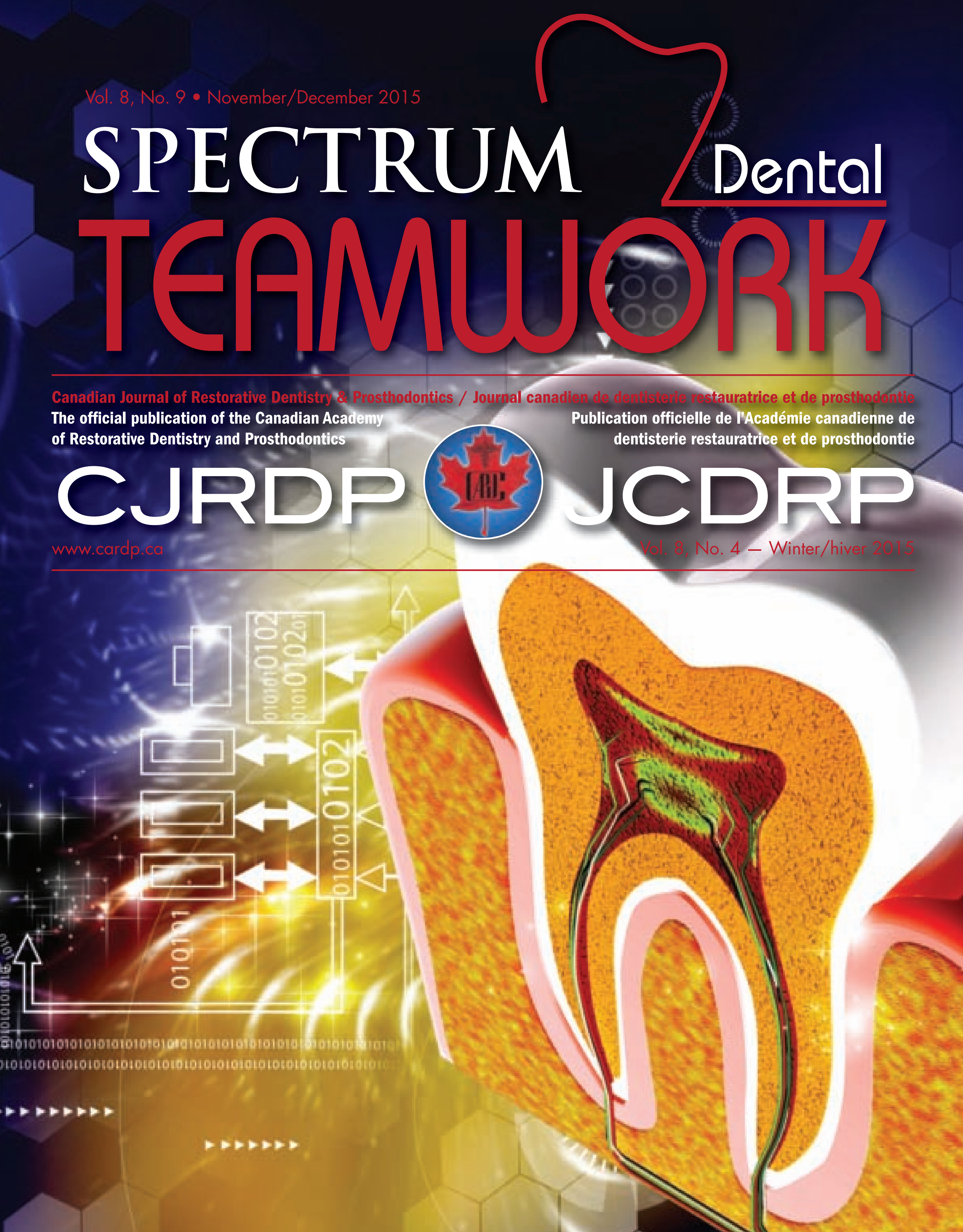

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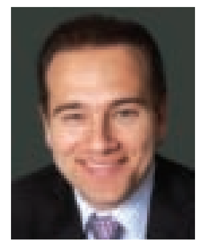

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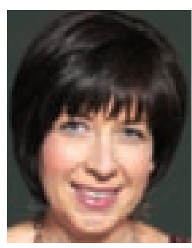

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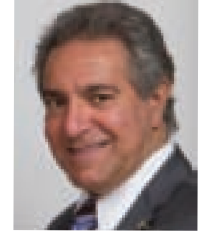

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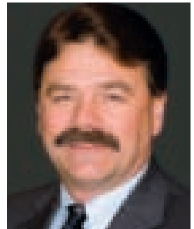

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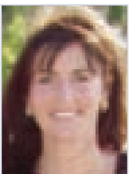

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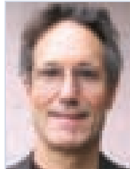

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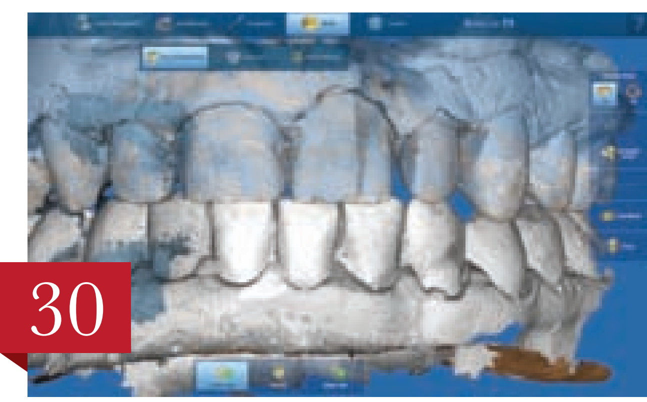

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Mainstreaming Collaborative Practice: *Forces at Work*

Dr. Hubert Gaucher

Legislative forces:

In the U.S., with the implementation of the Affordable Care Act (a.k.a. Obamacare), health insurance access is available to an increasing number of people and, by the same token, has created a tremendous need for more healthcare providers. The solution to this primary care shortage has been to enhance the duties of dentists, among other professionals: "The model expands the dentist's scope of practice to include disease prevention, screening of chronic disease and psychosocial issues, and chronic disease management in the setting of an integrated health care system." In Canada, the professional environment of dentists has always modeled itself on the American pattern, and for that reason, we are tributary to what goes on south of our border.

Dental education:

A recent ADA News front page article featured an initiative in dental education: Inter Professional Education (IPE) which is the first step towards training dentists for the integrated health care system in view of an inter-professional collaborative practice. This program has progressively been incorporated in dental faculties since 2005. And in 2013, the U.S. Commission on dental accreditation revised the education program stating that: "...graduates must be competent in communicating and collaborating with other members of the health care team to facilitate the provision of health care." Well, Canadian accreditation standards have traditionally been based on American norms, so we can expect their new requirements to reach us sooner or later.

Third party payers:

The same ADA article also stated: "...large health care systems have recognized that team-based care results in significant cost savings and improved patient outcomes." Kaiser Permanente, for instance, fully recognizes such advantages.

Information technology:

Accessing a comprehensive, interdisciplinary patient database will be needed in order to achieve Collaborative Practice. Organizations such as the Canadian Dental Association (CDA) and the Order of Dentists of Quebec (ODQ) are pressing their respective governments to include dental patient paid services in their existing Universal Electronic Health Record (EPIR) formats. Progress in this matter has been slow. Outside of purely technical aspects, such as establishing a common terminology (SNOMED) for all EHR users, from all fields, nationwide, there also remains the challenge of recognizing the input of the dental profession as a single voice across the country.

FDI, World Dental Federation:

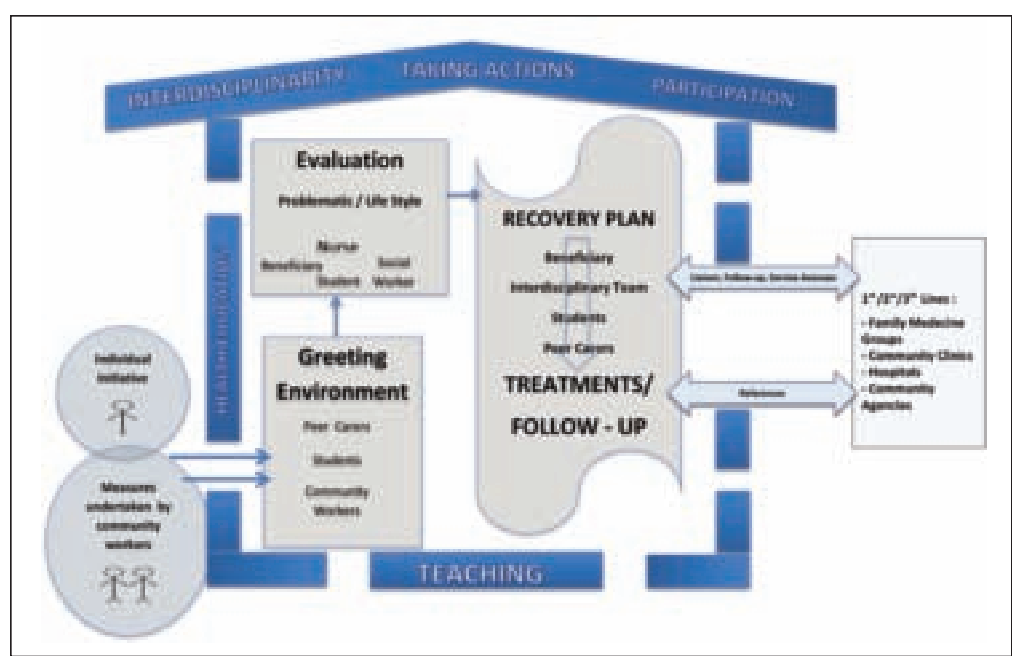
Basing itself on its 2014 Vision 2020 (Shaping the Future of Oral Health), the FDFs 2015 Report on Collaborative Practice (CP) summarizes the following CP attributes:

1) Dentists should play a leadership role. Dentists are the front-line medical professionals in the prevention, early detection and treatment of oral and systemic diseases.
2) CP increases efficiency and quality. In terms of service delivery, CP improves access and quality.

3) Collaboration needs to be broadened and efficiently applied in everyday practice.
4) Inter-professional Education (IPE) is an essential tool to prepare for CP.
5) There is no one-size-fits-all approach to CP.
6) The dental profession should be recognized as a driving force behind CP.

Community-based, interdisciplinary health clinics:

There already exist health professionals who work in Collaborative Practice, and who tend to focus and adapt their care models to meet the needs of their clientele. A fine example is a Quebec City health care and teaching facility called SPOT, which has been operating since 2014. They are MDs, DMDs, nurses, social workers, students and volunteer care givers working in several coordinated physical locations that are easily accessible by the beneficiaries who are disinclined to go through the regular care giving services. SPOT'S dynamic interactions for providing health care services, coupled with teaching and research, have received growing support from various backers at the government, community, university and corporate levels. SPOT promotes the Collaborative Practice model and is accredited by Revenue Canada as a charity organization.



Virtual health:

Information Technology (IT) health care delivery is reducing costs and increasing productivity by streamlining work and redirecting clinician time to high value tasks: " It is shifting tasks and work to patients, replacing labor with technology and automated tasks." By connecting health care providers in an asynchronous time frame, IT allows for seamless interactions among all parties, including patients.

What is virtual health?

Virtual health combines clinical care and professional collaboration through telemedicine, telehealth and collaboration at a distance to connect clinicians, patients, care teams and health professionals to provide health services, support patient self-management and coordinate care across the care continuum.

Specific to physician-patient encounters, virtual health enables live or asynchronous clinical interactions, clinical practice and patient management supported by a wide range of communication, collaboration and cognitive technologies along with digital devices and data.

Mobile Practice Assistant (MPA):

MPA was discussed in a prior CJRDP Guest Editorial. MPA is a one-device, one-mobile-app, one login, interactive support for Collaborative Practice, that also shares treatment outcomes and prevention measures. It is the basis for an e-mobile Health Platform that can generate Practice Based Research Data Analysis for health care teams.

Conclusion

Despite the numerous and obvious benefits of Collaborative Practice, it challenges traditional health care models, thereby, rendering CP difficult to implement and mainstream. Consider IT incursions into patient data, security issues, and interactions amongst health professionals and patients.

