride is important to all dentate infants and children. The use of fluoride for the prevention and control of caries is documented to be effective.
education program through regular home visits to mothers with infants, commencing at or soon after the time of the eruption of the first deciduous teeth, was shown to be effective in preventing the occurrence of caries, improving oral hygiene and dental attendance of young children. An added benefit was that the mothers of the children also significantly improved their oral hygiene in terms of teeth, gingivitis and calculus scores [9]. Young children are dependent on their parents or caregivers for their daily dietary and oral hygiene practices. Therefore, it is important that the dental health messages should focus on educating and changing the behaviour of parents or caregivers. Moreover, the dental health messages should be practical by giving alternatives, for example substituting milk with water in baby bottles at night for those who find it difficult to stop night-time bottle feeding. They should also consider the socioeconomic status of the parents and be culturally sensitive [9]. The benefit-cost (B/C) and cost-effectiveness (C/E) of a long-term dental health education program to mothers with young children through repeated home visits were evaluated [44]. Comparisons were made for B/C and C/E with results from a clinical trial of a slow releasing fluoride device, community water fluoridation and a school based fissure sealant program. The results showed that dental health education programs for mothers of young children starting at 8 months of age gave better B/C and C/E ratios than other preventive programs.

Restorative treatment of ECC

In recent years there has been a shift from the traditional (drill & fill) to a more conservative treatment modality to heal with better understanding of the caries process biology. Managing caries through minimally invasive and low-cost treatment modality such as atrumatic restorative technique (ART) is important especially in developing countries. It helps in slowing caries progression and hence minimizing the child’s discomfort and preventing other decay complications. Studies have shown that, although caries causes demineralization of dental hard tissues and demineralization of collagen, the inner layer is minimally or even not infected by bacteria [44]. The inner part of decayed dentine contains a high concentration of minerals and can be remineralized [45]. Management of ECC should take into consideration the biology of dental tissues, remineralization process and other protective mechanisms. The goal should be to minimize lifelong caries experience while performing the least possible intervention consistent with level of risk (Table 1).

The type of restoration chosen depends on: the tooth to be restored, present and past caries history, child cooperation and medical history. For example a decayed primary molar in a special need child is best restored with a durable restorative like stainless steel crowns. In severely decayed teeth and after pulp therapy, preformed SSC should be the restoration of choice.

Conclusion

Early Childhood Caries (ECC) is a chronic, transmissible infectious disease affecting the primary teeth. The etiology of the condition is a combination of frequent consumption of fermentable carbohydrates as drinks, especially when a baby is sleeping, with on-demand breast- or bottle-feeding oral colonization by cariogenic bacteria (especially mutans streptococcus), poor oral hygiene and poor parenting. It is the most common chronic disease among children and is still considered a continuing oral health problem in developing countries and also in most developed countries. It can result in considerable suffering, pain, disfigurement, reduction of quality of life of affected children and frequently compromises their future dentitions. The treatment of ECC is very costly, time consuming and in most cases, requires full dental rehabilitation under general anaesthesia by a paediatric dentist. ECC, however, is a preventable disease and the solution for this continuing problem can be achieved by educating parents of young children and pregnant mothers. It is important that the dental health messages should focus on educating and changing the behaviour of parents or caregivers. Moreover, the dental health messages should be practical, consider the socioeconomic status of the parents and be culturally sensitive. The management of ECC should take into consideration the biology of the caries process and protective mechanisms and to be effective, the restoration of active lesions should be monitored regularly follow up and long-term preventive strategy.

References


The full list of references is available from the publisher.
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A 58-year-old patient presented to the practice in March 2015 with concerns that her upper laterals were sticking out – something that had bothered her all her life. She was otherwise healthy with no previous medical issues or current medications.

A full dental assessment revealed a skeletal Class II division 2 malocclusion, as well as an overbite and a small overjet. The lower arch had minimal crowding which did not bother the patient. The upper right lateral had undergone endodontic treatment many years previously and it was now discoloured. Many large restorations were present in the molars, both composite and amalgam. Aside from minimal plaque and calculus, good oral hygiene was recorded. The upper anterior teeth showed a little mobility but no periodontal pockets were detected.

**Treatment options**

Many years ago the patient was referred to an orthodontist, but she did not desire fixed braces. Prosthodontic solutions were also discussed at the time, which would have included veneers on the upper centrals and laterals, resulting in loss of a lot of tooth substance on the laterals and an elective endodontic treatment on 22.

With this in mind, the IAS Inman Aligner method was suggested as an alternative option. X-rays and photographs were taken during that appointment to ascertain suitability and no pathology or abnormalities were identified. Both the upper and lower jaws were then scanned with CAD/CAM technology and the digital impressions sent to a certified lab.

The lab did the Spacewize+™ calculations and it was confirmed that the case was suitable for treatment. A video demonstrating the predicted result was also provided, which made it easy for the patient to visualise the outcome and make an informed decision.

Upon her consent to proceed the treatment plan was discussed in detail, including frequency of appointments, importance of compliance, potential bleaching problems – distally on the centrals and mesially on the laterals. I was a little too careful at first so more IPR and PPR were needed along the way. Consequent appointments were made at two-week intervals.

Six weeks after treatment began, the upper centrals had moved buccally and the expansion screw no longer required turning. Tooth 11, which had over-erupted a little, following advice from the IAS online support, it went too far and moved as far onto the incisal edge as possible to minimise the extrusion force. A similar anchor was placed on 21 to spread the force across both teeth. Both incisors were very mobile at that point but the patient reported no pain.

Two weeks later composite anchors were placed buccally on 11 and 22 and a little more PPR was carried out on these teeth distally to encourage rotation. After another fortnight, the anchors were removed from the centrals and new ones were placed palatally on the laterals. At this point the laterals had both buccal and palatal anchors to increase rotation.

The IAS online support was once again consulted because not enough rotation of the laterals was being achieved. The IAS Inman Aligner was sent to the lab for a bow reset and the patient had an Essex retainer in the meantime.

The IAS Inman Aligner was then used for four more weeks, before treatment was concluded with two IAS Clear Aligners. Bleaching trays were also constructed and bleaching was carried out with Philips Zoom. Finally, the fillings were changed in the anterior teeth and composite restorations – distally on the centrals and mesially on the laterals.

The patient is very happy with the outcome achieved. The laterals have always bothered her but she was not ready to have fixed orthodontics. She was amazed this result was possible with the IAS Inman Aligner.

From my point of view, this was my first case and I found it very challenging. It was also not totally without complications – but thanks to patient compliance and fantastic help and feedback from the instructors on the IAS online support, it went really well. I would, however, advise others to begin with an easier case and do not hesitate to contact the instructors through the online support with any questions!
IAS Academy in the GCC

By Middle East Dental Laboratory

The IAS Academy that brought you the Inman Aligner is pleased to announce the first IAS Clear Aligner course in UAE on 25th November 2016, the IAS Clear Aligner will be available in the GCC as part of the IAS Academy’s efforts to expand its services.

Like other locations across the globe, the course will include both theoretical and practical elements and will be delivered by one of the Academy’s renowned and knowledgeable instructors.

Correct assessment, diagnosis and treatment planning will be at the core of the training, with emphasis placed on patient safety.

“The hands on course provides an insight into both the IAS Academy’s philosophy and the benefits of treating patients with the IAS Clear Aligner,” says Dr Jorge Perez, Director of the IAS Clear Aligner training programme.

“We want to help practitioners improve their knowledge and increase their confidence to provide safe and predictable orthodontic treatment plans.

“After completing the hands on course, practitioners will be able to begin their journey and learning curve of the IAS Clear Smile aligner orthodontic system with the continuous mentoring and help of our team of specialists and senior CSA trainers.”

For more information about IAS Academy’s global presence or for upcoming courses near you, contact the team today.

For more information on upcoming IAS Academy training courses, including the IAS Clear Aligner and IAS Inman Aligner please visit: www.iasortho.com email info@iasortho.com call Middle East Dental Laboratory on +971 4 332 9201

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Stephen Curry’s mouthguard sells for over $3,000

By DTI

LAGUNA NIGUEL, Calif., USA: SCP Auctions, one of the largest auctioneers and private sellers of notable sports memorabilia and cards in the U.S., has recently sold the mouthguard of American professional basketball player Stephen Curry. As a signature habit, the 28-year-old Curry, who plays for the Golden State Warriors team, removes and chews on his mouthguard whenever he is about to shoot a free throw.

This was the first time one of Curry’s game-used mouthguards from his special 2015-16 season was offered publicly. The flexible rubber mouthguard was custom-made to fit Curry’s teeth. It was specially designed with the Golden State Warriors logo on the left and “#30 CURRY” on both sides built into the molded material. Curry’s bite marks were evident.

According to the auction house, the mouthpiece was acquired by the consignor after a December road game. His seat was close to the Warriors bench and the mouthguard was apparently left behind under one of the team’s courtside chairs after the game.

At the end of August, a fan purchased the mouthguard for $3,189.60.

In an interview with television host Jimmy Kimmel, Curry explained that chewing the mouthguard calms him, especially when he is at the free-throw line. He also stated that it was a habit that he formed in his junior year in college—after being hit in the face by another player, which resulted in a severe cut on his lip, he has worn a mouthguard for every game.
Complete reconstruction for a patient with chronic tooth decay

The damage undone

By Dr Ara Nazarian, USA

When oral health is neglected for ex-
tensive periods of time, dental condi-
tions like tooth decay and periodonal-
tissue disease can advance to a point
that, prior to the advent of implant ther-
apy, was considered hopeless. If a patient presented with exten-
sive cavities and a non-restorable set of dentition, practitioners had no choice but to extract the teeth and provide the patient with a complete denture. Although beneficial to pa-
tients as a fundamental replacement of their teeth, many patients have found the fit, comfort and retention of such appliances to be problem-
atic. Without any anchorage to hold it in place, the traditional denture has a tendency to move around in the patient’s mouth, compromis-
ing speech and chewing capabili-
ties. This problem is exacerbated by the recession of the edentulous arch that occurs following tooth loss or extraction. After decades of advance-
ments in implant design, restorative materials, and digital dentistry, we can today provide patients with a higher level of care. Root form den-
tal implants can be placed predict-
ably to hold a full-arch prosthesis in place, providing greatly improved comfort, function, and quality of life compared to traditional complete
comple dentures. Further, osseointe-
gation that follows documents a life-changing potential. The pres-
tentation that follows documents a case in which a patient with severely
decayed dentition underwent a complete oral reconstruction.

A treatment plan is developed that
harmonises the classic principles of implant placement, the versatility of modern restorative materials, and the precision of digital diagnostics and CAD/CAM fabrication to achieve a predictable, aesthetic restoration for a case that would seem hopeless to many. The case illustrates how implant therapy can afford patients even in the most extreme of dental circumstances an excellent long-
term prognosis, restoring not just the teeth, but also the bone, soft tis-
sue, self-esteem, and quality of life. Although the patient had been quite
terminally prosthodontic, the patient eventually compelled him to take action. The
patient had sought treatment from a practice where he could receive all of the necessary treatment from a sin-
gle provider in the fewest appoint-
ments possible. After locating my
practice, the patient found the cour-
age to present for evaluation. It was
apparent from the initial visit that he
was ashamed of his condition.