The requirements of health professionals, objectives of the Dental Industry, sanctions and regulations, and third party involvement require the design of a consensual, Virtual Health Environment, that is both realistic and cost effective.

The way I see it, an e-mobile Health Platform is inevitable in order for CP to evolve on a continuous basis.

Please go to wvvvv.cardp.ca Digital Journal Section, and click on the Comment Button to let us know what you think.■

La pratique de collaboration (PC): *ses moteurs*

Dr. Hubert Gaucher

Influences législatives:

Aux États-Unis, avec l'implantation du << Affordable Care Act >> (Obamacare), un nombre croissant d'individus a accès à l'assurance santé, et par le fait même, ceci engendre un énorme besoin pour des professionnels de la santé. Un élément de la solution au problème est de mettre en valeur les fonctions du dentiste: << Le modèle élargit la compétence du praticien afin d'inclure la prévention de maladies, le dépistage de maladies chroniques et psychosociales, ainsi que leur gestion, dans le contexte d'un système intégré de soins de santé >>.[1] Au Canada, le milieu professionnel dentaire s'est toujours calqué sur le modèle américain, et pour cette raison, nous sommes tributaires de ce qui se passe au sud de notre frontière.

Éducation dentaire:

Un article récent dans ADA News [2] discutait d'une initiative dans le domaine de l'éducation dentaire: l'éducation interprofessionnelle (EIP), qui constitue le premier pas vers la formation des dentistes dans un système de santé intégré, en prévision d'une pratique de collaboration interprofessionnelle. Ce programme s'insère graduellement dans les facultés dentaires depuis 2005. Puis en 2013, la commission d'accréditation dentaire américaine révisait le programme d'éducation en déclarant: << ...les promus du programme doivent posséder la compétence de communiquer et de collaborer avec les autres membres de l'équipe de soins de santé afin de faciliter les soins dispensés. >> Et bien, les normes canadiennes d'accréditation se sont toujours basées sur les standards américains, alors il n'est question de temps avant que les nouvelles normes arrivent jusqu'à nous.

Participation financière de tiers:

Ce même article de ADA mentionnait aussi: << ...les intervenants importants des systèmes de santé reconnaissent que les soins prodigués par des équipes entraînent des économies significatives et améliorent le sort des patients. >> De fait, un gros joueur de l'assurance, Kaiser Permanente, convient de ces avantages.

Technologie de l'information:

L'accès à une base de données interdisciplinaire étendue (Dossiers santé électroniques, DSÉ), est requis afin d'atteindre la pratique de collaboration. L'association dentaire canadienne (ADC) et l'Ordre des dentistes du Québec (ODQ) pressent leurs gouvernements respectifs d'inclure les patients payants de leurs services dans le système universel numérisé (DSÉ). Or ce dossier avance très lentement. Outre les aspects pûrement techniques, telle une terminologie universelle (SNOMED) pour tous les usagers (DSÉ), de tous les domaines, il reste aussi le défi de faire valoir la position de la profession dentaire, au niveau national, d'une voix collective, dans le but d'intégrer les dentistes dans DSÉ.

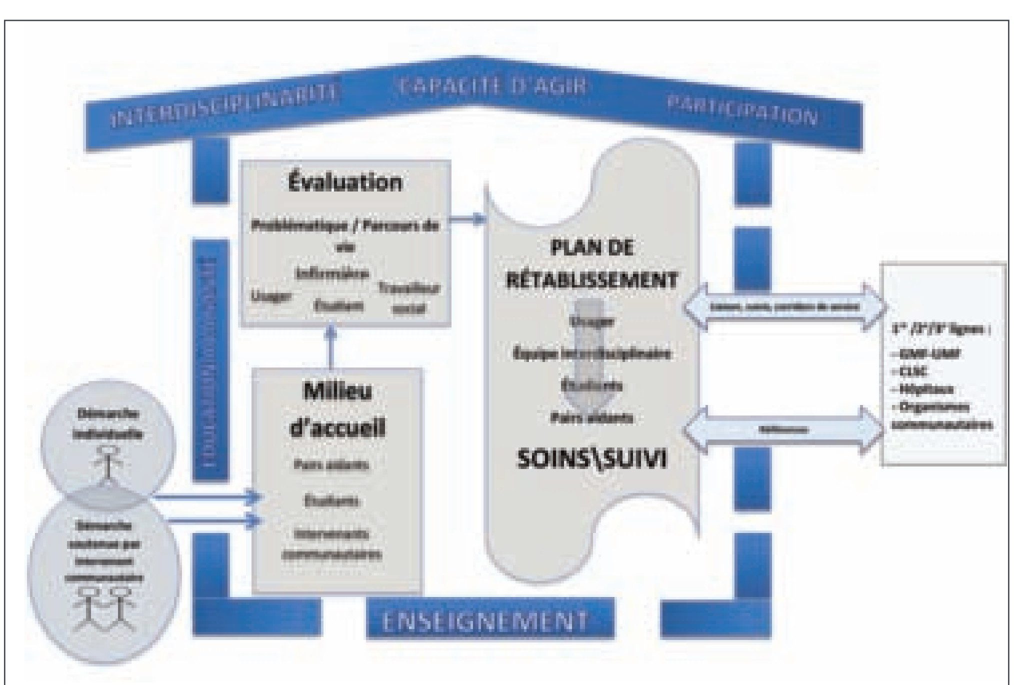
FDI, Fédération dentaire internationnale:

Selon sa Vision 2020, énoncée en 2014, (Façonner l'avenir de la santé buccale), le rapport 2015 de FDI discute de la pratique de collaboration (PC) [4] et résume les attributs suivants de PC:

1) Les dentistes devraient être chefs de file. Les dentistes sont au premier plan parmi les professionnels médicaux sur la prévention, la détection et le traitement des maladies buccales et systémiques.
2) PC augmente l'efficacité et la qualité du point de vue de l'exécution.
3) La collaboration doit s'étendre et s'appliquer efficacement dans la pratique courante.
4) L'éducation interprofessionnelle (EIP) est un outil essentiel dans la préparation pour la PC.
5) Il n'y a pas d'approche << taille unique>>.
6) La profession dentaire doit être reconnue comme le moteur de la PC.

Cliniques de santé communautaires inter-disciplinaires:

Il existe déjà des professionnels de la santé qui ciblent et adaptent leurs soins aux besoins de leur clientèle et qui travaillent en pratique de collaboration. Un excellent exemple se trouve dans la Ville de Québec; il s'agit d'une clinique, SPOT est son acronyme, qui prodigue des soins en plus d'offrir de la formation et qui est en opération depuis 2014. Ce sont des médecins, dentistes, infirmiers, travailleurs sociaux, étudiants et bénévoles qui oeuvrent dans divers locaux coordonnés qui sont faciles d'accès pour les bénéficiaires qui préfèrent ne pas avoir recours aux services de soins usuels. Le dynamisme de SPOT, couplé à son enseignement et la recherche, en font l'objet de support provenant de divers paliers, qu'ils soient gouvernementaux, communautaires, universitaires ou corporatifs. SPOT encourage le modèle de PC et est accrédité en tant qu'organisme caritatif.[5]



Santé virtuelle:

La répartition des soins à l'aide de la Technologie de l'information (TI) diminue les coûts et accroît la productivité en rationalisant les rôles et en redirigeant les cliniciens vers des tâches plus valorisées. Cette technologie << ...déplace certaines fonctions vers le patient et la technologie automatisée. >> En créant un réseau d'intervenants de soins dans un contexte asynchrone la TI permet des interactions parmi tous les intervenants y inclus les patients.

Ce qu'est la santé virtuelle [6].

La santé virtuelle relie les soins cliniques à la collaboration professionnelle à travers la télémédecine, la télésanté et la collaboration à distance dans le but de mettre en réseau cliniciens, patients, équipes de soins et professionnels de la santé; la santé virtuelle assure les services de santé, le support, l'auto-gestion des patients et la coordination des soins. Spécifique aux rencontres médecins-patients, la santé virtuelle permet les interactions directes ou asynchrones, la pratique clinique et la gestion du patient, supporté par une variétés de communications, collaborations et technologies informatiques cognitives, accompagnés d'appareillages et de données.

MPA - Mobile Practice Assistant:

MPA fut introduit à nos lecteurs dans un éditorial récent du JCDRP [7]. Il s'agit d'un seul appareil, une seule application mobile, une seule activation de session, et du support pour la pratique de collaboration (PC) qui permet aussi le partage des résultats de traitements et des mesures de prévention. MPA est sous-jacent à une platte-forme mobile de santé (e-mobile santé) qui analyse les données générées par la recherche basée sur la pratique des équipes de soins de santé.

Conclusion:

Malgré les nombreux avantages de la pratique de collaboration (PC), celle-ci remet en question les modèles traditionnels de soins, et rend donc l'implantation et la diffusion difficiles. Voyons par exemple les incursions dans les dossiers-patients, les questions de sécurité et les interactions entre patients et les divers professionnels de la santé. Les besoins des professionnels de la santé, les objectifs de l'industrie dentaire, les règlements et sanctions, ainsi que les interventions de la part de tiers, exigent un environnement virtuel de santé qui est à la fois réaliste et économique.

Selon moi, une platte-forme e-mobile de santé est inévitable si l'on souhaite évoluer avec continuité.

Veuillez saisir la boîte de commentaires ci-bas, en accédant la version numérique du journal www.cardp.ca pour nous faire savoir ce que vous en pensez. ■

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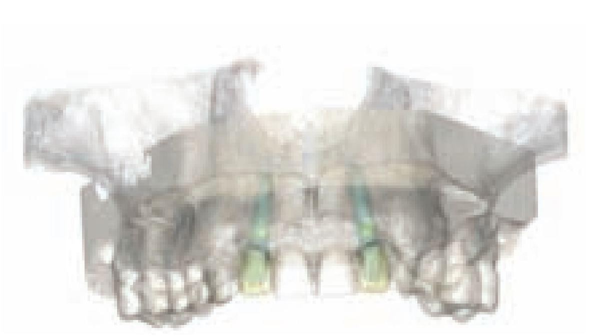

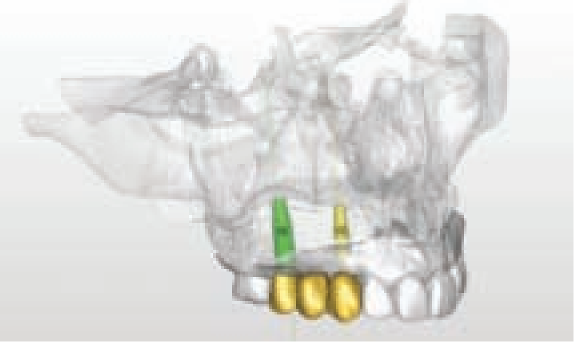

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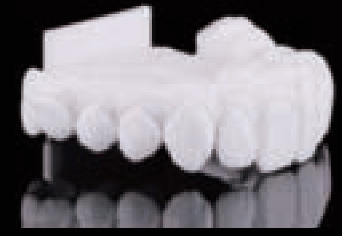
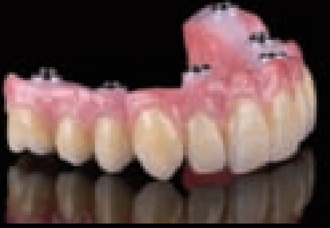




As a digitally advanced, innovative dental laboratory, Pro-Art can provide dentists with the support, knowledge and experience they need to achieve success for any restoration with any implant system and with their choice of material.

Whether you are restoring a fixed case, a fixed detachable or an over-denture case, Pro-Art leads the way to success.

To find out more about Prettau® Zirconia and Implant Guided Surgery call Pro-Art today.

855 Broadview Avenue, Toronto ON M4K 3Z1
Phone: 416.469.4121 Toll Free: 800.268.6771
info@pro-artdentallab.com
www.pro-artdentallab.com

Images and content courtesy of Zirkonzahn Worldwide and DENTSPLY Implants

People and Product News

American College of Dentists (ACD) Fellowship Induction, Washington, DC, November 2015:

Left to right: Dr. Daniel Tanguay (ACD Fellow & Sponsor), Dr. Gilles Lavigne (Inducted ACD Fellow); Dr. Hubert Gaucher (Inducted ACD Fellow), Dr. Joe Rotondo (ACD Fellow & Sponsor).