Case Report

A 68-year-old male patient presented for treatment with advanced, exten-
sive caries and localized periodontal disease (Figs. 1a–c) in addition to not having seen a dentist in more than 20 years, the patient was recover-
ing from an addiction to metham-
phetamine, which had caused ex-
cessive clenching and gritting that had substantially worn down the patient’s teeth. The many years of
dental neglect combined with these parafunctional habits to render the patient’s severely decayed denti-
tion untretable (Fig. 2). Further, the deterioration of the patient’s teeth was accompanied by significant soft-
tissue recession and bone resorption.

The goal was to offer him the best
treatment available in order to re-
store the patient’s smile, form and
function. Without presuming the
appropriate standard of care for the patient based on his condition,
it was explained to the patient that his
natural teeth could not be saved and a full range of treatment alterna-
tives was presented, from complete
dentures to fixed full-arch implant
restorations. Before-and-after pho-
tos of similar cases were shown to
the patient to assist his evaluation
of the restorative options. The pa-
tient chose full-mouth reconstruc-
tion consisting of fixed prostheses
delivered over dental implants. A treatment plan was developed that
included extraction of the patient’s
temporary dentition, the place-
ment of eight implants in each arch,
delivery of Inclusive® Titanium Cus-
tom Abutments and BiTemp® res-
torations (Glidewell Europe GmbH,
Frankfurt/Main, Germany), and final
restoration with fixed PFM prosthese-
s. The latest tools in digital dentistry
would be utilized to maximize the
precision of both implant placement and prosthetic fabrication.

Because of the patient’s relatively youthful age and his continued bruxism, eight implants were
proposed for each arch in order to
maximise the distribution of oc-
cclusal load, the preservation of his
ridges, and the long-term prognosis of the patient’s maxillary and man-
dibular ridges necessitated a grafting procedure to provide the bone needed for implant placement. Custom
abutments were used to position the prostheses for optimal aesthetics. Although BruxZir® Solid Zirconia Full-Arch Implant Positiv-
es (Glidewell Europe GmbH, Frank-
furt/Main, Germany) would have been the ideal restorations given the need for long-term durability in this case, the product was not yet avail-
able at the time of treatment. Thus, PFM prostheses were chosen in order to avoid acrylic and its susceptibility to staining, wear and fracture. The proposed PFM restorations included layered pink porcelain to recreate the patient’s natural gingival con-
tours. All aspects of treatment were explained to and accepted by the pa-
tient. The first phase of treatment be-
gan by autotransfusing the patient’s
extraction sockets for bone enhancement (CBCT) scanning could be performed. The soft issue of the patient’s non-
edentate alveoli was extensively exposed. Excellent health (Figs. 4a & b) CBCT scan-
ing confirmed that the grafting procedure was successful in increas-
ing the bone volume available to ac-
 commodate the planned implants. The CBCT scanning data was used to devise a virtual treatment plan that would place the eight implants for each edentulous ridge in the maxi-
 mum amount of bone adhering to the key implant positions as taught by Dr Carl Misch “Surgical

Thus, patients who present with the most acute dental conditions can now be brought back from the brink, and some patients
who would have formerly been completely restored via therapy. If the patient’s teeth have deteriorated to the point where they cannot be extracted, they can be extracted, implants are placed, and a full-arch restoration is devised that closely emulates the form and function of natural den-
tition. This alternative, should it be presented to all patients for whom implant therapy is indicated, as indi-
cates, that at least may not appear to have the means for high-quality treatment may in fact have the wherewithal after being apprised of their options. Additionally, all pa-
tients should be made fully aware of the long-term costs and benefits of traditional complete dentures vs implant-supported restorations before making a decision with such
Carestream Dental makes it easy for you to elevate your practice above the rest with the CS 3600 intraoral scanner. High-speed continuous scanning captures dual arches quickly and easily, while full HD 3D scans simplify communication with patients, referrals and labs. With open system files and no hidden click fees, Carestream Dental has designed the CS 3600 to rise to the challenge of making digital impressions fast, accurate, easy and open.

guides were fabricated to ensure placement of the implants in the precise positions called for by the treatment plan (Figs. 5a & b). At the next appointment, the tissue-supported surgical guides were tried in and found to be well-fitting. The fixation pins of each surgical guide were tightened with a surgical index in place to ensure complete, secure seating of the appliances (Fig. 6). A tissue punch was used to provide access to the implant sites, facilitating a flapless surgical procedure that would minimize gingival trauma. The osteotomies were created through metal inserts placed in the surgical guides, which precisely controlled drilling depth and orientation according to the digital treatment plan (Fig. 7).

Eight BioHorizons® Laser-Lok® dental implants (BioHorizons, Birmingham, USA) were placed in each ridge, including 5.7 mm implants in the two distalmost locations of each arch, and 4.5 mm implants in the resuming sites. After placing healing abutments in the implants, a soft reline was performed on the patient’s temporary dentures so they could continue to serve as interim prostheses for the duration of healing and osseointegration. Four months after surgery, the patient returned to the office so impressions could be taken. Removal of the healing abutments revealed optimal tissue health surrounding the implant sites (Figs. 8a & b). Transfer posts were seated to capture the position of the implants (Fig. 9). Closed-tray impressions were taken of the upper and lower arches using Take P® Advanced™ vinyl poly-siloxane material ( Kerr Corp., Orange, USA, Figs. 10a & b). At the same appointment, thermoformed suckdown impressions were made and a bite registration taken with the patient’s immediate dentures in place, providing the lab with a template for the definitive design of the PFM restorations (Fig. 11). The lab poured working casts from the VPS impressions of the patient’s edentulous arches and produced wax occlusal rims (Fig. 12). After seating the wax rims in the patient’s mouth and tightening the temporary cylinder screws, the jaw relationship records were taken (Fig. 13). Note that the patient’s vertical dimension had virtually collapsed due to the extensive wear to his teeth. After measuring the distance between the patient’s nose and chin during maximum intercuspation, the lab was instructed to open the patient’s bite by 2 mm. Next, the lab used CAD software to design inclusive® Titanium Custom Abutments (Glidewell Europe GmbH, Frankfurt/Main, Germany) for both arches based on the scanned working models. The CAD/CAM produced custom abutments were seated on the working models so their fit could be verified and they could be used in the development of the definitive prostheses (Figs. 14a & b). Based on the jaw relationship records and the impressions of the patient’s immediate dentures, the lab prepared a diagnostic wax-up to help determine the initial design for the PFM restorations (Fig. 15). After finalizing the initial design, BioTemp® prostheses were fabricated from polymethyl methacrylate (PMMA) material, which is versatile enough to easily accommodate adjustments at the try-in appointment, yet durable enough for provisionalisation (Fig. 16). The working models were sent out along with the custom abutments and BioTemp® interim restorations for patient evaluation (Fig. 17). At the next appointment, the titanium custom abutments were transferred to the patient’s mouth using the acrylic delivery jig provided by the lab (Fig. 18). The custom abutments achieved a precise fit and were thus tightened to the appropriate torque, establishing ideal soft-tissue margins and support. Complete seating was verified radiographically, and the screw access holes were covered.

Next, the BioTemp® prostheses were tried in and exhibited an accurate fit (Figs. 19a & b). The provisional restorations were attached to the abutments using temporary cement, and the phonetics, aesthetics, bite, and function were evaluated (Fig. 19c). Minor modifications were made to the BioTemp® prostheses, and the patient wore the BioTemp provisional for an interim of four weeks. This interim period was essential in verifying that the patient was happy with the look, comfort and function of the prosthetic designs before the final PFM restorations were fabricated. After patient approval was provided, alginate impressions were made of the BioTemp® prostheses. Models of the final approved BioTemp® restorations were fabricated from the impressions, and a new bite was taken so the definitive prosthetic designs could be fabricated accordingly. Crown & bridge impressions were taken of the final custom abutments in place and would be used by the lab to pour the master models, upon which the final PFM prostheses would be produced. The gingival areas for the final PFM were marked onto the models of the BioTemp® restorations, and the case was returned to the lab along with final adjustments. The final PFM prostheses were fabricated by layering porcelain over a cast metal framework. Porcelain was layered on to form the gingival areas according to the markings indicated on the models of the BioTemp® restorations, thus replacing portions of the soft tissues as well as the teeth per Dr. Much’s FPs (Fixed-Prothetic) 3 principles of prosthesis design. Because the final prostheses were designed using the models fabricated from the final crown and bridge impressions, a precise fit over the patient’s custom abutments was ensured (Fig. 20).

At the final delivery appointment, the PFM restorations were delivered over the custom abutments without issue. A panoramic radiograph was taken to confirm complete seating (Fig. 21). The final prostheses achieved the exact fit, aesthetics and function that the patient had come to expect after six weeks of wearing the BioTemp® provisional, which ultimately served as the bases for the final restorations (Figs. 22a–c).

The patient was ecstatic with the results, which reconstructed his teeth and gingiva, along with his confident and quality of life. A night guard was produced for the patient to mitigate the impact of his parafunctional habit (Fig. 23).

Conclusion

The predictability of implant treatment and the adaptability of restorative materials enable clinicians to provide patients in the most dire of dental circumstances a complete overhaul, reversing the damage that can result from many years of dental wear and neglect. This goes beyond the restoration of oral function by preserving the facial aesthetics that are so fundamental to the emotional state and social life of the patient. Provided its life-changing capacity, the fixed full-arch implant restora-

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VIP visitors from Saudi Arabia at EMS headquarters in Switzerland

By E.M.S.

E.M.S. proudly welcomed a group of VIP visitors from well-known institutions in Saudi Arabia to its headquarters in Nyon, Switzerland. Dr. Mesfer Mohammed Abadai (Military), Dr. Osamah Mohammed Almugeiren (Riyadh Private College), Dr. Sami Hussain Alqahtani (King Abdul Aziz Hospital, Riyadh) and Mrs. Sara Abdullatif Aleisa (King Faishal Hospital, Riyadh) got insights into the production and high quality assembly of the Piezon and AIR-FLOW products and were impressed by the "manufacture" style organization and work that goes into every single product.

During a visit to a Prophylaxis clinic in Geneva they learned about the business aspects of preventive dentistry and how popular it is for people from Geneva. But also tourists come only for a few days to town to get a real professional tooth cleaning according to the "GBT – GUIDED BIOFILM THERAPY" concept. This new approach shifts the primary focus to the removal of biofilm by using AIR-FLOW, followed by the removal of hard deposits using Piezon NO PAIN – if necessary. This new concept enables an individualized, efficient and painless prophylaxis session with precision and quality control. It increases the revenue of dental practices by improving patient comfort as well as patient compliance.

Since its foundation in 1981, the Swiss company E.M.S. has evolved into one of the most successful dental companies worldwide. Due to the concentrated power of the medium-sized company, consisting of innovative technology, perfection, precision and Swiss quality, the dental prophylaxis has achieved an entirely new and virtually pain-free standard.
Design award for innovative sintering furnace: CEREC SpeedFire from Dentsply Sirona CAD/CAM wins a Red Dot Award

By Dentsply Sirona

The CEREC SpeedFire sintering furnace from Dentsply Sirona CAD/CAM has won the coveted Red Dot design award. The award ceremony was held recently in the Aalto Theater in Essen. Zirconium oxide restorations can be sintered in less than 15 minutes using induction technology.