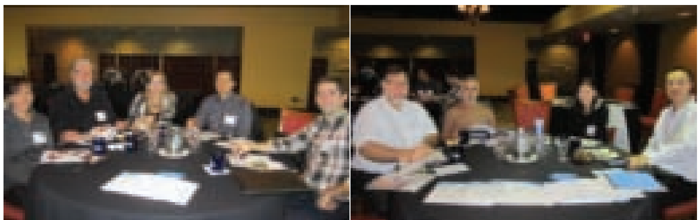
Spectrum Day Toronto has Record Attendance

Everyone at Palmeri Media Group is ecstatic after the record turnout for our annual Spectrum Day Toronto, which took place at the Hilton Toronto/Markham Suites Conference Centre & Spa this past October 23rd.

The show was a resounding success thanks, not only to the quality of the lectures and speakers on hand, but also due to the overwhelming response in attendance (over twelve hundred dental professionals present) along with the vast number of exhibitors that brought the latest in dental equipment and materials to the show floor.

So, if you missed it this year, mark your calendar for October 28, 2016 when Spectrum Day Toronto will be back.

Dr. Les Priemer's Sleep Apnea Program



On November 13th, a group of Dentists began their journey in sleep medicine at the "Practical Dental Solutions for Snoring and Sleep Apnea" Seminar with Dr. Les Priemer.

Held at the beautiful Country Club in Woodbridge, Dr. Les Priemer shared his expertise in the field of Sleep Apnea to cover the following topics: Epidemiology of snoring and sleep apnea, Pathogenesis, Interpretation of Sleep Studies, Review of all treatment modalities, Oral Appliance Therapy, and most important: How to treat your first patient and how to treat your next patient.

Thank you to our Sponsors: Braebon Medical Devices, Dental Services Group (DSG), Orthodent, Micrylium and Panthera Dental.

Missed this course? Sign up to our email lists to stay informed of the next available Dr. Les Priemer seminar for 2016.

The International Academy of Ceramic Implantology News

Dr. Sammy Noumbissi is pleased to announce that the International Academy of Ceramic Implantology (IAOCI) will hold their 5th Annual International Ceramic Implantology Congress in Montego Bay, Jamaica. This prestigious event will take place at the spectacular Hilton Rose Hall Resort & SPA on February 3-6, 2016.

Dental professionals from around the world will converge on this beautiful Caribbean island to enjoy, not only an excellent academic program featuring 17 internationally-renowned speakers but, also, for an exceptional opportunity to get away from the Winter cold.

The IAOCI is offering an early-bird special registration discount until December 15, 2015. For more information or to register, please visit: www.iaoci.com

Speakers:

Dr. Sammy Noumbissi
Dr. Bobbie Beckman
Dr. Pascal Eppe
Dr. Ted Fields
Dr. Mona Monzavi
Dr. Ralf Luettman
Dr. Dominik Nichwitz
Dr. Mutlu Ozcan
Dr. Heinz Kniha
Dr. Rafael Andreiuolo
Dr. Allaudin Siddiqui
Dr. Cleopatra Nacopoulos
Dr. Ulrich Volz
Dr. Jens Tartsch
Dr. Vera Stejskal
Dr. Marcel Wainwright
Dr. Judson Wall
Dr. Joaquin Mendoca

SciCan

SciCan partners with Vista Research Group LLC to distribute VistaPure.

VistaPure, Water Filtration System is the ultimate convenience for every dental practice.
Introducing The VistaPure Water Filtration System

SciCan, partnering with Vista Research, is proud to announce the VistaPure, a specialized water filtration for STATIM Cassette Autoclaves, Bravo Fractionated Vacuum Sterilizers, HYDRIM Instrument Washers, ultrasonic cleaners, dental bottles, and other select autoclaves and instrument washers.

VistaPure provides two grades of high-quality water for the ultimate in convenience. The system connects directly to the city water supply and sends purified water exactly where you need it in the steri-center for easy, on-demand use.

VistaPure is:

- **Easy To Use:** The point-and-shoot wand makes it easy for anyone to fill autoclaves, no matter where they're located. And the system's mounted faucet makes it easy to fill Dental Unit bottles over a sink. We will also offer unique "automatic water filling control".
- **Convenient:** VistaPure provides a high volume of ready-to-use water, on demand. Its large 4.25-gallon storage tank means you don't need to wait.
- **Consistent:** Each VistaPure features an in-line TDS meter that monitors water quality—and also makes it easy to know when it's time to replace your filters.

For more information contact: Jessica Loomis, Jr. Product Manager SciCan Inc., 416-446-2752, jloomis@scican.com Visit www.scicancanada.ca/vistapure

People and Product News

Straumann offers one of the most complete portfolios for bone regeneration.

Straumann® is expanding its portfolio of regenerative solutions to better meet customer needs. Now, Straumann® XenoGraft joins Straumann® AlloGraft, BoneCeramic™, and Emdogain™ to provide a single trusted source for dental implant and regeneration needs.

NEW – Straumann® XenoGraft

- Create a lasting scaffold for extended volume maintenance with this bovine derived natural bone substitute
- Available sizes: 0.25g, 0.5g, 1.0g, 2.0g

NEW SIZES – Straumann® AlloGraft

- Choice of mineralized or demineralized cortical, mineralized cancellous, or mix of cortical/cancellous
- Now available in 2.5cc size for mineralized cortical, cancellous, or mix

To learn more about the new Straumann® Bone Regenerative portfolio visit www.straumann.ca

Straumann introduces new abutment solution

To coincide with the increased demand from GPs for original Straumann restorations, Straumann delivers the Straumann® Variobase® for CEREC®, offering a chair-side, implant-borne workflow that is quick, cost-effective, and efficient for the GP or dental laboratory already using the widely-popular CEREC® System, yet want access to the original Straumann implant-abutment connection.

The optimized emergence profile features a concave-collar design, resulting in easier cleaning procedures compared to convex-collar design Ti-base options. There is no change to the existing workflow.

As with all Straumann products, the cornerstone of the abutment is the original Straumann implant-abutment connection. The new abutment offering is fully covered under the 10-year Straumann Guarantee®, delivering reliability and confidence for dental practitioners and patients alike.

These products can be ordered via the online website e-shop or local Straumann representatives.

The Face Hunter 3D facial scanner — photorealistic visualization for more reliable restorative planning

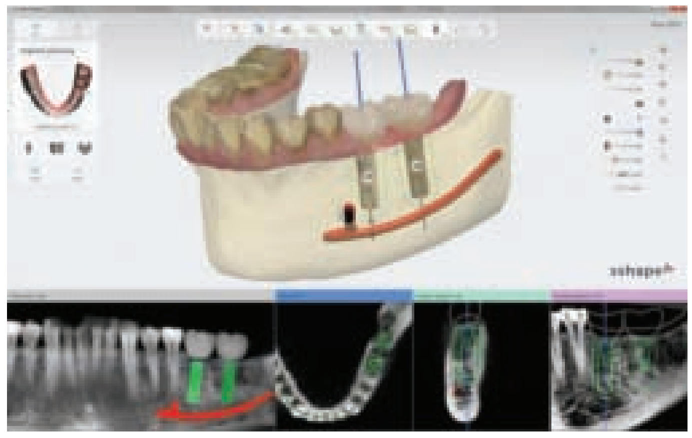
The Face Hunter 3D facial scanner by Zirkonzahn extends the digital workflow in fabricating dental restorations by an important additional step. A single click will digitize a face within three-tenths of a second. 3D digitization offers dentists, dental technicians, and patients a near-photorealistic preview of the definitive restoration, helping align the restoration with the patient's physiognomy and adds a layer of reliability to the treatment-planning process. Combined with a laptop computer, the Face Hunter is ready even for mobile use.

Thirty-eight new 3Shape Dental System™ training videos are now available

3Shape LABcare™, releases a comprehensive series of 38 training videos for 3Shape Dental System™ users.

The new training videos provide a unique opportunity for Dental System™ software users, and those interested in restorative design, to keep up to date on the industry's most powerful and popular CAD/CAM software.

The 3Shape LABcare™ training video series offer an introduction and overview of Dental System™ 2015 for new users.



For more advanced Dental System™ users, the video series includes specific workflows for indications like Table-Tops, implant bars and bridges and tutorials on using new design tools and functionalities available.

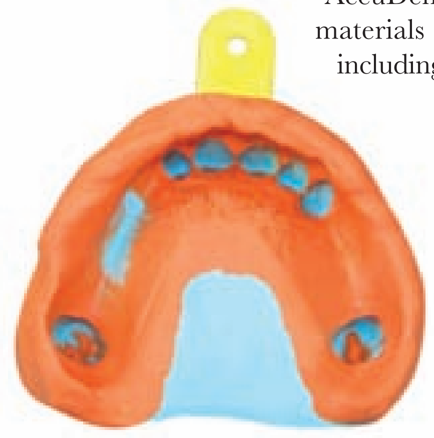
The Dental System™ Training video series are open to anyone and can be accessed at: http://academy.3shapedental.com/dentalvideos (no password is needed)

The videos can also be viewed via the Dental System Training Center included in the software.

AccuDent® XD Alginate Impression System

ivoclar vivadent
passion vision innovation

Ivoclar Vivadent, Inc. is pleased to announce the launch of our new AccuDent® XD Alginate Impression system. This new system will be introduced to the market on October 30th, 2015.



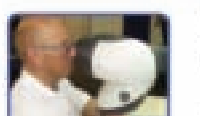
AccuDent® XD impression materials have many benefits including:

- Dual phase alginate materials for more accuracy and precision
- Thermoplastic heat moldable impression trays
- Low cost and fast set time

Orders may be placed via Email: customerservice.ca@ivoclarvivadent.com or Fax: 905-670-3102.

UDS Unique Dental Supply Inc.
Quality • Service • Innovation

Improve the quality of your work with the Sterio Microscope System



- Ergonomic working position
- Freedom of head movement
- A natural view of the subject
- Ability to wear glasses

Mantis Compact
- x2, x4, x6, x8 magnifications
- Bright white, true colour, LED illumination providing up to 10,000 hours
- Flexible swing arm with small footprint

Mantis Elite
- x2-x20 magnification options w/quick change
- Bright white, true colour, LED illumination providing up to 10,000 hours
- Optional Add On - Mantis Elite-Cam for digital image capture

Mantis Elite-Cam HD
- 2x - 20x magnification
- Fully integrated HD camera w/USB connection
- Unique 3D stereo view & useful software

Vision ENGINEERING

More than 150,000 happy Mantis users worldwide

Contact us for more information and arrange a no obligation demonstration
905.532.0554 1.888.532.0554 orders@udscanada.com www.udscanada.com

A clinician's perspective

on the EZ DAM® Dryfield Isolation system

Dr. Mandeep Johal D.M.D

Dr. Mandeep Johal is a general dentist based in Fergus Ontario. In this interview, we explore how EZ DAM® has impacted her practice and patients.

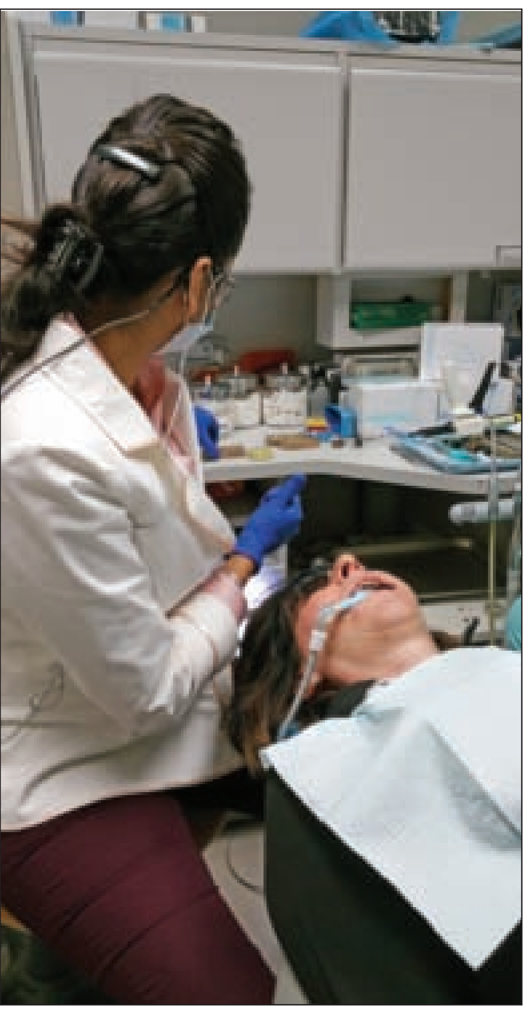
Q What first caught your interest in EZ DAM®?