BENSHEIM/SALZBURG. The “efficient interplay between the CEREC SpeedFire’s open and closed shape and rounded and straight lines” impressed the 41-member jury of the annual Red Dot Awards. The “dramatic tension” this created led to the award for the sintering furnace in the “Life Science and Medicine” category. The award ceremony was held at the Red Dot Gala on July 4, 2016 in the Aalto Theater in Essen. The CEREC SpeedFire induction furnace, which has been available for five months, is part of the CEREC Zirconia workflow that now enables dentists to offer their patients chairside restorations using the high-performance material zirconium oxide. The compact and user-friendly device combines the sintering and finalization process (glazing), making it unique on the market. Both processes take just a few minutes. A crown, for example, can be sintered in 10–15 minutes and glazed in nine minutes. Its connection to the system provides the furnace with all the necessary information on the material, colour, type and size of restoration via the CEREC software of Dentsply Sirona CAD/CAM. Based on this information, the furnace gets the right program for the restoration. An important benefit: The intuitive handling of the software makes all processes easy – there is no need for any special training or long practice sessions. The smallest and fastest sintering furnace on the market has become very popular with dentists in just a short time with the 1000th Dentsply Sirona CEREC furnace having already been manufactured. Outstanding products, design concepts, and communication designs have been awarded the globally acknowledged Red Dot Award since 1954. This year, the jury, which is made up of independent designers, design professors, and journalists, will evaluate a total of 5,314 products from 57 countries in 31 categories. The most important criterion for awarding the coveted prize is high design quality.
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 synergy 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.

Available in sets or as refills to meet the individual needs of your lab.

Dental Hygienists – Welcome to Dubai

By DTI

DUBAI, UAE: On 05 November 2016, professionals from around the world with an interest in oral health care will meet at Jumeirah Beach Hotel in Dubai. They will be attending Dental Hygienist Seminar organized by CAPP & Colgate Oral Care Academy. The theme of this year’s seminar is “Dental Hygiene – Challenges & Opportunities for the dental professional” comprising of seven non-biased scientific lectures focusing on various aspects of the profession including:

Periodontal Treatment
• Oral maintenance in the implants prosthetic phase
• Prevention of dental disease
• Treating Bleeding Gums, Sensitivity and Deep Pockets
• Dental hygiene and Periodontology
• Health, function and beauty related to orthodontic maintenance
• Anesthesia, infection control & occupational health safety
• Maintaining gingival health and prevention
• Infection Control
• Dental X-Rays

Following a series of three successful dedicated educational programs, CAPP has a commitment to dentistry and good oral health care towards the entire dental team and the organization of such focused professional events is an underlining of this obligation. The list of speakers has been carefully evaluated and selected by an independent scientific panel based on surveyed demands of the regions health professionals. The presentations held will be strictly scientific orientated around the theme whilst CAPP is following the strict guidelines of ADA C.E.R.P as a recognized provider. Multiple international speakers will give their best interpretations of what is important according to this year’s theme. Participants will be able to receive up to 7 ADA C.E.R.P CE Credits after successfully attending all lectures. Further accreditations are expected by Health Authority Abu Dhabi (HAAD) and Dubai Health Authority (DHA).

We look forward to welcoming you to the event.

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“It gives a different approach and dimension to the clear aligner system”
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Frequent dental scaling might reduce infection risk after knee replacement

By DTI

TAIPEI, Taiwan: Oral bacteria that enter and spread through the bloodstream have been found to cause about 10 per cent of peri-prosthetic joint infections after total knee arthroplasty (TKA). Therefore, TKA patients are often advised to pay special attention to their oral health. A team of Asian researchers has now found that frequent dental scaling might reduce the risk of infection after TKA.

For patients with end-stage osteoarthritis, TKA is a common treatment to improve function and reduce knee pain. However, in some cases, patients contract subsequent peri-prosthetic joint infections. With a risk of about 2 per cent, these infections are the most frequent complication after TKA and may lead to functional loss, revision surgery and increased mortality.

In about one tenth of all cases, TKA infections are caused by oral bacteria that enter the bloodstream and cause transient bacteraemia, the temporary presence of bacteria in the blood. Oral bacteraemia may occur because of dental treatments, such as extractions or dental scaling, but also as a result of daily oral care, including toothbrushing and flossing. The condition has been found to occur more frequently in patients with poor oral health. Dental plaque accumulation and gingival inflammation in particular are thought to significantly increase the prevalence of bacteraemia after toothbrushing.

Regular dental scaling to remove plaque and calculus contributes to maintaining oral health and is provided by many dentists as part of routine dental care. Therefore, the researchers from National Cheng Kung University in Tainan hypothesised that it might be a possible way to reduce the risk of peri-prosthetic infection in TKA patients. In their study, the scientists investigated the association between the frequency of dental scaling and the risk of peri-prosthetic joint infection, using data from Taiwan’s National Health Insurance Research Database, which contains data on 99 per cent of the country’s population.

The researchers analysed 1,291 patients who had undergone TKA between 1999 and 2002 and needed revision surgery within five years after the initial operation owing to a peri-prosthetic infection. They compared these cases to a control group of age- and sex-matched TKA patients who had not had any peri-prosthetic infection.

The scientists found that the patients in the infection group had undergone less frequent dental scaling within the three-year period before their endoprostheses had to be removed. Of these patients, 73.1 per cent had not visited a dental clinic during that time to have dental check-ups and scaling, compared with 67.8 per cent in the control group. Only 7.1 per cent of the patients with a peri-prosthetic infection underwent regular dental scaling, whereas 10 per cent of the patients in the control group did.

Statistical analysis showed that patients who had received dental scaling one to four times during the three-year period had a 16 per cent lower risk of infection than patients who had not undergone the dental procedure. For patients who had been the dentist five to six times for dental scaling the risk was 31 per cent lower.

The researchers concluded that regular dental scaling might reduce the risk of peri-prosthetic joint infection in TKA patients, as it can improve oral health and thereby reduce the risk of transient bacteraemia caused by oral bacteria. However, further research is required to confirm this connection, they stated.

The study, titled “Frequent dental scaling is associated with a reduced risk of periprosthetic infection following total knee arthroplasty: A nationwide population-based nested case-control study”, was published online in the PLOS ONE journal on 23 June.
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*The final closing date for entries is Saturday, 31th December 2016. Multiple entries are possible, there is no maximum number, but the same image can only be entered once. Each image should be saved in the .jpg/.jpeg format not larger than 3 MB with a medium to high quality. Only entries submitted by e-mail to ifeelgood@ems-ch.com will be accepted. The price for the best entered picture is a trip to the EMS headquarters in Nyon, Switzerland (incl. air fare, free board and lodging and an exclusive EMS plant tour).

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DTI publishers discuss future strategies at annual meeting

By DTI

BERLIN, Germany: The Dental Tribune International (DTI) publishing group, which consists of about 30 publishers around the world, customarily meets once a year to present its latest products and introduce new partners. This year, the 12th Annual Publishers’ Meeting was held from 4 to 6 September at the picturesque Greater Wannsee lake in the German capital of Berlin. Over 50 people from about 20 countries, including partners from Asia, Australia, Europe, the Middle East and the US, attended.

New publications
Over the past 13 years, the DTI publishing network has grown significantly. Today, DTI reaches over 650,000 dental professionals in 25 different languages in about 90 countries around the globe. The DTI group is continuously seeking new partners to expand its portfolio into new markets. At the meeting in Berlin, the group welcomed two new partners, from Israel and Iran, who will be publishing their respective localised versions of the Dental Tribune newspaper and providing updates on their particular market on local websites on www.dental-tribune.com.

Furthermore, the publishers were introduced to one of DTI’s newest publications, the Journal of Oral Science and Rehabilitation, which was launched in 2015. It originated from the efforts of a large group of researchers involved in the advancement of implant dentistry. The aim of the journal is to promote rapid communication of scientific information. Released quarterly in March, June, September and December each year, it publishes original and high-quality research and clinical papers in the fields of periodontology, implant dentistry, prosthodontics and maxillofacial surgery.

New services
The publishers had the opportunity to learn more about the DTI Communication Services offering. As the importance of content marketing is growing rapidly in all industries, including dentistry, DTI established this new division last year. The department aims to assist smaller and mid-sized companies, in particular, in communicating more effectively with their audiences through tailor-made targeted editorial support, video production, event organisation and publishing.

IDS 2017
A major topic covered at the meeting was the International Dental Show (IDS), the most important trade fair in the dental industry. In collaboration with its German licensee OMEGA MEDIA, DTI will be publishing a new issue of its well-established today newspaper on each of the six days, providing comprehensive coverage of the previous day’s events. For the first time, the two publishers will be setting up a lecture forum at their booth—known as the Media Lounge, a restaurant and meeting area at which leaders in dentistry conventionally gather during IDS. At the forum, which will seat up to 200 participants, DTI will be holding Dental Tribune Study Club lectures and press conferences through DTI Communication Services.

New online activities
Moreover, the publishers were informed about DDS WORLD, a website that was recently launched by DTI and promises to become the most comprehensive resource in dentistry. It is a full-service digital marketplace for products, news, e-learning and practice management, and targeted at vendors, dentists, dental technicians and patients alike. Owing to its comprehensive approach, DDS WORLD has the potential to become the most important platform in dentistry and will thus help DTI secure its position in the market, as the importance of online marketplaces is growing in all industries.

DTI further announced the relaunch of its website, www.dental-tribune.com, which is scheduled to go live with a completely new design and layout in spring next year.

New verticals
For the meeting in Berlin, DTI also invited a number of representatives of Curaden, the Surgical Tribune and the Berufsverband für Orthopädie und Unfallchirurgie (German association for orthopaedic and trauma surgery), Architectural Tribune, Luna media Group, One Art Nation and MediCloud to present their projects to the publishers.

The 13th Annual Publishers’ Meeting will take place from 18 to 20 March 2017 at the Hilton hotel in Cologne, prior to IDS.
A new way of approaching the new patient examination

By Prime Practice

Every now and again a new way of thinking causes a paradigm shift that malgreys the way people think. Often pioneers of these techniques are thought of as being wacky or misguided, but if the theory they espouse is sensible, it soon takes hold and can eventually come to define normality. One such movement is Primespeak, which is a new concept in patient communication, one founded on psychology and the nuances of patient behaviour. It incorporates a whole new way of thinking about how to communicate with patients in an ethical way, but one that encourages treatment uptake.

The philosophy of Primespeak

In a profession where ‘selling’ is often considered a dirty word, dentists face a dilemma in aligning their ethical status with the need to sell treatments and make profit. Primespeak is a philosophy that teaches dentists how to reconcile these two conflicting aspects.

Traditional sales techniques more often than not fail in dentistry because in sales it’s often a question of numbers, ie, can you convert enough leads to sales? But this simply isn’t the case in the healthcare professions, and dentists have a duty of care to do their best for every patient, not simply those who choose or can afford the optimum treatment plan.

The essence of Primespeak is to encourage patients to take responsibility for their dental problems, deepening their concerns rather than simply being the supplier of solutions.

Although professional recommendation is clearly the remit of the dentist, treatment is always the patient’s choice and the role of the dentist is to communicate the options, and importantly the consequences of not having treatment.

The Primespeak new patient examination protocol

As professionals, dentists should concentrate on the three-fold objectives of Primespeak areas and in so doing they will fulfil their ethical duty.

Primespeak’s focus is primarily on the new patient examination as it regards this as a key influence in creating a loyal and returning patient. Body language, eye contact (or the lack of it, interaction and objections are all factors that need to be addressed if the new patient examination is to be a successful ‘first date’.

Failure to meet the expectations of a new patient at this first face-to-face meeting means you run the risk of the patient sharing their bad experience, and these days sharing is likely to take place, not within a small group of close knit friends and family, but with a wide network of friends and acquaintances via social media.

Primespeak turns the traditional new patient examination protocol on its head, by focusing more time on the preclinical discussion than on the final consultation element. The philosophy is that if the preclinical discussion is conducted in the right way you can pre-empt issues and barriers before they occur and in this way by the time the consultation takes place the patient is already well on their way to making their choice.

In the words of Rita McCollum from Smile Dental Care and an attendee on Primespeak’s November 2015 course held in London, ‘This course turns the traditional dental examination on its head! The result of which eliminates the risk of undertreatment and it empowers both the patient and the team.’

Focus on preclinical discussion

The preclinical discussion provides an opportunity to ‘scatter seeds’, which the patient can pick up and start to consider subliminally whilst the examination itself is taking place. The conventional new patient examination is an information driven approach, during which the onus is on the clinician to find out what the patient needs. This is a process of education, recommendation and overcoming barriers. In contrast, a Primespeak new patient examination is concerned with building trust and confidence, exposing existing conditions and deepening awareness and concern. The preclinical discussion is used to build trust and rapport, dentists are encouraged to be curious and ask questions in such a way that shifts control of the discussion from the dentist, where it lies in traditional preclinical discussions, to the patient.

Adopting Primespeak methodology requires a change of mindset by the dentist and the acceptance of some actions, which on the face of it could be considered counter-intuitive. Using a combination of metaphors and patient-friendly language, dentists who have attended the Primespeak course are now using the techniques to diffuse patient objections and encourage treatment uptake in their practice.

Primespeak Seminar is coming to London on the 18 November 2016! For more details please visit www.primespeak.com.
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Do you notice blood when you brush?

Helps prevent bleeding gums

Bleeding gums are one of the first signs of gum disease, a major cause of tooth loss.
To floss or to brush—that is the (interdental) question

By Marc Chalupsky, DTI

LEIPZIG, Germany: Should dental floss still be used as a tool to combat plaque, cavities and periodontal disease? After almost 40 years, the US Department of Health and Human Services and Department of Agriculture have removed their recommendation to use dental floss from their latest Dietary Guidelines for Americans. And the dental world discussed a recent report which made worldwide headlines and concluded that no scientific evidence has proven the effectiveness of flossing. So, what are the alternatives for dental professionals? Dental Tribune Online posed these questions to three dental hygienists.

For a long time, dental professionals have recommended daily flossing as a necessary part of health care. However, the Associated Press reviewed 25 prominent studies that compared the combination of toothbrushes and floss and their effectiveness in plaque removal. As Dental Tribune Online reported earlier, the investigation found only weak and unreliable evidence. According to the article, some studies were not valid since they included very few participants and had a short duration of only a couple of weeks. When asked for a statement, dental floss manufacturers were not able to provide scientific evidence even though many of the previously mentioned studies were funded by this industry. In the meanwhile, manufacturers have already announced new funding for comprehensive research to determine the effects of flossing on oral health. As periodontal disease and cavities develop over months and years, future research will have to focus on a larger study population over a longer period in order to measure periodontal health effectively. In the meantime, how should dental professionals deal with this issue? Do they have an alternative to dental floss?

Are interdental brushes another solution?

According to Swiss oral health care provider Curaden, not cleaning interdentally would be going too far. Choosing a suitable interdental cleaner and using the proper technique are always important. Floss is appropriate for anterior teeth, whereas flat, approximate surfaces and narrow spaces make access with an interdental brush difficult. Ideally, one should use dental floss for the narrow interdental spaces between the anterior teeth and interdental brushes for the posterior teeth. According to the Swiss company, interdental brushes are very effective and extremely easy to use compared to dental floss, but must be used gently in order not to injure the gum. Interdental brushes help prevent build-up of plaque between teeth and that causes bleeding gums, gingivitis and periodontitis and dental caries. In addition to interdental brushes, the company produces toothbrushes and toothpastes under its CURAPROX brand and supports educational prophylaxis training called CTP for dental professionals.

CEO and owner of Curaden Ueli Brestich said: “Since 1972, our company has been the pioneer in interdental brushes, which remove both food residue between the teeth and—more importantly—dental plaque. Since they do not damage tissue, our interdental brushes are not only recommended by the dental professionals globally, but are also prescribed to their patients and their use taught to each patient individually.” According to Curaden, the advantages of interdental brushes over flossing have been demonstrated in numerous studies. For example, in a study titled “Comparison of different approaches of interdental oral hygiene: Intercalated brushes versus dental floss”, patients with periodontitis used dental floss and interdental brushes to reduce plaque over a six-week period. Interdental brushes were found to remove significantly more plaque than dental floss did. Furthermore, patient acceptance of interdental brushes is very high compared to floss.

“Everyone knows dental floss, but only few like to do it—because they do not know how,” according to Edith Maurer, a Swiss-based dental hygienist with 40 years of experience. She added: “A very short thread should be kept between the fingers, moving up and down the sides of the teeth. But most of the time, it slips away, cuts into the gums and so constantly injures the structure of the gingiva. Dental floss should be used if something is stuck between your teeth but not for cleaning below your gums. After all, it has been a neat sharp tool for over 200 years and is quite dangerous if you do not use it correctly. Imagine cutting a pudding with floss. It will work perfectly, nothing will be attached to the floss. But if you use a fine interdental brush, it will take away more of the plaque. Interdental brushes should be the preferred tool if you want to clean your gums at least in the posterior region.”

Individually trained oral prophylaxis is the key

According to dental hygienist Cath erine Schubert, the space below the contact area should be the focus. “We need to carefully differentiate between gum disease and dental caries. Interdental brushes are more effective for the prevention of gum disease owing to their space-filling properties. However, a thin shaft and interdental brushes are necessary to reach below the interdental contact point where cavities mostly develop. Interdental brushes can prevent interden tal caries if applied correctly, which is below the interdental contact point. Of course, floss also cleans below the contact point. However, using floss just because it is normal, without thinking about the right technique, will not lead to the prevention of caries. At the same time, using an interdental brush without proper instruction will not lead to the prevention of gum disease. After all, it is not a government or institution that should decide about one’s oral hygiene, but the dental professional needs to choose which cleaning technique is most efficient for each of his patients. Individually trained oral prophylaxis has always been the key to one’s health.”

Elizabeth van der Harms, a South African dental hygienist, agrees that one has to choose carefully between flossing and interdental brushing: “Dental floss throughout the years has been a saving grace for many patients overcoming oral health issues. Clinical observations over many years of floss usage in patients is strong evidence that floss indeed does have a place in the oral hygiene regime. Discarding the use of it totally would be irresponsible to say the least. In 1985, Prof. Harold Loe and others did the famous ‘Experimen tal gingivitis’ in man study. The outcome was that gingivitis disappears within two weeks if the tooth structure is sufficiently cleaned. Therefore there are three criteria we as dental professionals need to adhere to when selecting a treatment option for our patients: the regime needs to be acceptable to the patient, it has to beatraumatic to the soft and hard tissue of the oral cavity, and it should be effective in removing biofilm and plaque to establish a healthy status quo in the oral cavity.”

However, no matter what interdental cleaner one chooses, almost every tooth has to be treated uniquely. “Flossing is more acceptable in the anterior and difficult crowded areas of the mouth. The interdental brush has easier access in the posterior regions that are more difficult to reach. Flossing is not as effective in the more difficult regions because of the concave-shape of the root structures. Flossing is also more technique-sensitive and greater dexterity needs to be applied when doing it effectively and without causing damage. Intercalated brushes need to be selected with careful consideration of the tooth and interden tal shape and size,” stated Van der Harms. “Most importantly, patients need to be constantly educated and their oral hygiene regime adjusted to their individual needs and preferences.”
Subgingival air polishing: A new method

The latest supra- and especially subgingival air polishing techniques, with innovative powders offer new prospects in periodontal treatment and implant maintenance

By Dr Franck Simon and Dr Jérôme Liberman, France

Teaching our patients correct oral hygiene techniques is an obvious and essential part of our treatment of periodontal disease. Controlling the bacteria is essential and the aim of the etiologic treatment phase of periodontitis is to remove all the elements that contribute to maintaining or developing inflammation. These include often traumatic occlusion, calculus and suprab- and subgingival biofilm.

Increasingly less aggressive instrumentation has been developed to remove biofilm from the root surface. Root planning that causes irreversible removal of cementum has evolved toward a concept of decontamination of the root and the periodontal pocket. Manual curettes can be substituted by ultrasonic micro-inserts. More recently, the new supra- and especially subgingival air-polishing techniques, with innovative powders, appear to offer new prospects in periodontal treatment.

Non-abrasive powder

The same applies for implant maintenance. Peri-implant cleaning is very difficult to achieve. Indeed, it is difficult to find effective biofilm removal instrumentation that doesn’t cause deterioration of the implant surface. Ultrasounds as well as conventional mechanical instrumentation has been shown to damage titanium (Kawashima, 2007). Air polishing seems to be the most suitable technique, provided that a non-abrasive powder is used for the implant surface. However, only limited clinical success has been achieved with early generations of air polishing devices due to limited access to the subgingival area.

The “Air-Flow” (EMS) method now allows the spraying of a glycine-based powder (Air-Flow Petro) of fine grain size (25 μm) or a new extra fine powder “Air-Flow Plus” (44 μm), containing erythritol and 0.3% chlorhexidine subgingivally. The latter powder is particularly interesting because it causes superior effectiveness in the elimination of bacterial biofilm compared to powders of larger grain sizes (Drago et al., 2014).

The very small particle size has the advantage of striking the tooth surface (dentine or cementum) as well as the implant surface with minimal impact per particle. The effectiveness against biofilm is due to the large number of sprayed particles as well as the combined action of the erythritol and the chlorhexidine.

Recently, a Japanese study has shown that this polyl inhibits biofilm formation, notably with an action on Porphyromonas gingivalis. This gives the powder, if retained, a possible effect on the treated periodontal pockets and a preventive action against periodontal disease (Hashim et al., 2013).

This powder can be used supra- and subgingivally thanks to the handpiece (“Penio-Flow”) combined with the disposable tips. This provides delivery of powder to the bottom of the periodontal pockets with a duration of action of only five seconds per site (Figure 1).

Case No 1

A 28-year-old patient presented with generalised aggressive periodontitis. Periodontal treatment was performed with ultrasonic debridement and povidone-iodine irrigation. Air polishing using powder containing glycine was performed in each session (Figure 2d-f).

Throughout the orthodontic phase, the patient undergoes maintenance cleanings with supra-gingival air polishing and subgingival treatment of the most sensitive sites (Figure 2g-j). Periodontal treatment is performed with ultrasonic debridement and povidone-iodine irrigation.

Case No 2

A 35-year-old patient was referred for periodontal assessment. Bacterial plaque was found in the area of the crown and interdentally. Clinical examination revealed periodontal pockets of 4-6 mm in the cuspid area and in the palatal area from the incisal-canine block to the maxilla. It also revealed a purulent exudate in the vestibule of 12 and 22 (Figures 2g-j). There was a II class on the occlusal plane with retro palatalbite. In accordance with parafunktion, apical swelling was found. Swallowing re-education sessions were conducted by a speech therapist.

After initial periodontal preparation, three non-surgical cleansing sessions were conducted in the maxilla under LA. The removal of hard subgingival deposits was carried out with ultrasonic micro-inserts and povidone-iodine irrigation. Following this, air polishing via the use of a glycine-based powder (“Air-Flow Plus”) was carried out supra-gingivally. All pockets deeper than 4 mm were treated with the handpiece (“Penio-Flow”) and specific tips.