A What first caught my eye was the fact that this product offered a better way to do what I try to do every day: keep things out of the way, and dry while I provide treatment.

Q What procedures is it used for?

A I really like to use it anytime I need to keep the cheek out of the way with a controlled and dry environment. I use it for most restorative cases, especially Class V's in the posterior, crown and bridge preps and cementation, and it's also great for kids even if they move around a lot. EZ DAM® saves so much time and makes my job easier!

It is also great for the hygienists, who benefit from it when they use the Cavitron and need help with suction and keeping the tongue out of the way. It is also very handy for quick sealants.



Q What would you say are the most important benefits after having used the system for a while now?

A I would say there are many tangible and intangible benefits of this system but, what I like the most, are the following: you get that "rubber dam peace of mind" without the hassles of rubber dam!

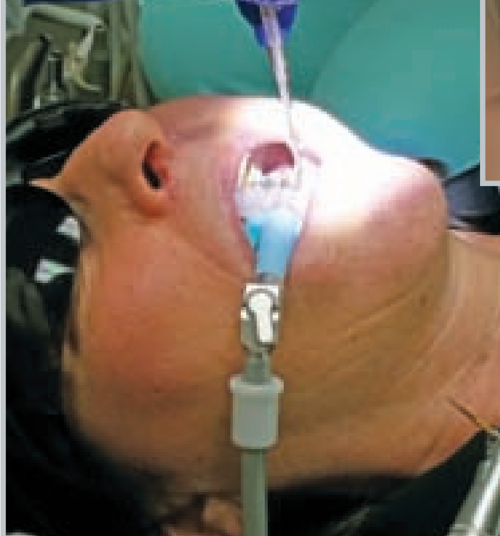
It saves time because it allows me to work uninterrupted: no more stop-and-go… it's all go. I like the fact that I don't have to worry about the tongue, cheek, saliva etc… it's like having a virtual 2nd assistant working. If my assistant has to get up to attend to something, she can without hesitation, which is great, because sometimes you need the resources to be available to handle those everyday unexpected things that pop up. And lastly, I like that I'm providing a better patient experience in regards to comfort, protection, and treatment quality.

Q How do your patients like the EZ DAM®?

A Overall, a positive response. My patients are very surprised to find how comfortable the mouthpiece and the bite-block are, because when you first see it, it doesn't look that way. It helps that the bite-blocks come in various sizes, and the mouthpiece can be trimmed for patient comfort.

Q Do you have anything negative to say about the system?

A I can't say I use it on every single patient, like on my sensitive patients. Some like the fact that they have something to bite down on and keep things in place, and some don't like it. With those patients, I can't even get the mirror into their mouth without a gag reflex! But, that is a small percentage of my practice. I use it on most patients throughout the day for a wide variety of procedures.



Q What kind of dentist would benefit from this product?

A Honestly, everyone. Even independent hygienists should invest in this. At only $299 for a starter kit, it's not expensive to get into the product and, at an average of $2 per use, it easily justifies itself in time savings. When I find a product that provides a better way to work and impacts my patients comfort, experience, safety and quality of care, I think it's a worthwhile investment. ■

ONE MINUTE WITH

Dr. Tif Qureshi

World-renowned, Tif Qureshi talks about his challenges, the lessons learned, who he admires, and his motto in life.

FACTFILE

Tif Qureshi qualified from Kings College London in 1992. He is a Past President of the British Academy of Cosmetic Dentistry, and sits on the editorial board of Dental Update. Tif has a special interest in simple orthodontics using removable appliances and was the first dentist in the UK to pioneer the Inman Aligner. He was the first dentist in the world to use the Aligner as a major tool for cosmetic dentistry. Tif also pioneered the concept of Progressive Smile Design through Alignment Bleaching, Bonding and is also an experienced teacher in the Dahl concept to assist in ethical and minimally invasive dentistry. Tif now lectures nationally and internationally and has had many peer reviewed articles published on all these subjects.

Q I got my start in the dental industry …..

A After attending a year long course in restorative dentistry with Dr. Mike Wise – who very much focuses on reading and interpreting scientific data- It set me up for a very evidence based approach – but equally made me understand that not all evidence correlated with real world technique-

Q When people ask me what I do for a living, I tell them ….

A I have two jobs one is a dentist- who focuses on minimally invasive restorative aesthetic dentistry- two- I'm a teacher who teaches that very subject around the world- Of the two – I think number two just pips it!

Q People shouldn't underestimate me because ….

A Hard question, but I think I underestimate myself sometimes, but some how cases turn out great in the short and long term- and what Im teaching is working in so many countries that the formula has to be right.

Q The most valuable lesson I learned was ….

A That the concept of smile design and cosmetic planning is fundamentally flawed- and that patients don't know what they want until they see their own teeth improve gradually. We just jump into big treatments so quickly that we are not aware of how differently patients can feel if they get the chance to see things change progressively

Q In 10 years, I see myself …..

A Still teaching and doing the kind of dentistry I love hopefully! I absolutely love it.

Q What or who made you first decide to be a dentist?

A My cousin took me into his practice for some work experience- over a week- it looked so interesting and he also made me see how dentistry was an artistic subject- Art was something I loved at school but my parents encouraged me to study sciences. Dentistry as we all know is art and science.

Q Where and when did you get your qualifications?

A Kings College London- qualified 1992- at the age of 22!!

Q Tell us about your practice and what range of treatment do you offer?

A It's a pretty normal family practice but we do focus on adult aesthetics and ortho- Primarily people who want smile makeovers without risk, and any potential irreversible damage- People who also like natural smiles.

Q What do you think are the main challenges in growing and sustaining your practice?

A Regulation is suffocating our profession- Our regulators are making dentistry harder and harder to focus on as levels of burocracy rise that actually take us away from the chairside.. DO NOT LET THIS HAPPEN IN North America!

Q What do you think is the key to developing strong relationships with your patients?

A Honesty- through photography- and co –diagnosis. Allowing a patient to become part of the decision making process really builds the trust we all desire

Q Professionally, what are you most proud of?

A The Inman Aligner training programme which is now a global phenomenon and the formation of the IAS Academy – the pathway for orthodontic education for general dentists. Im also really proud of the Progressive Smile Design and ABB (Align, Bleach Bond concept)

Q What aspects of your job do you enjoy the most?

A Seeing cases complete out- but also seeing patients with stable results after 5-10-15 yrs .

Also teaching-I simply love it- it's such a fabulous subject to talk about.

Q You have 25 years experience as a prosthodontist. What have you learnt most during this time?

A That it is much much safer to let the patient lead the way re- aesthetics and take small steps rather than rush to an end result too soon. Planning is also essential- You need to know where you are going and to analyse how to get there.

Q Why did you choose to be a prosthodontist?

A I'm more of a restorative dentist who uses ortho and bonding to try to prevent patients slipping into the need for more complex treatment. This happened with the ability to use ortho and actually find I was performing interceptive restorative treatment at the same time

Q Where do you live?

A I live just outside London - It's a great place and so close to Europe

(I also live out of a suitcase it sometimes feels)

Q What do you see as your driving force?

A My family are my real driving force – Everything I do is for them, however I wont pretend that helping to change dentistry in so many countries has been one of the most wonderful things possible- I feel very lucky

Q What is your favourite food?

A Thai/ Malaysian/ and steaks!

Q Favourite Music?

A Old people's stuff like Pink Floyd, the Stones, U2, Springsteen- Has to be guitar based.

Q What is your favorite film?

A Too hard to pick- But I do love Trading Places.

Q Who do you admire?

A In our profession, Dentists who break the mould and advance the profession… like Sverker Toreskog and Bjorn Zachrisson (the European Spear and Kokich) Some of the best real world dentists who ever lived.

Q What keeps you awake at night?

A Dealing with the huge amount of people in this business who I am connected to- I hate being late and not delivering.

Q What makes you happy or makes you laugh?

A Family and friends- Going out and forgetting about work and watching a movie or just going to a Great British pub (I go every weds- I made a deal with my wife before we got married) .

Q What are some of your personal characteristics?

A Highly driven- over analytical, trusting

Q Worst fault?

A Being too trusting!

Q Describe yourself using three things you enjoy?

A I enjoy detailing my cars- and I really mean it. I enjoy tech and playing online games with my son - I enjoy attending to my stupidly big pond.

Q What do you do to relax?

A Go out to eat, shop and walk our dog!

Q If you won the lottery would you give up work?

A No, but I would give up some parts of it- I feel I have a lot more I want to do and things I would love to see change.

Q If you were not a dentist /prosthodontist what would you have wanted to be?

A A car designer, /engineer/ tester-

Q What is your motto in life?

A Never give up and be truthful to yourself.

(I also have a motto for my son who lives his life online – "don't ever type anything online that you would not say to someone's face."

Thank you for your time and for having shared this information with TeamWork Readers. ■

Zirkonzahn®

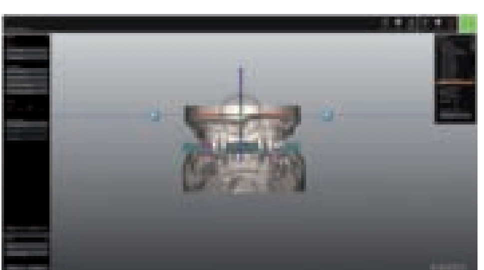
Human Zirconium Technology

PLANESYSTEM®

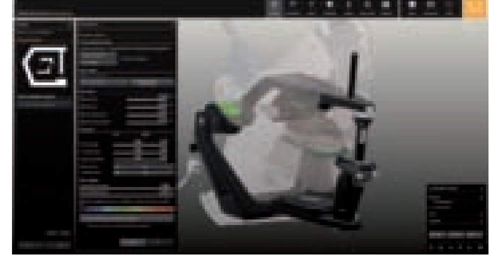
THE THIRD DIMENSION IN PATIENT ANALYSIS

The PlaneSystem® is used to determine the natural position of the maxilla and the individual inclination of the occlusal plane, regardless of physical asymmetries. Bone asymmetries and resulting muscular compensation are detected ahead of developing a treatment plan.

Developed in cooperation with MDT Udo Plaster



PS1-3D CAD PlaneTool (exclusively for the Zirkonzahn.Scan scanning software)



PS1 virtual articulator (integrated in the Virtual Articulator module of the Zirkonzahn.Modellier modelling software)

The captured data is ideally combinable with scan data of the Face Hunter 3D facial scanner

Zirkonzahn USA Inc. *– Phone +1 800 989 8931 – Phone +1 678 441 9419 – infousa@zirkonzahn.com*

Zirkonzahn Worldwide *– Phone +39 0474 066 680 – info@zirkonzahn.com – www.zirkonzahn.com*

A Message from Dr. Gaum

Dear Teamwork Readers

For several years I have been writing articles in **SPECTRUM DIALOGUE** that have, to my pride and joy, received much positive feedback from the readers.

My articles are not just about dental technology and clinical subjects that cater to a very small percentage of the reading public.

My articles contain elements and accounts dealing with life, family, events and world happenings that, hopefully, stimulate and interest many bodies and minds. In the past, my articles have provoked responses from every classification of the reading public, both good, bad and hostile. Some letters to the editor have praised my meager writing abilities while others have demanded my immediate dismissal along with a good dose of criminal tar-and-feathering.