At four months, a decrease in pocket depth of 3-4 mm and an absence of bleeding on probing was found. A maintenance phase was established with supra- and subgingival air polishing every four months. More than a year after initial treatment, the situation is stable (Figure 3g-i).

Case No 3

A patient presented with a periodontal abscess in the 16-17 sector in April 2013 (Figures 4a-b). From the occlusal perspective, an important class II was found with only posterior contacts. Evidence of bruxism was also discovered and associated with atypical swallowing. Initial therapy involved the construction of a nocturnal splint as well as occlusal equilibration conducted at the same time. Following this, the patient underwent two sessions of periodontal debridement including the use of ultrasonic scalers and subgingival air polishing (Figures 4c-f).

Case No 4

The patient presented with a chronic...
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+ p < 0.05 compared to baseline
• p < 0.05 compared to control

Recommend Colgate® Sensitive Pro-Relief™ to your patients suffering from hypersensitivity due to acidic tooth erosion – clinically proven to treat hypersensitivity and relieve pain fast.²

References:

* When toothpaste is directly applied to each sensitive tooth for 60 seconds.
† Containing 5% potassium nitrate and 1450 ppm fluoride as sodium fluoride.
‡ Containing 1450 ppm fluoride as MFR
Hygiene is important and desirable both because it protects us and other individuals. The transmission instruments must be kept germ-free, and the hygiene and disinfection did not emerge until the 19th century that scientific protection based on hygiene and disinfection did not emerge until the middle of the 19th century. Hygiene, what was treated back then as an innovation, is now standard practice and its working conditions are now the norm, especially in dental practices.

Practice hygiene: High-quality standards do not mean higher expenses

This starts with the treatment center: The transmission instruments must be kept germ-free, and the hygiene and disinfection did not emerge until the middle of the 19th century. Hygiene, what was treated back then as an innovation, is now standard practice and its working conditions are now the norm, especially in dental practices.
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from Dentsply Sirona support this goal. Intelligent, automated rinsing programs satisfy the stringent hygiene requirements for instrument and suction tubes as well as for water hygiene, making everyday working life easier. VISION offers a historical overview of how treatment centers have changed through the years.

Hygienic instrument reprocessing has also undergone major developments. In Panama, the state health authorities are prescribing the use of Dentsply Sirona’s DAC Universal, the combined autoclave for mechanical instrument processing, in all clinics; a measure that is unique in the world.

Hygiene in all spheres of life
Hygiene is not just a term that is associated with germs and infection protection. A key element of practice life is radiation hygiene; X-rays must not endanger the patient’s health unnecessarily. In this edition of VISION, Marco Ahonen, a dentist based in Helsinki, explains how to combine a safe, reliable diagnosis with radiation protection. According to Ahonen, the secret lies in embracing technical advances and applying them to practice workflows.

We are also faced with hygiene-related issues in other spheres of life too – this is often not apparent at first glance; take company and process hygiene for example. A report in this edition of VISION looks at how Mr. and Mrs. Ritter (he is an OMS surgeon and she is an orthodontist) took over a joint practice in a clearly structured manner and transformed it into a specialist center.

Not just clean, but also safe and quick
CEREC Zirconia, the new way to produce full zirconia restorations in a single visit, is characterized by its safe, quick workflow. In this edition of VISION, power-user Dr. Michael Skramstad shows how the process can be implemented in the practice and the patient-friendly results that can be achieved.

In addition to user reports, the international customer magazine VISION offers the dentists, practice teams and dental technicians in its readership numerous suggestions and tips for day-to-day practice life, while offering an entertaining read. VISION is published in German and English, and can be requested free of charge from http://www.sirona.com/topics/vision/en/ as a print or e-paper edition.
Dentine hypersensitivity protection, now in a daily mouthwash

The first Sensodyne mouthwash containing 3% potassium nitrate and fluoride, proven to provide ongoing protection from dentine hypersensitivity with twice-daily rinsing*5*

*Rinse twice daily after brushing with a fluoride toothpaste.

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Endo Meets 3D

Dentsply Sirona Develops New 3D Endo Software for Better, Safer and Faster Endodontics

Dentsply Sirona announces the introduction of another integrated solution to the market: a new 3D imaging software to improve the planning and workflow of endodontic procedures. With the largest research and development platform in the industry, Dentsply Sirona is committed to its mission of empowering dental professionals to provide better, safer, faster dental care.

York/Salzburg: Dentsply Sirona has developed yet another innovation in endodontics. 3D Endo is the first CBCT-based software that enables endodontic treatments to be preplanned and optimized on the basis of imaging data from the ORTHOPHOS units. This new advancement is also the first software project to combine the know-how and experience of Dentsply Sirona’s market leading engineers, scientists and software developers in both its endodontics and digital radiography units. Based on 3D data and its specific visualization, the practitioner is able to case-specifically recognize the demands on the root canal treatment tooth, analyze the natural shape of the root canal and select the appropriate files using the integrated file database. As a result, the endodontic treatment is more efficient and safer, as well as with significantly improved patient communication.

Since, with the help of a planning report or demonstrative capabilities directly in the software, the practitioner can clearly explain the initial situation and the appropriate treatment to the patient. Dentsply Sirona plans to introduce this software in the coming months upon the receiving the necessary regulatory approval.

For years, Dentsply Sirona has been collaborating and creating integrated solutions in the area of endodontics. Back in 2014, WAVEONE® by Maillefer and RECIPROC® by VDW, both leading reciprocal file systems, were first integrated into the TENEO treatment centers and more recently into the SINIUS centers, which considerably improved the workflow of the Endo function. Now, with new 3D Endo software, Dentsply Sirona will offer an even more comprehensive integrated approach to endodontics which will be available on the market this fall.

“Dentsply Sirona is working to shape the future of endodontics worldwide by continuously striving for better patient outcomes and by empowering dental professionals with world-class innovative solutions, education programs and clinical procedures. This new software is yet another way in which our platform will redefine endodontic care for dental professionals and patients by setting new treatment standards in efficacy, safety and simplicity,” says Dominique Legros, Group Vice President, Dentsply Sirona Endodontics.
Fig 5 The first case that I would like to present by Mother Nature.

Dentsply Sirona is the world's largest manufacturer of professional dental products and technologies. As the Dental Solutions Company, Dentsply Sirona's comprehensive solutions offering includes leading products and brands across the dental-dam material (Fig. 6) and the maxillary molar (Fig. 7). A minor postoperative reaction (moderate pain, no swelling) was observed and had completely resolved a week later.

Case 2 The next clinical case is somewhat similar and involved an extra-oral sinus tract (Fig. 8). A middle-aged female patient was referred to the office with an extra-oral fistula in the posterior submandibular area. According to the patient, she had had no pain or swelling and the fistula had appeared several weeks before she presented to the clinic.

At first, she thought it was a sinus problem, but then realized that there was pus draining and the opening was growing larger. Upon consulting with a dermatologist, who said the problem was most probably of dental origin, the patient consulted her dentist, who had previously placed an implant for her. The dentist thought the infection was associated with her third molar and not the implant, and suggested extraction of the tooth. The patient wanted to retain the tooth and hence sought an endodontic consultation regarding this option.

A new CBCT scan (i-CAT, Imaging Sciences International, Fig. 9) confirmed that the third molar had an internal sinus tract, which had created the fistula. This could all be solved by root canal treatment on the molar, followed by a crown and follow-up treatment, with a good prognosis for overall long-term success. The patient was happy to hear that and requested treatment as soon as possible.

The root canal was treated (Fig. 10), using the TF Adaptive system for shaping and EndoVac for chemical preparation according to the "A" sequence of irrigation protocols, followed by 3-D obturation of the root canal system using the Elements Obturation Unit (Fig. 5). Follow-up records were taken (Figs. 11 & 12), with radiographic control to check for bone healing and external facial photographs to compare. The patient was extremely satisfied that her molar could be preserved.

Conclusion These clinical examples illustrate the importance of diagnosis as the main piece of the puzzle; the importance of “finding it.” Today, the state-of-the-art approach in endodontics requires the use of sophisticated equipment and software to complement the expertise and experience of the operator. Dentsply Sirona is the world’s largest manufacturer of professional dental products and technologies. As the Dental Solutions Company, Dentsply Sirona’s comprehensive solutions offering includes leading products and brands across the dental-dam material (Fig. 6) and the maxillary molar (Fig. 7). A minor postoperative reaction (moderate pain, no swelling) was observed and had completely resolved a week later.

"Find it, fix it, and leave it alone”

By Prof. Philippe Sleiman, Lebanon

This three-part principle, though originating in the field of osteopathy, can find great application in modern endodontics, where we deal with routine root canal treatment, as well as with cases in which a patient is in a compromised state of health for which the solution may be a routine root canal treatment, and anything more than that would be overtreatment.

Initially, we need to find the problem, by analysing the clinical situation and identifying what is going wrong. This task is truly difficult. Making the correct diagnosis based on:

- the patient’s account, here, we need to listen to our patient, to learn about his or her local problem, where it is located and what triggers it
- the patient’s history, that is overall health, any diseases and/or conditions, systemic medication, etc.
- the proper use of the appropriate diagnostic tools, including pulp testing, response to cold and hot, the bite test, radiographs and CBCT scans; additionally, the latest software can help us in reading and analysing the data that we have, including in 3D—1 recall the words of my radiology professor, reminding us to study radiographs and be attentive to every small detail, not just look at them - the logical connection between the patient’s account and history, the clinical findings and the imaging data—sometimes, putting the pieces of the puzzle together can be fast, sometimes, it may take longer.

Once the diagnosis has been established, the choice of treatment modality and selection of the best tools to perform the treatment follow. At this stage, focusing first and foremost on the patient’s health, it is important to choose the most effective and efficient treatment that would be as minimal as is practical and sufficient. The root should be taken care of by Mother Nature.

Case presentation

Case 1 The first case that I would like to present was a referral patient sitting at the chair, giving his account: over the previous six months, he had twice travelled to somewhere in Asia for surgery on his left submandibular lymph nodes (Fig. 8), which had apparently been swollen. Each time, pathology tests were clear of any cancer-specific markers. CT scanning and conventional radiographic assessment were conducted, with no findings recorded.

Having shared this, the patient reported that he felt his lymph node becoming swollen again, and he was anxious about it. His account was taken very seriously. Additionally, he reported that two of his mandibular premolars were aching, since root canal treatments had been started at a different clinic, but the dentist had been unable to finish them. With the patient’s permission, a new CBCT scan was obtained, and I asked the patient to wait for an hour to give me time to study it.

Judging by the general view first and then going into details, I realised the two mandibular premolars were indeed in need of endodontic retreatment. However, knowing from clinical experience that premolars may have various clinical manifestations, I continued looking for other sources of potential problems, but without disregarding the premolars as the culprits (Fig. 2).

Analysing the CBCT sections, trying different filters and settings, looking at the mandibular molar with a large filling, and studying the bone around it, my eye caught something unusual: there was a small absence migrating towards the internal angle of the mandible (Fig. 3) and creating an area of bone erosion (Fig. 4). This could be the pathology causing the patient’s suffering, in addition to the two mandibular premolars.

At this point, one might be happy with the diagnostic findings and race to treat the problems, affecting the mandibular dentition. However, still unsatisfied with the overall findings, I turned to analysing the maxilla, where I found that the second molar had internal decay and cervical internal resorption, creating an infection pathway into the maxillary sinus (Fig. 4).