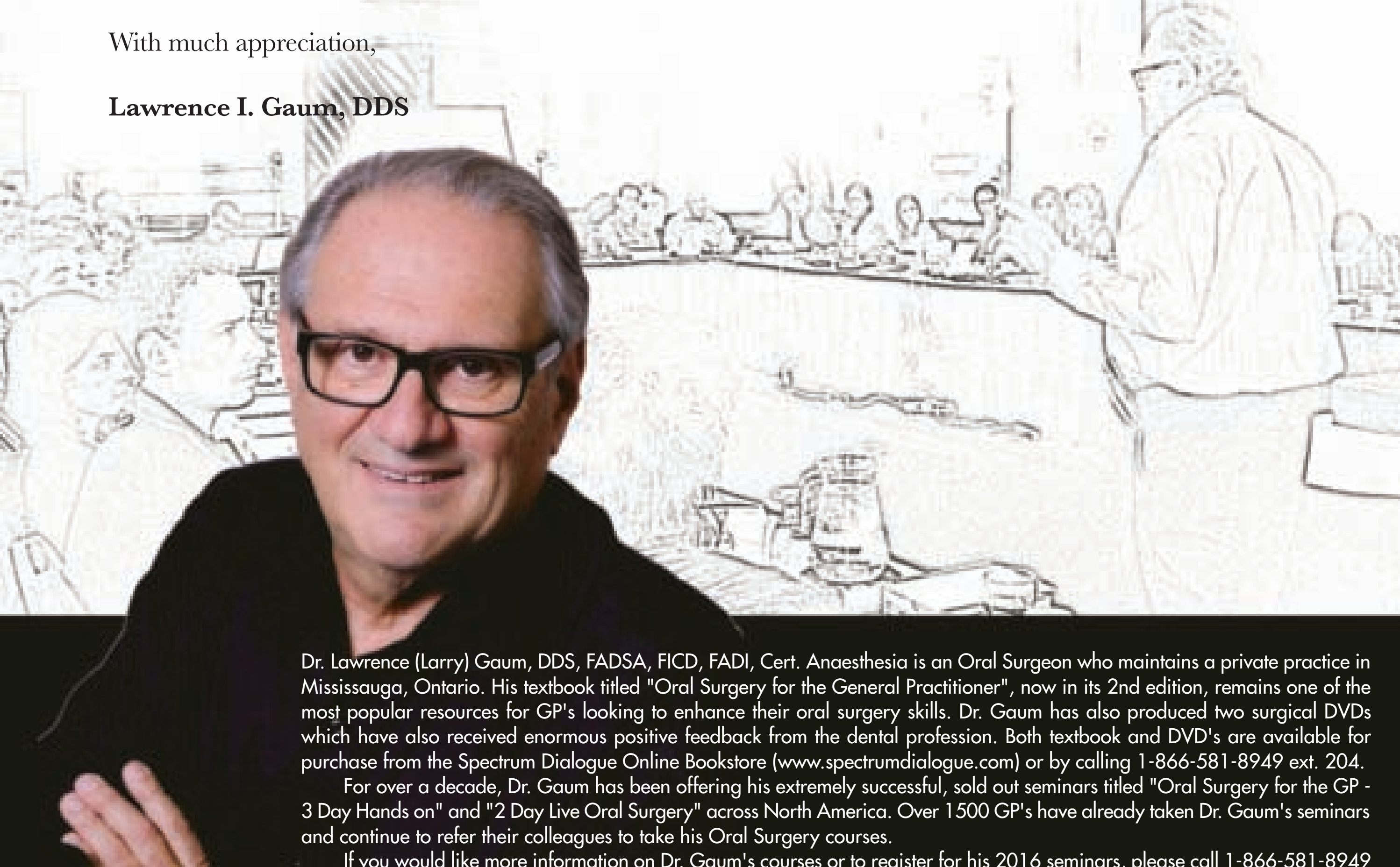
I take everything in stride, so to speak, and in some cases, as the candidate to the presidency of the USA, Donald Trump would advise, counter and strike back at my adversaries with twice the strength and fury initially metered out.

I am pleased to report to you that, after much soul searching and deliberation, the editor and publisher of **TEAMWORK** has consented to publish my articles in their prestigious journal. It is with great pride and immense joy that I have accepted their kind and generous offer.

I sincerely hope that you will enjoy the articles as much as I will enjoy bringing them to the printed page for your perusal.

With much appreciation,

Lawrence I. Gaum, DDS



Dr. Lawrence (Larry) Gaum, DDS, FADSA, FICD, FADI, Cert. Anaesthesia is an Oral Surgeon who maintains a private practice in Mississauga, Ontario. His textbook titled "Oral Surgery for the General Practitioner", now in its 2nd edition, remains one of the most popular resources for GP's looking to enhance their oral surgery skills. Dr. Gaum has also produced two surgical DVDs which have also received enormous positive feedback from the dental profession. Both textbook and DVD's are available for purchase from the Spectrum Dialogue Online Bookstore (www.spectrumdialogue.com) or by calling 1-866-581-8949 ext. 204.

For over a decade, Dr. Gaum has been offering his extremely successful, sold out seminars titled "Oral Surgery for the GP - 3 Day Hands on" and "2 Day Live Oral Surgery" across North America. Over 1500 GP's have already taken Dr. Gaum's seminars and continue to refer their colleagues to take his Oral Surgery courses.

If you would like more information on Dr. Gaum's courses or to register for his 2016 seminars, please call 1-866-581-8949 ext. 206/207. To contact Dr. Gaum directly, you may email him at: larrygaum@rogers.com

Pay Heed To *His Warnings*

Lawrence I. Gaum, DDS

We are all children of God

Regardless of our religious persuasion, most of us pray to the same divine being, who is the creator of all things, large and small. This being has many names, when we observe the numerous religious affiliations that exist on this earth, The names are not important and we shall, for the sake of this article, call him GOD.

Most of us, especially in the dental field, for all intents and purposes, are content with our lives. We carry on, day to day, fulfilling our duties as best as we can and meeting our obligations with as much strength as we can muster. However, many amongst us take a hard straight course from A to B, never deviating from their path at any time. These individuals, and there are many in number, concentrate on the establishing of a successful practice and strive to treat more and more patients, thus accumulating more and more wealth. They are measured by many standards as being successful, especially in the eyes of their colleagues.

Not necessarily in the eyes of God. These individuals spend their time performing their duties, concentrating on dentistry in the office, at home, at the cottage, on their boats, and on vacation, if they take any. Because of this approach, they neglect and spend little time with their spouse, their children, grandchildren and friends. Bad mistake; but they don't see it that way. They are convinced that what they are doing is correct. They leave no time for relaxation, enjoyment of their family accomplishments and, in essence, live with dentistry twenty-four hours a day. Not only is this an unhealthy approach to life itself, but God does not approve.

God is busy on a day-to-day basis, doing his best to accommodate everyone in some way, shape or form. He has his helpers in the form of religious leaders who, on his behalf, tend to their flocks and try to bring peace and contentment to those they serve.

But, every once in a while, he may intervene in mysterious ways. Let me give you an example.

Recently, I had occasion to speak to a colleague who owns six offices. He is a whirling dervish, running, not walking, from one office to another. His conversations and actions are always about dentistry. He literally eats, drinks and sleeps dentistry from dusk to dawn.

One day, not too long ago, he developed a growth on his arm. It was a dark, black lesion that, for all intents and purposes, resembled a melanoma. For once, since graduating from dental school, he took a long, deep breath and began to think about his situation.

"What will I do if this turns out to be malignant?" he nervously asked me.

I hesitated only briefly and then gave him my answer.

"Look my friend, you have to face facts." I said. " If it's cancer, the prognosis may be poor." I continued and did not mince my words. "It is possible that the growth may have metastasised." "If this is the case, I suggest that you seek the best medical specialist possible to treat you." " But first, get it removed and wait for the pathology report."

His face grew pale and sweaty. He stared at me in a pleading fashion and answered with the following words:

"If it is cancer, and I die, I won't see my wife again, won't get to celebrate my grandson's Bar Mitzvah and won't attend my granddaughter's high school graduation."

It was curiously interesting to note that his thoughts were now focused on events that he had never considered before. He never once said, I won't create another crown or bridge, or insert another implant or denture.

Strange how things evolve and change.

Several weeks went by and he received the pathology report. Fortunately, the results were very good. The lesion was benign and he realized that he had a new lease on life.

The question now still remains. Was this a test? Was this a warning? Who threw that curve ball? Did a divine presence, disapproving of my colleague's life style, send a message in an attempt to change it? I believe it was. Did it work? You be the judge.

My friend now works three days a week, instead of seven. He has long, interesting conversations with his wife and spends a lot of time with his children and grandchildren. While he's in his office, he concentrates on dentistry and does his best to serve his patients. When he's at home, he now likes to discuss the books and movies he reads and sees, with his friends and family.

Let us assume at this point that this divine lesson was a warning, a wake up call so to speak. A warning, a lesson, not just for my friend, but for all of us.

Did it work?

You tell me. ■

Ask the Experts

Practice Management Software

Q My partner and I are general dentists who own two offices, but work primarily in one of them. Each office uses different dental practice management software, and we are trying to decide if we should switch one practice over to the software we are more familiar with in our primary practice. Can you give us your opinion about this idea?

Dale Tucci explains:

This question is one we are frequently asked by professionals, like yourselves, who own multiple locations. The logical answer to this question is; by using the same processes and technology in both offices practice management should be streamlined. The caveat here is the word "should", as it is not always the case in reality.

Let's begin by examining the question in more detail. Your question, as stated, suggests switching to the software you are most familiar with because you use it in your primary office. Before making such a big commitment I advise you to explore the merits of each of the dental software programs because familiarity alone is not a sufficient enough reason. The factors around changing software should be based on the features and benefits of each program as they relate to both practices now and in the future. Keep in mind that many of the features currently available are likely not being utilized as we see this repeatedly during client assessments.

As owners and clinicians begin by listing the software features you use, as well as those you may or may not have available but desire. Remember to ask the daily users of the software, your team members, for their input about the ease of use, features they find beneficial, areas of the software they are not using along with their ideas about how the software could improve. Their comments and suggestions are invaluable because of their daily use of the software while interacting with patients. Ease of use is one of the fundamental areas to assess when considering new technology although training is a necessity.

Certainly ease of use and vendor software support are important factors when evaluating software and should be taken into account before adopting new technology. We'll delve into ease of use first because it has an enormous impact on the day-to-day operations and customer experience. If you are like many dentists training existing and new hires to utilize the software is not something you plan or execute. Lack of training leaves employees to learn how to use the software on their own or be trained by another team member thus making ease of use a crucial factor. Think of this from a clinical perspective. You would not purchase and integrate clinical technology to use during patient care without training. My point; dental software and its use by all team members effects your practice, patients, efficiency and bottom line. As such if an investment is to be made in technology it must be accompanied by an investment in training to get the best return on investment.

Prior to taking the plunge to change software, schedule demo meetings with the two software companies you use now to review the present features and updates being developed for later release. After the meetings compare practice needs and wish lists to the two dental practice management systems. This will likely reveal a preference toward one of the two programs. Next, I suggest you consider evaluating a third software provider to assess its benefits and features relative to both practice requirements.

During the demo have a business and a clinical team member present to ask questions that affect their daily duties and ways to make day-to-day tasks easier. Team will focus on the practical use of the software as it relates to the performance of their duties while the owners will focus on the clinical and business practice management features.

As owners, you need to think of dental practice management software as a key employee. Increasingly the practice management software is driving clinical and business systems so explore the program features and ensure they are being used correctly, consistently and to their full potential.

Dental practice owners must be able to retrieve accurate data in order to effectively manage the offices. If the data is not organized and maintained appropriately then practice data retrieved via reports will not be accurate. Basing business decisions on information that is fraught with errors is a recipe for disaster.

Finally, you own the offices so it's in your best interest to be knowledgeable about dental software. As business owners you require professional training in order to retrieve practice management data and ensure the practice information is being correctly organized and maintained. This practice management data is your business thus the management of it through technology, processes and team are imperative to practice success.

Attracting Attention

Q How do I attract more new patients to the practice without spending a lot of money?

Sheila Scott says:

Your best source of new patients should be your existing, very happy, very satisfied, healthy patients. They could be recommending you to all their friends and family, but they will only do so if they think you are wonderful, so you should check

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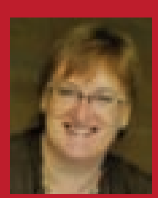
that you are meeting their needs, and tell them you can take patients. Existing patients also need to be able to say something useful and/or meaningful to friends and family, so they have good reasons to actually take their advice. To make sure they are willing to recommend you, you need to:

- Check your patients are satisfied. Use a survey that asks patient to identify what is important to them when visiting the practice and checks what they think of your efforts to deliver on these important aspects.
- Find a good excuse to tell patients that you have room for their friends and family- It is not the referral card that does the work, but the conversation you have when you give it out, eg "Sheila, I am doing less and less work on my patients these days because we've got them pretty healthy and stable, so I've got room for a few new patients. If you know anybody who'd like the way we do things here, could you, please, let them know about us and pass on this card to them?", or "Sheila, we've just hired a new associate/specialist dentist who is taking on quite a bit of work in the practice, and I'd like to make sure we keep him/her busy enough to have them here for a few extra days a month from now on. Do you know anybody who would like to join us in the practice…?'
- Make sure your patients know exactly what you do for them, which is important and valuable, At your next team meeting, define a few nuggets of benefits to patients based on what is important to them, and what they already appreciate. Also, practice weaving these into everyday conversations with patients, so they can explain to their friends why you are so wonderful too.