I explained the situation to the patient and proposed retreatment the two mandibular premolars, as well as conducting primary root canal treatment on the mandibular molar and the maxillary molar. The patient agreed, and the four treatments were performed in one session, using the TF Adaptive system (Kerr) for shaping and EndoVac (Kerr) for chemical preparation according to the “A” sequence of irrigation protocols, followed by 3D obturation of the root canal system using the Elements Obturation Unit (Fig. 5). Antibiotics were prescribed for the patient to help his body combat the submandibular infection. Although I prescribed systemic antibacterial medication very rarely, I did so in this case because it was not clear what had happened with the lymph nodes and if they were still functional based on the immediate postoperative radiographs of the submandibular (Fig. 6) and the maxillary molar (Fig. 7).

A new CBCT scan (i-CAT, Imaging Sciences International, Fig. 9) confirmed that the third molar had an internal sinus tract, which had created the fistula. This could all be solved by root canal treatment on the molar.
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Ten facts about dental implants

By Sebastian Saba DDS, Cert. Pros., FADI, FICD, Editor in Chief

Dental implant marketing often emphasizes “simplicity,” underplaying an inherent complexity in the product, procedure — and patient. Prosthetic dentistry is not simple. And patients rarely have simple problems. Potential complications can be far from simple to correct. To ease your learning curve with implant dentistry, following are some core variables that can be managed based on proven research.

1. Implant surface design: Choose implants that have micro-topography and bioactive surfaces that enhance bone contact and have macro-topography (overall shape) that better stabilize bone profiles with little or no crestal bone loss.

2. Abutment connections: Internal connections have simplified abutment insertion. And if the abutment-implant margin is kept shy of the implant outer surface, a connective tissue zone will develop. The result is improved bone preservation at the crest. Abutments should be torqued to position and have specifically designed abutment screws that support long-term stability.

3. Provisionalization phase: Once thought optional, today this step is a critical diagnostic and management tool used to verify osseointegration, occlusion, esthetics, soft-tissue management, hygiene, prosthetic design and abutment selection.

4. Prosthetic options — screw versus cement: Some companies emphasize a “simpler” and familiar cement-only option. But irretrievability — presence of subgingival cement — can be problematic. Plan your design to minimize complications.

5. Earlier osseointegration and restorative phases: Improved implant surfaces and shapes support primary stability in bone and enhanced osseointegration. Early loading is becoming more feasible — choose cases carefully.

6. Soft- and hard-tissue management: Timely placement of provisionalals can influence the support and contour of tissue. Advances in bone grafting and tissue preservation help preserve soft tissue, maintain anatomical bone contour and improve gingival esthetics.

7. Enhanced marketing: Implant dentistry is aggressively promoted. However, costs remain high for average-income patients. It’s critical that benefits a patient realizes far outlast any corresponding debt.

8. Technological improvements: Zirconia ceramics and CAD/CAM have created an explosion in design, customization and improved esthetics. Zirconium is doing for esthetics what titanium did for osseointegration.

9. Computer-guided implant therapy: You can’t deny the value of 3D software that helps measure and locate vital structures such as the mandibular nerve, sinus cavities and nasal floor. But most practices still rely primarily on conventional radiography.

10. Long-term studies: Implant companies provide education, solid research and ongoing support to customers (you). Incorporating up-to-date knowledge into the clinical variables you’re managing on a daily basis will enable you to achieve a predictable approach in your decision-making with dental implants.

This article was published in Implant Tribune Canada Edition, May 2015 issue.
Bone quality related to implant location

By Souheil Hussaini, Dubai

The causes of early implant failures during the osseointegration process include poor quality and quantity of bone and soft tissue. The patient’s medical condition and the patient habits (smoking, heavy long-term smoking, poor oral hygiene), other systemic factors, and choice of surgical treatment and technique must be considered. Adequate radiographic analysis and technique are required during surgical planning and treatment.

CBCT zones of the jaw

Bone and soft tissue, the patient’s medical condition and the patient habits (smoking, heavy long-term smoking, poor oral hygiene), other systemic factors, and choice of surgical treatment and technique must be considered. Adequate radiographic analysis and technique are required during surgical planning and treatment.

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In the posterior mandible, the death area in which a careful diagnosis is made is the alveolar process of the posterior mandible (from the inferior alveolar artery, a branch of the maxillary artery) and the mylohyoid artery (from the inferior alveolar artery, a branch of the maxillary artery) or the mylohyoid artery (from the inferior alveolar artery, a branch of the maxillary artery) and the mylohyoid artery (from the inferior alveolar artery, a branch of the maxillary artery) or the mylohyoid artery (from the inferior alveolar artery, a branch of the maxillary artery) and the mylohyoid artery (from the inferior alveolar artery, a branch of the maxillary artery).

This article attempts to further investigate implant location as one of many factors in early stages of diagnosis that improves success rate in implant dentistry treatment. Predisposing factors to implant complications in different jaw regions are discussed.

CBCT Zones

D1 to D5 are formulated to better analyse implant dentistry procedure preparation during the diagnostic phase based on the location that has a logical sequence during examination of the alveolar ridge of both maxilla and mandible to have pre-existing information regarding the demands and the clinical requirements in different zones of the jaws. This article identifies the Hounsfield units (HU) of different alveolar jaw regions, according to which dental implants can be inserted with better understanding of what to expect.

Five CBCT zones are identified in this article in a logical sequence: the discrete zone D1 being the anterior mandible, the danger zone D2 being the posterior mandible, the death zone D3 being the anterior maxilla, the demand zone D4 being the posterior maxilla and the delicate zone D5 being the posterior maxilla that requires sinus lift procedure.

Technical Data

By Souheil Hussaini, Dubai

The causes of early implant failures during the osseointegration process include poor quality and quantity of bone and soft tissue, the patient’s medical condition and the patient habits (smoking, heavy long-term smoking, poor oral hygiene), other systemic factors, and choice of surgical treatment and technique. Adequate radiographic analysis and technique are required during surgical planning and treatment. This article attempts to further investigate implant location as one of many factors in early stages of diagnosis that improves success rate in implant dentistry treatment. Predisposing factors to implant complications in different jaw regions are discussed.

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Zones D1–D5 are related to the bone quality classification of Albrektsson & Zarb. D1 known as an interforamina area in which a careful diagnosis should be made. The patient habits (smoking, heavy long-term smoking, poor oral hygiene), other systemic factors, and choice of surgical treatment and technique must be considered. Adequate radiographic analysis and technique are required during surgical planning and treatment. This article attempts to further investigate implant location as one of many factors in early stages of diagnosis that improves success rate in implant dentistry treatment. Predisposing factors to implant complications in different jaw regions are discussed.

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The posterior maxilla appears to be the least successful region of the jaws for implant rehabilitation.

Conclusion

There is a trend of escalating levels of HFU in different parts of the oral cavity. The highest being the anterior mandible, followed by the posterior maxilla, posterior mandible, anterior maxilla and posterior maxilla with sinus lift procedure respectively. Estimated HFU can assist the surgical phase, as the number of the ancillary procedures can be pre-estimated according to different areas in the mouth during the diagnostic phase.

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Fig 1

![Average HFU of different areas in the mouth](image)

<table>
<thead>
<tr>
<th>Number of Cases / Zones</th>
<th>D1 to D5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average HFU</td>
<td></td>
</tr>
<tr>
<td>D5</td>
<td>213 HFU</td>
</tr>
<tr>
<td>D4</td>
<td>528 HFU</td>
</tr>
<tr>
<td>D3</td>
<td>561 HFU</td>
</tr>
<tr>
<td>D2</td>
<td>654 HFU</td>
</tr>
<tr>
<td>D1</td>
<td>654 HFU</td>
</tr>
</tbody>
</table>

Results

Hounsfeld unit: The data in table 1, out of 100 samples, demonstrated that the average HFU was the minimum in D5 (213 HFU), and followed by D4 (528 HFU), D3 (561 HFU), D2 (654 HFU), and D1 (654 HFU), in ascending order respectively (Fig 1 and Table 1).

Discussion

There are few literature reports that attempt to study implant location, among a multitude of other factors, to determine its influence on the success or failure of dental implant treatment. Becker et al. evaluated 282 implants placed in the maxillary and mandibular molar positions in a prospective study. The six-year cumulative success rate (CSR) for maxillary posterior implants was 82.9 per cent, for mandibular posterior 91.5 per cent. He concluded that CSR in the posterior regions is lower than usually reported for anterior regions of the maxilla and mandible (for differences in bone quality and quantity). Suckert et al. assessed 1,370 endosseous implants placed in partially edentulous jaws in a retrospective study. Fewer complications were found in implant prostheses located exclusively in the premolar region versus molar and mixed molar-premolar implant restorations. Drago investigated the location-related osseointegration of 675 implants placed in 819 patients that were observed from seven months to eight years follow- ing occlusal loading. Implant osseointegration was 89.5 per cent in the anterior maxilla, 73.4 per cent in the posterior maxilla, 96.7 per cent in the anterior mandible, and 98.7 per cent in the posterior mandible. Moy et al. evaluated implant failure rates and associated risk factors, observed implant failure of 8.16 per cent in the maxilla and 4.93 per cent in the mandible. Poor bone quality played the major role in implant failure with bone quantity demonstrating less importance.
Fundamental misconceptions about Dental implants among patients

By Implant Magazine

Investigating patients’ knowledge and perceptions regarding implant therapy, a Chinese study has found that an alarming number of participants had inaccurate and unrealistic expectations about dental implants. Moreover, the study determined that only 21 per cent felt confident about the information they had about the treatment. In the study, the researchers investigated preoperative information levels, perceptions and expectations regarding implant therapy via a questionnaire. Responses from 277 patients were obtained during 2014 and 2015 in three different locations in China (Yin Long Kong, Sichuan and Jiang) The analyses established that about one third of the participants had mistaken assumptions about dental implants.

The study, titled “What do patients expect from treatment with dental implants?” Perceptions, expectations and misconceptions: A multicenter study”, was published online ahead of print on 23 March in the Clinical Oral Implants Research journal.

Increase in caries rates after Fluoridation cessation

By Implant Magazine

Community water fluoridation is a matter of debate around the globe. While it is used widely in North America, many European countries have stopped the practice. Owing to a lack of contemporary research on fluoridation cessation, however, researchers in Canada have now investigated its impact on dental caries experience.

In Canada, community water fluoridation has been in place since 1945. In a recently published study, researchers at the University of Calgary therefore compared changes in caries experience in schoolchildren in Calgary with those in Edmonton, which has fluoridated its community water since 1967. In examining data sets from the school years of 2004/2005 and 2013/2014, the researchers observed an overall increase in primary tooth decay in both cities, but the absolute magnitude of the increase was greater in Calgary. In their analysis, the researchers focused on smooth tooth surfaces, where fluoride is most likely to have an impact.

The study, titled “Measuring the Impact of Fluoridation Cessation on Dental Caries in Grade 2 Children using Tooth Surface Indices,” was published online on Feb. 17 in the Community Dentistry and Oral Epidemiology journal ahead of print.
Minimally invasive prosthetic treatment with various ceramic materials

By Dr Marko Jakovac, Croatia, and Michele Temperani, Italy

In cases where a full mouth reconstruction is required, it is essential to follow a systematic procedure and use carefully coordinated materials. New materials and innovative techniques for modern esthetic and minimally invasive dentistry are coming to the market every day. As a result, patient-focused treatment protocols are continuously improving. If complex treatment is indicated, however, personal aspects in addition to the functional and esthetic requirements of the patient need to be addressed – for example, psychological stress or financial constraints.