Once you've started to grow your patient base in this sustainable word-of-mouth fashion, you can extend the message through web/social media/PR and other promotional means. ■

Dale Tucci is owner and president of Tucci Management Consultants Inc. Dale and her team offers a wide variety of custom practice management solutions, transition planning, business coaching, associate recruiting, marketing and human resource services.

You can reach Dale Tucci directly at 416.450.8769
Fax: 905.643.6529
Email: dale@daletucci.com www.daletucci.com



Sheila Scott has over 20 years' consultancy experience across a variety of industry sectors, and an in-depth knowledge of what creates business success. She delivers a unique service helping dentists and their teams grow and prosper.

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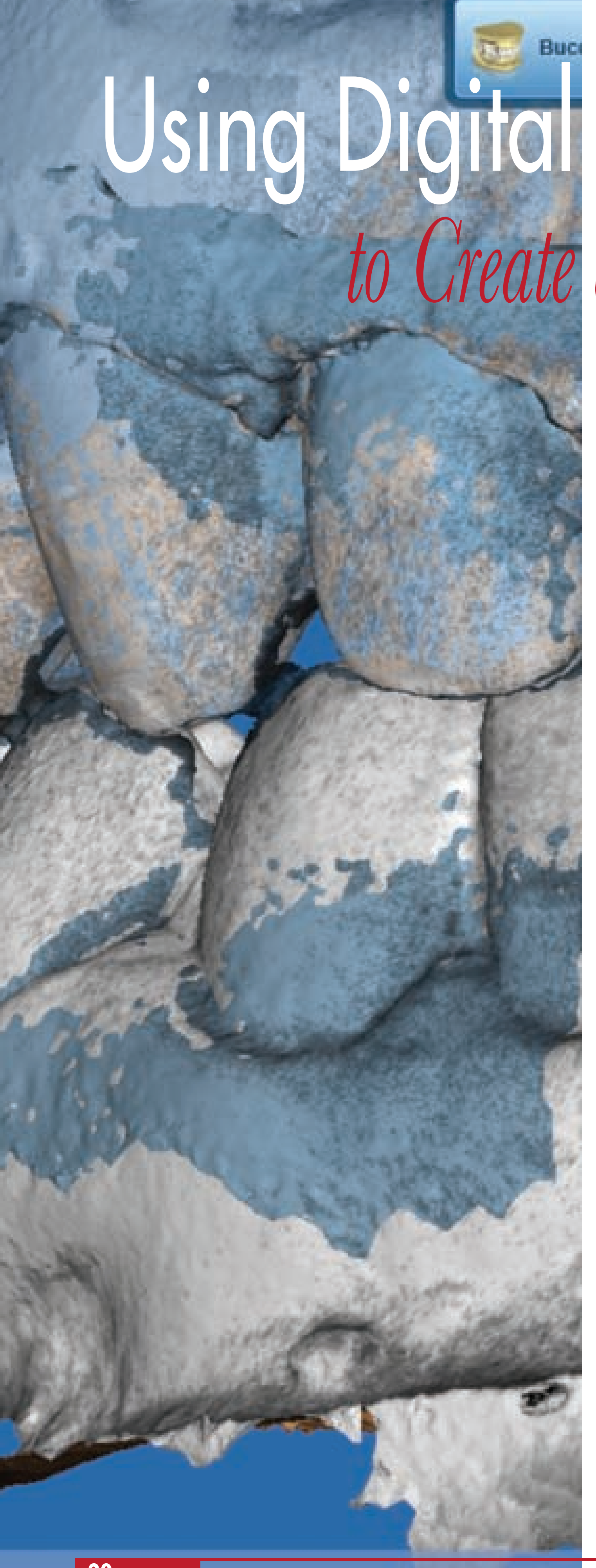


Using Digital Technology *to Create an Aesthetic Smile*

Lino Adolf

Dental aesthetics often depend upon the creation of symmetry of the patient's midline. This concept can be expanded further with the aesthetics of a smile, which has a symmetry and harmony between horizontal and vertical planes. This is demonstrated in this article with a prosthetic alternative to repeat composite bonding.

In dentistry, optimum aesthetics often depends upon the clinician's ability to create symmetry across the midline. Subtle changes in symmetry are permissible as one moves further laterally away from the center line.

The interpupillary line and the smile line of the incisal edges of the teeth create an overall sense of balance and horizontal perspective in an aesthetic face. The general direction of the incisal plane of the maxillary teeth must be parallel to the interpupillary line. This harmony must be further reinforced by the incisal plane, which should follow the lower lip during the act of smiling.

Through a combination of correct tooth preparation techniques, guided soft-tissue healing, establishment of correct contact areas and papillae form, anterior spacing or crowding can be effectively corrected by restorative dentistry.

Patient presentation

A 35-year-old female patient with excellent medical health requested help from my practice for an aesthetic smile enhancement. She expressed her desire to have straight, even-

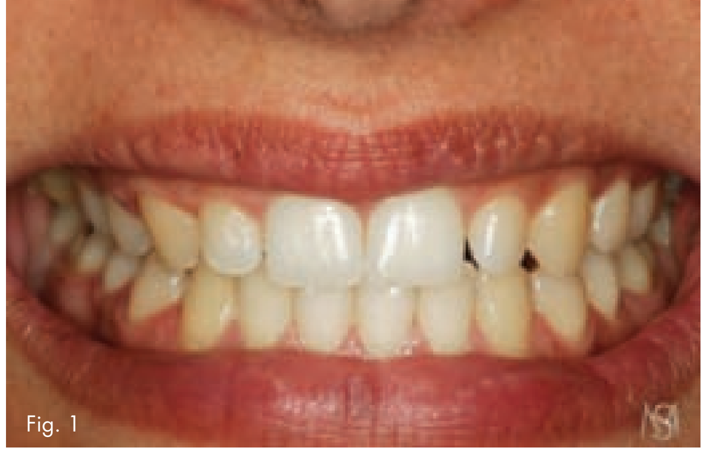


Fig. 1

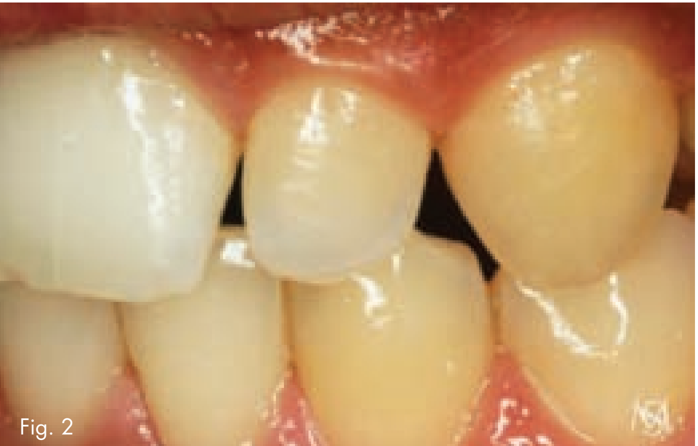


Fig. 2

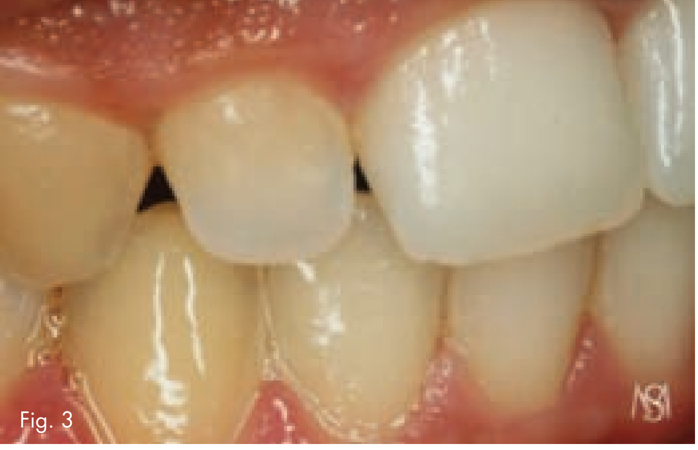


Fig. 3

Figures 1, 2 and 3: Patient's pre-operative smile

colored, whiter, fuller teeth. She had undergone a series of orthodontic treatment to close diastemas and was frustrated with how her smile looked 'incomplete'. She was really unhappy with the shape of the lateral incisors, especially with the deep embrasures on the left hand side.

Clinical examination revealed a healthy periodontium and soft-tissue architecture that was symmetrical and well-defined. Analysis of the temporomandibular joint demonstrated no tenderness to palpation, and an acceptable curve of Spee with no loss of vertical dimension.

The anterior teeth presented with good arch form, however with a slightly collapsed buccal corridor on the right hand side. The upper left lateral incisor was peg like and rotated slightly mesiobuccally. The right lateral incisor was also peg like and had an uneven surface texture. The upper central incisors were of good proportion but slightly retroclined.

The maxillary posterior teeth were in good condition and unrestored. Slight wear facets were noted on the upper and lower canines, however the patient was still canine guided. It was noted that the patient had thin biotype and a high smile line so emphasis on supra gingival preparation, if any would be required. All the anterior teeth were tested for vitality and they were all vital. Periapical radiographs were taken of the anterior teeth, which showed healthy teeth with complete periodontium, good bone levels and an intact lamina dura. After an evaluation of the patient's smile and a discussion with the patient about her cosmetic goals, a treatment plan was presented.

Diagnosis

The patient's self confidence is being affected by the peg-like upper incisors, which compromised the natural aesthetic smile. Given the patient's career, it was decided that porcelain restorations in the form of IPS Empress CAD would be the way forward. Using porcelain allows for the inclusion of the ceramist artist expertise. Also, porcelain will have more vitality in the restorations. Five maxillary veneers would be fabricated. These would be UR4, UR3, UR2, UL2 and UL3.

Given the patient's youth, the overall good condition of her teeth and the acceptable occlusal and arch form alignment, it was decided to use a no-prep technique. We decided to use a digital-impression scanning technique using the Apollo Di.

The veneers were lab-made using the MCXL milling units from IPS Empress CAD multi blocks, with micro-layering on the incisal third.

Pre-operative work-up

Once the treatment plan was agreed on and consent signed, clinical records, including pre-operative photographs, radiographs, periodontal, and occlusal temporomandibular exams were taken. We also took pre-operative impressions and centric bite registration using Virtual putty and the Ivoclar Vivadent centric tray. To facilitate communication between the patient and ceramist, a pre-operative model was printed where a diagnostic wax-up was done.

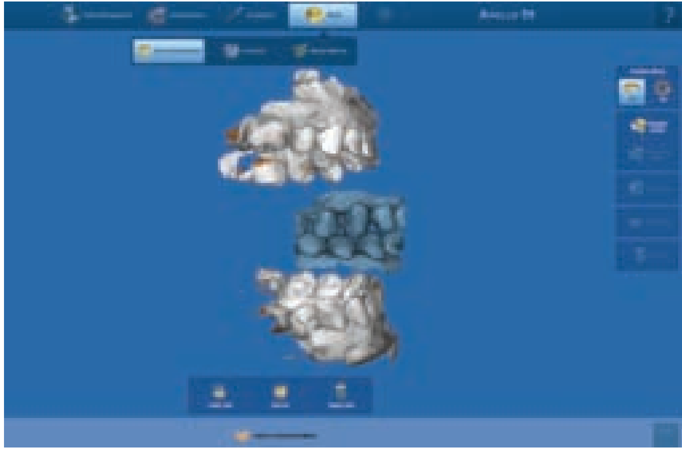


Figure 4: Digital impression

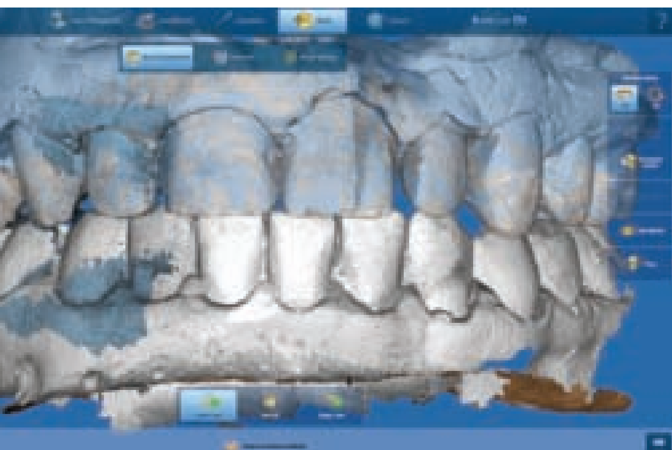
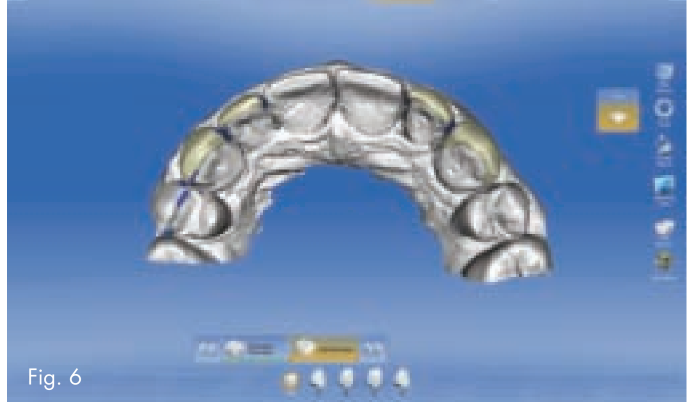
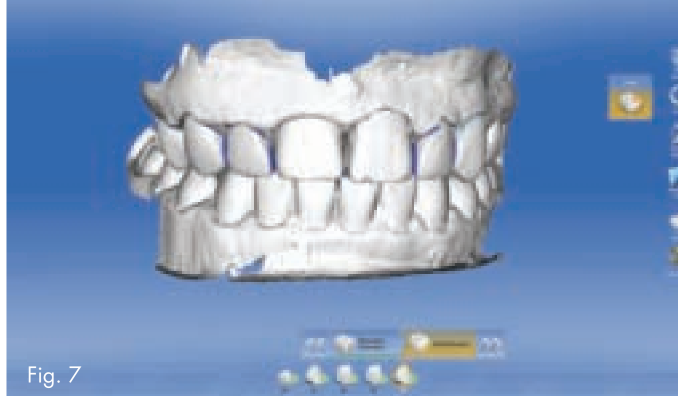


Figure 5: Impression registration





Figures 6 and 7: Designing smile using Inlab 4.2

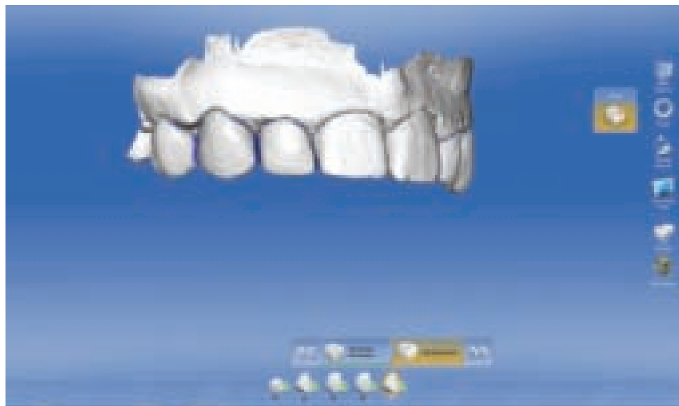


Figure 8: Two-step mill-milled with Inlab MCXL

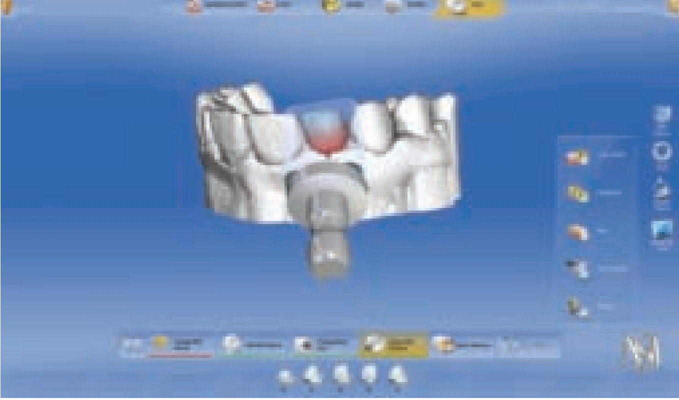


Figure 9: Some surface texture, micro-layering on the incisal third and glazed

Using a combination of before-and-after photography of completed cases, magazine pictures the patient brought in, and different smile-design books, we discussed the shape/contour that the patient found appealing. It was decided to create the veneers with square round centrals and shorter round laterals. This was communicated to the laboratory technician who waxed up the pre-operative models.

Preparation appointment

There was no preparation for these veneers. A thin retraction cord was used to retract the gingival slightly before the powdering and then the scanning from the Apollo DI.

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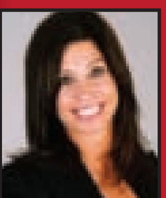

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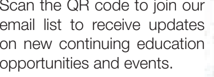
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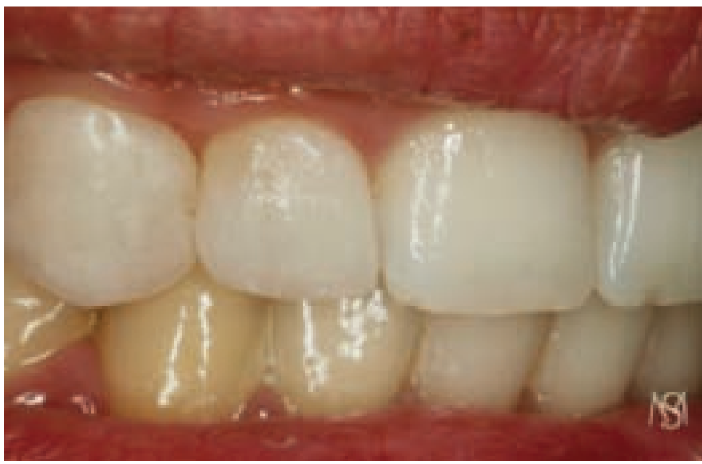

Figure 10: Left side treatment

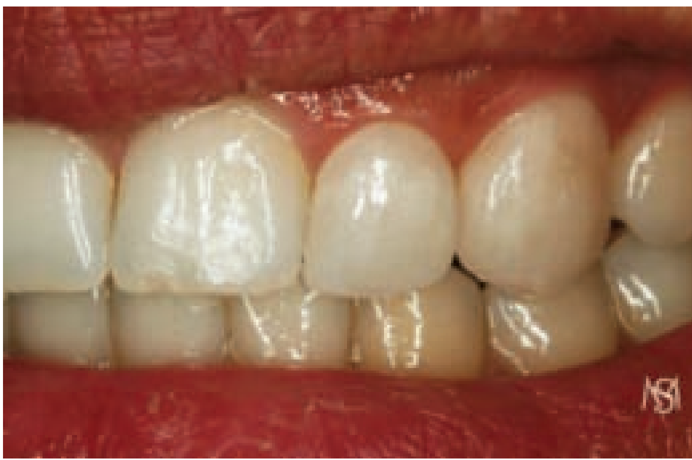

Figure 11: Right side treatment

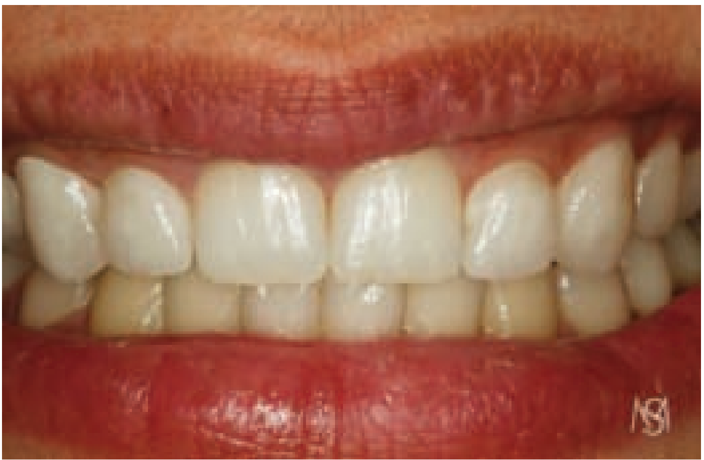

Figure 12: Finished smile after treatment

Using in-surgery photography and a new extended IPS Empress CAD shade guide, we discussed the patient's desired final colour. Many patients today want a new smile that is lighter in colour and a higher value. The patient wanted her teeth to be whiter so using the shade tabs as a guide the patient requested the final shade that matched A1 shade tab guide.

Delivery appointment

The patient returned within seven days for the delivery of the feldspathic veneers. They were assessed on the digital model and seemed the correct shade, correct shape and appeared harmonious. Each veneer was tried in using a wetting medium. The veneers were tried in individually and then together to evaluate the fit, colour and contour.

The veneers were cemented sequentially using the new Variolink aesthetic light-curing cement, as the veneers are thin enough to allow for the use of light-cure-only resin cements. All the veneers were initially tacked in place, then once cemented we fully light-cured the teeth using a Bluephase style. Fine-grit diamond finishing strips were used to carefully remove the inter-proximal excess cement. Once all the veneers were cemented in place the occlusion was evaluated and refined. Optrapol fine polishers were used with water spray to create proper centric contacts.

Conclusion

The patient is very happy with her aesthetic result. She returns for regular hygiene and examination appointments and has had a successful, beautiful aesthetic result for nearly one year. It is the dentist and the technician as a team who have the responsibility to understand the smile design protocols and about the latest proven materials and techniques to provide the patients with the best result. ■

Lino Adolf was born and raised in South Africa. He studied at a university in Portugal, where in 1998 he obtained a bachelors degree in dental technology and later in 2002 a degree in dental technology – fixed prosthodontics. Between 1998 and 2006 he taught fixed prosthodontics and lab orthodontics at CESPU University in Portugal. In 2001 he became Victor Hugo do Carmo's protégé. In 2006, Lino started working self-employed, setting up Majestic Smile in 2011. He has been working with CAD/CAM since 1998, initially with Nobel Biocare Procera and then Sirona Inlab system.

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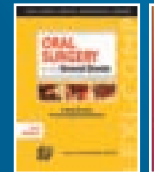
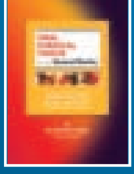

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Oral rehabilitation with CAMLOG® implants after loss of dentition due to an accident

Dr Hitoshi Minagawa

La réhabilitation orale à l'aide d'implants CAMLOG après une perte de dentition causée par un accident

Information about patient and treatment

The patient, a 61-year-old female, had lost her upper and lower molars due to a traffic accident two years prior to the initial visit in our practice. Titanium plates had been placed in the lower molar region on both sides and she had worn a partial denture. She had been using only her anterior teeth to bite and experienced nerve paralysis even two years after the accident.

Due to her unstable occlusal condition, her anterior teeth were severely mobile at the time of the initial visit, and she hoped to get these teeth extracted.

In a full-mouth implant reconstruction case like this, the value of the result should be judged with regard to the long-term prognosis. This case has been treated for 8 years, now: 6-year treatment since the first visit and 2-year recall maintenance. All of the remaining teeth in the maxilla were extracted, and socket preservation was implemented. Then, the surgical guide was fixed on the four implants placed in the anterior area as anchors, and four implants were placed in the maxillary tuberosity and sinus septa areas. In the mandible, the posterior teeth were neuroparalyzed due to the effect of the accident, and the anterior teeth were displaced lingually. The displacement was corrected by an orthodontic treatment using the posterior implants as orthodontic anchors, and the occlusion was recovered. The neuroparalysis has been relieved progressively, and the patient is satisfied with the treatment and the results. This is a comprehensive case comprising surgical, prosthetic and orthodontic procedures.