In this article, we will explore the possibilities of providing minimally invasive treatment, taking these factors into consideration.

Case study

The twenty-three-year-old patient showed severe hypodontia (tooth agenesis) with a total of 14 missing teeth (Fig. 1). Seven teeth were missing in both the upper and lower jaw. Severe hypodontia of this kind usually results in a very low vertical dimension of occlusion. In some cases, it disturbs the chewing function. At the beginning of this type of treatment, psychosocial aspects have to be taken into consideration. In the present case, the patient did not smile during the first appointment, and he covered his mouth with his hand when he spoke. Due to the financial constraints of the young candidate and his fear of an operative intervention (treatment with implants), it was decided to pursue a conventional prosthetic treatment approach. According to the treatment plan, the upper anterior teeth would be restored by means of an all-ceramic bridge and the lower anterior teeth with lithium disilicate veneers. The decision was taken to treat the posterior teeth with metal-ceramic restorations.

Fig. 1: Patient with hypodontia portrait picture of the initial situation. A total of fourteen teeth were missing in the upper and lower jaw.

Fig. 2: Anterior Lucia jig for the evaluation of the centric relation

Fig. 3: Capturing a protrusive bite record with Virtual CAD/ATE
Clinical examination and treatment planning

The first part of the oral rehabilitation process involved a clinical examination in which the facial and dental conditions were analyzed. This investigation showed a substantially reduced vertical dimension of occlusion. The patient was missing 14 permanent teeth. Furthermore, several deciduous teeth were still in place. Tooth 36 had been destroyed by caries, making its extraction inevitable.

In order to provide the dental technician with the information required for waxing up a restoration, details related to the vertical dimension of occlusion and facebow records must be supplied in addition to the impression. If the vertical dimension of occlusion needs to be increased, the correct centric position has to be evaluated first. In this case, an anterior Lucas jig made of a thermoplastic material was used as a registration aid (Fig. 2). A facebow was used to establish the relationship of the maxillary jaw to the horizontal reference plane or buccal line. In the fabrication of extensive restorations, the protractive and the labrotative positions have to be recorded in order to make any necessary adjustments in the articulator. An additional silicone, for example, Virtual® CAD-bite can be used for this purpose. In most cases, this type of material produces faster and more accurate results than wax. When wax is used for bite-taking, the patient has to be shown how to move into the protrusive or labrotative position. Experience has shown that it is easier to let the patients produce these movements of their own accord and stop them when they arrive at the “right” position (Fig. 3). Virtual® CAD-bite is injected while the teeth are in this closed position.

Wax-up and mock-up

The following minimum documentation was required for the fabrication of the wax-up: precision impressions of the upper and lower jaw, a facebow transfer record, a center bite record in wax with the predetermined vertical dimension of occlusion, portrait pictures of the patient as well as close-up pictures of the situation when the patient is smiling. This information was used to build up the restoration in wax and bring the teeth into their ideal functional and esthetic position. Furthermore, the occlusal plane and the Spee’s curve were adjusted (Fig. 4). For the purpose of checking the laboratory work intraorally, a mock-up of the wax-up was made (Telio® CS C&B) (Fig. 5). All the functional and aesthetic parameters were then checked in the patient’s mouth.

This stage of the treatment is very important for many reasons. Patients are given the opportunity to actively participate in designing their new smile, which is a very motivating experience. In addition, the functional wax-up, the maximum intercuspation, the new vertical dimension and the protractive and labrotective movements can be tested in a realistic situation. Moreover, the mock-up serves as a model for the provisional restoration. Therefore, it should be produced with the highest degree of accuracy. Once the patient is completely satisfied with the proposed result and the mock-up fulfills all the clinical criteria, the actual treatment can begin.

Preliminary treatment

At present, the preparatory measurements for minimally invasive procedures and the concept of tooth preparation are receiving a lot of attention. Nevertheless, there are some aspects that should not be neglected. For example, the properties of the materials used strongly influence the result. State-of-heart materials are offering increasingly sophisticated solutions. Before using any new materials, it is important to learn more about the application recommendations of the manufacturer. Excellent planning and a carefully crafted mock-up will reduce the preparations needed up to the fabrication of the final restoration. With the help of the mock-up, for example, the teeth can be optimally prepared for veneers or even crowns. The use of optical appliances such as dental loupes and microscopes also makes work easier and more accurate.

In the present case, the teeth were first cleaned very thoroughly. The necessary extractions were performed and one tooth was endodontically treated. Then the teeth were prepared and readied for the definitive aesthetic treatment (Figs 6 and 7). The long-term temporary was fabricated using CAD/CAM equipment. Therefore, the wax-up was digitized with the help of a laboratory scanner. This information served as a basis for the computer-aided design of the provisional. The CAD/MillMaster software was used to generate a provisional made of tooth-coloured composite (Telio CAD) also served as a test object or blueprint during the healing process. Its function and aesthetics were closely examined and adjusted in detail (Fig. 8).

Fabrication of the permanent restoration

The final prosthetic phase started after the long-term temporary had been worn for an adequate period of time. Before impression-taking, the teeth were prepared again and polished. It is very important to transfer the vertical dimension of occlusion and the information about the tooth-to-tooth relationship from the provisional to the final restoration with great care. The “cross-mounting” technique is suitable for this purpose. This method entails first making a bite record of the prepared teeth in the upper and lower jaw. Subsequently, a second record is taken of the provisional restoration in the upper jaw and the prepared teeth in the lower jaw. A third record is captured of the prepared teeth in the upper jaw and the provisional restoration in the lower jaw.

Furthermore, the dental technician required the following minimum information in order to fabricate the restoration: precision impressions of the upper and lower jaw, precision impressions of the provisionals, a facebow transfer record and three bite records (“cross-mounting”), and the recent trait pictures of the patient wearing the provisionals as well as photos of the patient smiling.

The aim at this stage was to “copy” the shape and occlusal plane of the provisionals and to accurately transfer this information to the final restoration. For this purpose, the master casts were placed in the articulator after the “cross-mounting” process. Since the final situation had been successively attained by means of the provisionals, the frameworks could be fabricated relatively easily.

As a result of using the CAD/CAM approach, the final restoration could be visualized, modified and/or duplicated with the assurance that all the design guidelines would be observed. The Wieland Precision Technology (WPT, Naturns, Italy) and the Wieland Precision (WPT, Naturns, Italy) were the two systems provided the basis for the computer-aided design of the provisional. The CAD/CAM-processed framework of the upper anterior teeth (Fig. 9) was used for fabrication of the metal-ceramic restoration in the upper anterior teeth (Fig. 9). The framework was tried in to confirm the correct fit of the restoration. Most of the inaccuracies that usually occur are due to errors made during impression taking, casting or model fabrication. The veneers for the lower anterior teeth were also made with assistance of digital technology they were subsequently pressed with lithium disilicate glass ceramic (IPS e.max®).

The metal frameworks were veneered with the new PFM system IPS Style®. It allowed us to achieve the desired natural-looking, translucent shade without having to sacrifice on brightness. The treatment approach offers a major advantage in that it can be optimally combined with IPS e.max Ceram. As a result, the veneers on the metal frameworks could be optimally adjusted to the shade of the upper anterior teeth. After the first bake, the restoration was tried in. At this stage, the need for smaller adjustments of the ceramic was identified. Subsequently, the restorations were tried in to confirm the correct fit. The veneers and crowns were finally placed in order to achieve the final state of this type of restoration. This cement exhibits excellent adhesive properties and clinically beneficial characteristics such as easy removal of excess and long-term shade stability. The system offers an additional advantage in that it does not affect the shades of the dual-curing (DC) and the light curable (LC) luting composite are the same. The DC cement is used for crowns and bridges (Fig. 10) and the LC cement for veneers. Furthermore, we used Monobond® Etch & Prime. It is a two-component adhesive (adhesive cementation). After gentle sandblasting, the titanium oxide and metal-ceramic restorations were prepared for placement by applying Monobond Plus (Syd Strip) was applied in order to pre- vent the formation of an inhibition layer. The final restoration completely satisfied all the parties involved. The situation which was established during the treatment phase was exactly transferred to the final restoration (Figs 10a and b).

Conclusion

In extensive cases, it is particularly important to develop a well thought-out plan including all the treatment steps, which needs to be carefully followed at all times. In the described case, various ceramic materials were cleverly combined to produce a harmonious result. Excellent communication between the dentist and the dental technician together with well-coordinated state-of-the-art material systems provided the basis for this highly satisfactory outcome.

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Fig. 1: Photograph of the patient.

Fig. 2: Photograph of the patient.

Fig. 3: Photograph of the patient.

Fig. 4: Wax-up: ideal functional and esthetic position and adjust up of occlusion

Fig. 5: Mock-up fabricated with the help of the wax-up for the intraoral examination of the functional and esthetic components

Fig. 6: The prepared upper anterior teeth

Fig. 7: The prepared lower anterior teeth

Fig. 8: The CAD/CAM-fabricated long-term provisional (Telio CAD) in the mouth

Fig. 9: The CAD/CAM-fabricated framework on the model of the upper jaw

Fig. 10: Metal-ceramic posterior bridge (IPS Style), all-ceramic upper anterior bridge (IPS e.max Ceram); veneers on the lower anterior teeth (IPS e.max Penta)

Fig. 11: Upper anterior restoration after placement with an esthetic luting composite (VarioLink Esthetic DC)

Fig. 12: The permanently placed restoration in the mouth

Fig. 13: – and a portrait picture of the patient.
3Shape CAD/CAM in a major Dental Lab

It was the technicians’ choice

By 3Shape

The versatility and solution coverage offered by 3Shape systems has enabled Glidewell to grow and develop well ahead of its competition by continuously expanding the range of its products and services. Now all types of restorations and large orders are handled digitally each day, with over 50 of 3Shape’s installations covering every Glidewell department need.

The Challenge

Glidewell’s proclaimed ambition is to be a pioneer in the Digital Dentistry Revolution, and, to achieve this, they know they must work with the best systems. Investing in a single CAD/CAM brand was not the important issue for them; Glidewell simply wanted to use best-of-breed systems for each service they provided.

With a dampened mood in the economy, more and more small and mid-sized laboratories were looking for sources of digital technology services in order to remain competitive, and this opened new business opportunities for full-service labs like Glidewell. More than ever, it became imperative to have fast and productive systems that could provide attractive digital services and products of high quality.

Glidewell develops their own systems and methods for many applications, including abutments, implants, milling and special materials, and they required flexible and high-quality software systems to support these. They needed a system that was not limited — a system that could grow with them, ensuring that they could continue bringing their in-house developed products to the market while broadening their range of services.

The Solution

Glidewell initiated a technology solution business plan whose goal was to become familiar with the market’s flexible CAD/CAM systems. 3Shape was one of the first to present itself, but other brands were installed later, and Glidewell technicians soon became familiar with operating a wide range of systems.

Despite Glidewell’s readiness to employ best-systems for different purposes, 3Shape has accuracy, ease of use and efficiency continued to win preference in every department. Alternative 3D scanners and software systems were simply being pushed aside to make room for 3Shape. Glidewell’s technicians “at the bench” slowly but surely gravitated to 3Shape’s solutions for most of their tasks.

Today, Glidewell Laboratories has over 50 3Shape DentalSystem™ and InLab series scanner installations spread throughout the full areas of Glidewell’s many departments. In step with the ever-increasing integration of 3Shape into their workflows, Glidewell has instituted convenient on-line services for other Dental labs using 3Shape, enabling them to upload their 3Shape scans or design files direct to Glidewell for special processing and production with Glidewell’s own materials.

The Results

It has become clear to Glidewell that their 3Shape solutions are a major factor in enhancing their business, and they credit this to the system’s accuracy, consistency, predictability and reproducibility of output. Many incoming orders explicitly express the condition that they are to be executed using Glidewell’s 3Shape systems.

The accuracy of the 3Shape system enabled Glidewell to introduce a highly successful product that are enjoying explosive market growth — BruxZir® full Zirconia restorations and Inclusive® Implant Abutment Restorations. No other CAD/CAM solution contained the powerful design capabilities necessary to morph the explicit full contour required. Designs made with 3Shape could be milled directly without flaws — thus opening windows to new productivity and profitability with Zirconia material.

BruxZir® Zirconia soon became the fastest growing product in the history of the laboratory, and today Glidewell is making 8,000 BruxZir® restorations per week using 3Shape’s technologies.

The versatility of 3Shape as a system and a company fit perfectly with Glidewell’s goal to help pioneer the growth of digital dentistry. Glidewell’s technicians continuously communicate with 3Shape, giving feedback regarding their daily challenges, and often seeing direct solutions answers in later 3Shape software releases.

Source: Greg Minzenmayer, Robin Bartolo, Rudy Rammer
Invisible braces market to grow rapidly over next five years

By DTI

According to a recently published report, the global invisible braces market is expected to grow at a 12.16 per cent compound annual growth rate from 2016 to 2021. The report analyses the development of the ceramic, lingual and clear aligners segment in ten major countries and further shows that the process will be mainly driven by technological innovations and increasing demand for invisible braces among the adult population with aesthetic concerns about fixed orthodontic appliances. Over the past decade, improved technological advancements, particularly digital technologies, and increasing awareness of aesthetic alternatives to conventional braces have led to growing demand for orthodontic treatment with aligners.

In addition, rising disposable income has resulted in increasing per capita health care expenditure, which has further led to a growing focus on health care, thereby increasing the demand for invisible braces specifically among the adult population with aesthetic concerns about fixed orthodontic appliances. While the market has witnessed a strong foothold in North America and Europe, rapid growth in the demand for invisible braces is expected to be fueled by the emerging markets in Asia Pacific and Latin America through India and Brazil, whereas rising dental tourism in Mexico and Thailand will continue to contribute towards the invisible braces market.

Among the leading companies operating in the market are Align Technology, Ormco, DENTSPLY International, 3M and ClearCorrect.

DT launches new international ortho magazine

By DTI

LEIPZIG, Germany: The orthodontic segment has grown significantly within the past 20 years owing to new technologies and products, as well as an increase in adult patients requesting orthodontic treatment. In response to this trend and to update dentists on the most significant developments in the field, Dental Tribune International (DTI) has added ortho—international magazine of orthodontics to its portfolio. The 2016 issue includes articles on clear aligners, vibration therapy and rapid maxillary expansion, as well as the latest product information and event previews.

The new high-gloss English-language magazine adopts an interdisciplinary approach involving orthodontics, oral surgery, periodontics and restorative dentistry, and aims to serve as an educational tool providing comprehensive knowledge and information on the newest technologies that can profitably be integrated into treatment concepts. The publication, which will be distributed at all major international orthodontic congresses and exhibitions, presents the latest research and case studies, as well as trends in procedures and techniques.

In order to connect with orthodontic specialists, the DTI team is scheduled to attend a number of orthodontic events around the globe in 2016, including the 92nd Congress of the European Orthodontic Society, which will take place between 11 and 16 June in Stockholm in Sweden; and the fourth Scientific Congress for Aligner Orthodontics, to be held on 18 and 19 November in Cologne in Germany. DTI will be providing comprehensive live coverage of these and other events on its website. In addition, e-newsletters about the respective events will be sent to orthodontists worldwide.

From 2017, a new issue of the ortho magazine will be published twice a year with a print run of 4,000 copies. An e-paper edition of the magazine is available free of charge via the DTI online print archive.
Burstone’s segmented arch technique

By Dr Ianni Filho, Brasil

Patient L.S.C.O. was a 14 years and 10 months old, African, and female, who sought orthodontic treatment and complained of excessive dental projection that made it very difficult to close her lips and a major dissatisfaction in regards to her aesthetics and facial profile. The facial analysis revealed an incompetent lip closure, severe protrusion of the upper and lower lips, and a considerably reduced nasolabial angle (52º).

The patient had a malocclusion of Angle class I with severe dentoalveolar biprotrusion, generalized diastemas, and left maxillary canine, marked overjet, anterior open bite, and adapted tongue interposition. The analysis of the teleradiograph in the lateral view showed severe dentoalveolar biprotrusion with cephalometrics measurements of 1.NA = 43º, 1.NA = 20 mm, 1.NB = 62º and 1.NB = 24 mm and an interincisal angle of 6º, confirming severe vestibule formation and protrusion of the maxillary and inferior incisors. The maxilla was skeletally protruded with SNA = 94º. The jaw, well located with SNB = 83º and ANB = 11º, confirmed the poor maxillomandibular skeletal relation.

Treatment objectives

Normally, for cases with severe dentoalveolar biprotrusion and severely compromised facial aesthetics, our treatment objectives focus on obtaining the maximum anterior teeth retraction, to promote lip retraction and have significant impact on facial aesthetics.

Along with the correction of the biprotrusion and improvements of the patient’s facial aesthetic characteristics, our second objective was to eliminate and/or limit the negative psychological consequences associated with a disfigured face that was caused by malocclusion.

“When the face is pleasant, orthodontic treatment consists of treating the occlusion without modifying the profile of soft tissues.”

Figure 3.3.1. Severe overjet.

Figure 3.3.2. Angle class I.

Figure 3.3.3. Diastemas and anterior open bite.

Figure 3.3.4. Initial cephalometric teleradiograph showing severe biprotrusion.

Figure 3.3.5 A: Dental alignment and leveling phase, and the start of the diastemas closure. B: Severe gingival hyperplasia. C: Gingivoplasty surgery.

Figure 3.3.6 A: TMA Cantilever to extrude the enclosed canine. B: Tooth post traction, located in the posterior segment of the maxillary arch.

Figure 3.3.7 Typ A T Handles, suggested by Marcotte. B: Measurement of the 14.14 mm extraction space in the right maxillary quadrant.

Figure 3.3.8 Closure of the extraction space with Marcotte type A mechanics.

Figure 3.3.9 (type I) radial correction handle. B: Continuous arch of realignment.
The face is pleasant, orthodontic treatment depends on careful planning of the anchorage (one of the factors that determines the success or failure of many treatments). Burstone's Segmented Arch Technique, suggested by Burstone at the end of functional orthopedics, orthodontic-surgical treatment and dental extraction among others.

When the face is pleasant, orthodontic treatment consists of treating the occlusion without modifying the profile of soft tissues. However, when bad maxilomandibulare relations harm facial aesthetics, the orthodontic treatment's objectives are to improve the aesthetic facial harmony and to correct the occlusion and re-establish its functions. To achieve such aims, several therapeudic strategies can be used, such as functional orthopedics, orthodontic-surgical treatment and dental extraction among others.

When extractions are chosen as the treatment strategy, the amount of retraction of the anterior teeth is very important to get significant alterations when repositioning the lips and the skin profile. In this approach, the loss of anchorage becomes undesirable because the maximum retraction of the anterior teeth is key to getting the biggest changes in the profile. Thus, all the anchorage control strategies are important, such as extraordinary devices, intermaxillary elastics, transpalatal bars, Nance buttons, lingual arches, and orthodontic mini-implantations among others. Some of these alternative cosmetics inconveniency rely on the cooperation of the patient for therapeutic success.

In most cases, a successful orthodontic treatment depends on careful planning of the anchorage (one of the factors that determines the success or failure of many treatments). Burstone’s Segmented Arch Technique (BATO) recommends the planning of orthodontic treatment with a biomechanical foundation and the definition of the ideal system of forces for each clinical situation. The dental movement becomes predictable when the physical concepts of the mechanics are known and are applied to the biology of the dental movement. With the evolution of

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In most cases, a successful orthodontic treatment depends on careful planning of the anchorage.

BRAT, we are able to obtain more control over dental movements and significant changes in facial profiles, thereby enabling the treatment of cases of critical anchorage without the need for patient cooperation.

In the case of patient L.S.C.O., the first alternative plan presented, but not accepted, was treatment with orthognathic surgery. The treatment option chosen included the extraction of four premolars for the extractions to have the expected success and promote the necessary and desired aesthetic and functional alterations, we planned to use the Segmental Arch Technique, Marcotte type A mechanics.

These mechanics maximize the retraction of the anterior teeth with minimum loss of anchorage and therefore ensures maximum retraction of the incisors and lips.

We mounted, maxillary and inferior braces with straight-wire brackets with prescription Ortho (Ormco Corp, skit 0.022” x 0.028”). The first phase of the treatment consisted of the closure of generalized diastemas with elastic power chains. The severe biphronction, associated with hygienic deficiency, resulted in large gingival hyperplasia, which made it necessary to perform a primary gingivectomy surgery so that we could continue the orthodontic treatment.

Extractions of the first four premolars were performed together with traction on the left maxillary canine, including using a cantilever made with a TMA wire (0.017” x 0.025”) to apply a light and continuous force. This tooth protruded next to the second premolar because it was included in the posterior segment of the arch. At this stage of the treatment, we considered it necessary to carry out a second gingivoplasty.

The type T handles (used in maximum, critical anchorage cases) were constructed with a TMA wire (0.017” x 0.025”) to close the extraction spaces that were 14.14 mm and 11 mm on the right and left maxillary quadrants, respectively. As a strategy, we used the moment/force (M/F) differential ratio on the anterior (á) and posterior (â) segments to align by verticalization while closing or opening the extraction spaces. At the completion of the closure of the extraction spaces, to verticalize the anterior segment, we used Ianni type I radial correction handles, which have been biomechanically tested in laboratory and tested clinically by the author. These handles, when pre-activated correctly, can develop any system of diverse forces necessary for the various mechanisms of radial correction and verticalization of segments (verticalization with extrusion or intrusion and verticalization while closing or opening the extraction space) at the end of this phase of treatment, we initiated a completion stage with the use of continuous arches.

Results

The final occlusion was very satisfactory with the molars and canines at Angle class I and the correction of the hypoprostosis and the anterior open bite.

The facial aesthetic improved considerably, which raised the self-esteem of the patient who, according to him, learned and started to smile.

In the new facial appearance, we can see a substantial reduction of the lip protrusion that is compatible and similar to the results of orthognathic surgery. Phonoaudiologic exercises promoted the improvement in the perioral chin muscle tone and retained the breathing and swallow functions.

The superimposition of the cephalometric tracings confirms the extensive reduction in the inclination and protrusion of the incisors and the alterations in the bone and skin profile. The patient reported positive psychological changes due to the aesthetic facial improvement.

This clinical case confirms that the Segmental Arch Technique, suggested by Burstone at the end of the 1960s, allows for effective control of the anchorage without the need for any cooperation on the part of the patient. Differential M/F ratios used on the anterior and posterior segments allowed for a large retraction of the anterior teeth, thereby reaching the treatment objectives: significant improvement of the facial profile, and aesthetic and functional occlusion. Therefore, the use of TMA type A handles is an excellent mechanical option in orthodontic treatment with extractions when maximal retraction of the anterior segment is desired to promote extensive and important changes in the regumal profile. I