Initial presentation

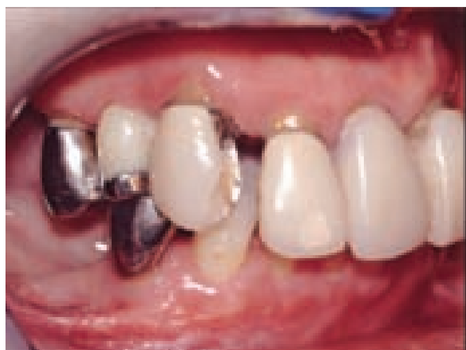

Fig. 1: Clinical situation: The occlusion had collapsed as a result of the traffic accident.

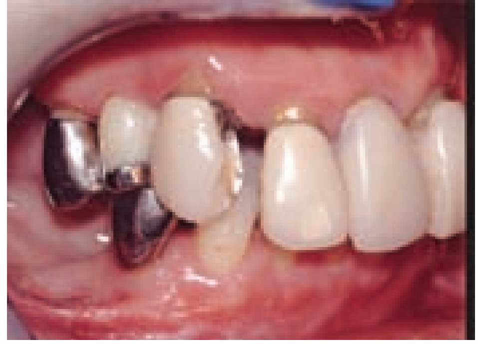

Fig. 2: Only the upper and lower anterior teeth were incorporated or involved in functional occlusion.

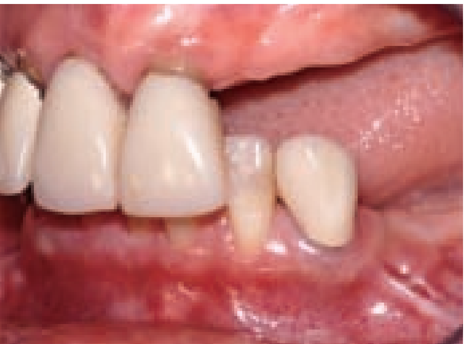

Fig. 3: The upper anterior teeth were mobile and hopeless. They were extracted.

Tooth extraction

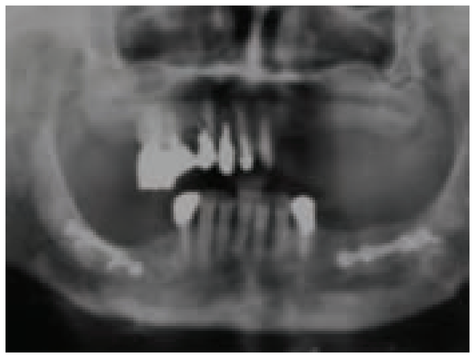

Fig. 4: Radiographic situation. Titanium plates had been inserted in the posterior regions of the mandible.

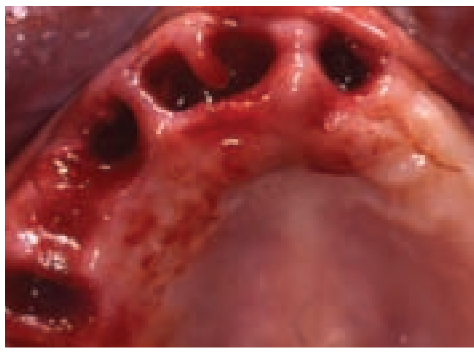

Fig. 5: The maxillary teeth were carefully extracted.

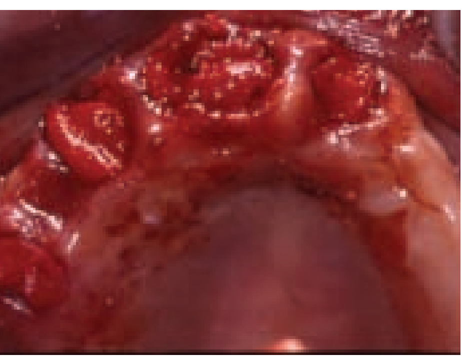

Fig. 6: After extraction, on the right side, ridge preservation technique was applied to preserve the soft- and hard-tissue contours: The alveolar sockets were filled with Bio-Oss® and covered with Bio-Gide® membranes. The extraction sockets on the left side were left untreated.

Implant insertion in the maxilla

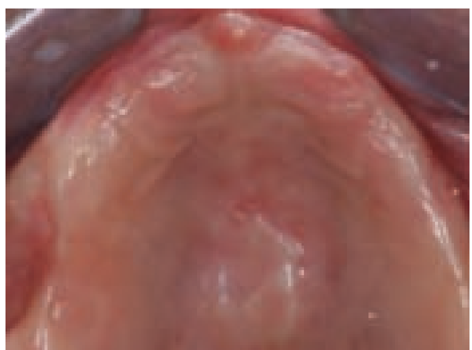

Fig. 7: Clinical situation after 6 months: nicely healed soft-tissue contour of the alveolar ridge. The right side seems to demonstrate a wider dimension of the alveolar crest.

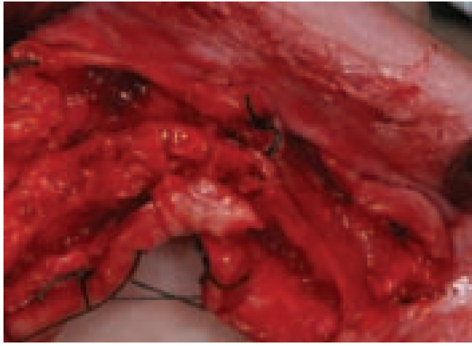

Fig. 8: Full-thickness flap preparation, demonstrating the dimension of the alveolar bone crest. Note the difference in bone width between the left side (extraction only) and the right side (ridge preservation). Ridge preservation seems to be a suitable technique to enhance the hard-tissue situation.

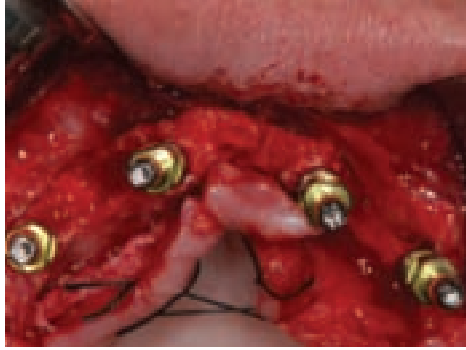

Fig. 9: Insertion of four implants (3.8mm x 13mm).

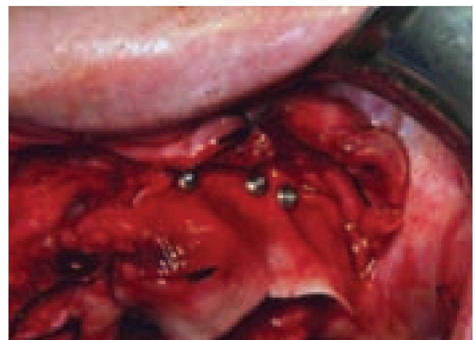

Fig. 10: Bone augmentation with Bio-Oss® and Bio-Gide® to increase the bone volume. The membranes were fixed with ALTApins.

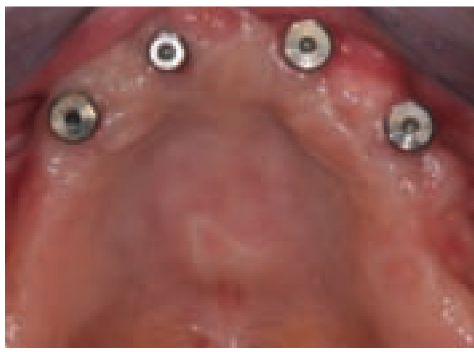

Fig. 11: Clinical situation prior to the third surgical intervention after 12 weeks. The occlusal view showed a healthy soft-tissue situation around the anterior implants.

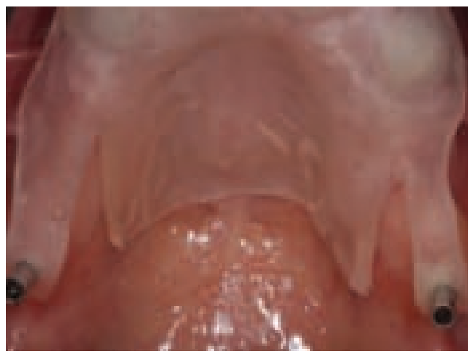

Fig. 12: Insertion of implants in the tuber maxillae. The surgical stent supported by the four anterior implants was used to place the implants in an optimal position.

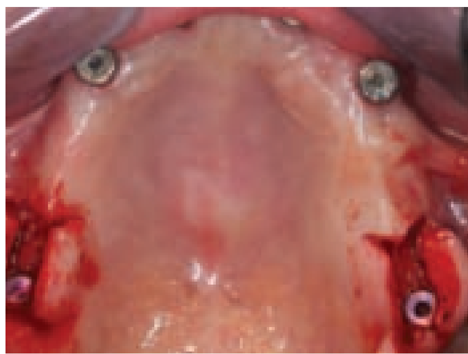

Fig. 13: The implants placed in the maxillary tuberosity. The precise surgical guide system using the precise CT data is necessary for the exact placement of the implants in the correct positions.

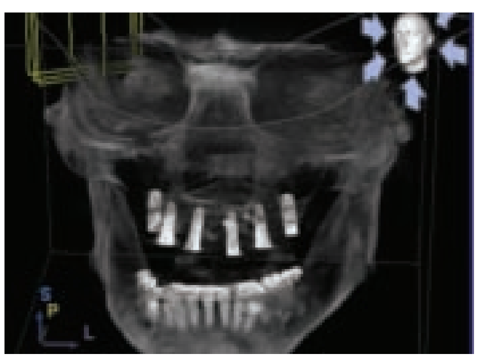

Fig. 14: For precise insertion of the implants, a CT simulation is used to verify the axes and the locations in a three-dimensional view.

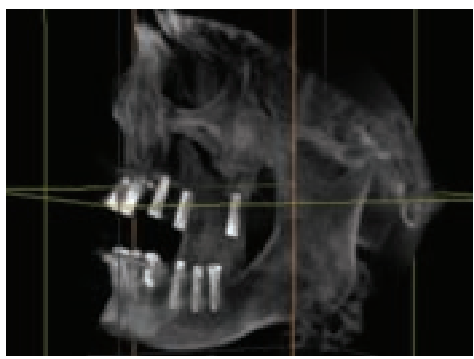

Fig. 15: CT-simulation of the left side.

Sinus floor augmentation

Fig. 16: Bilateral sinus floor augmentation to obtain more vertical bone and achieve optimal implant stability. Insertion of two implants (4.3 x 13mm) in both sides.

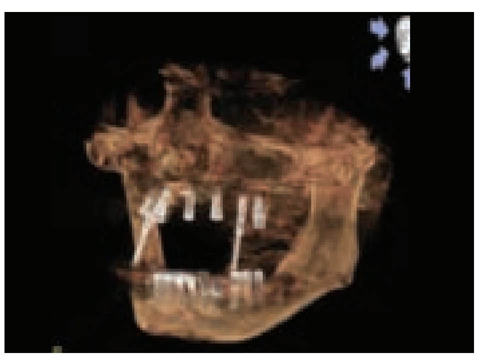

Fig. 17: In order to verify the exact positions and the depths, CT(3D)data were taken with the depth gauges during the surgery.

Implant insertion in the mandible

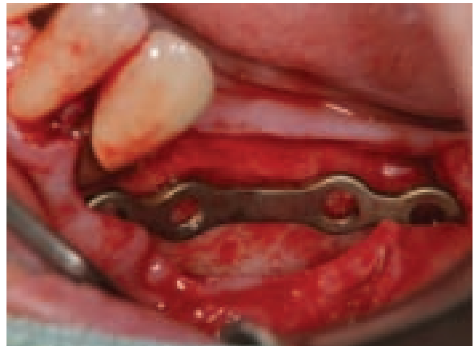

Fig. 18: Removal of the mandibular titanium plates.

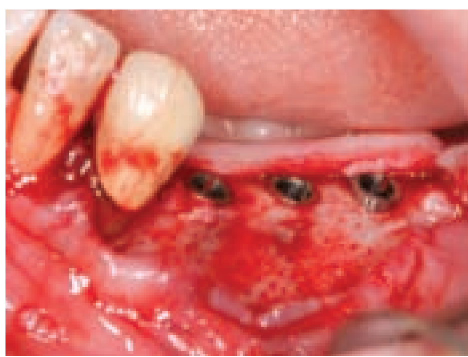

Fig. 19: Insertion of five implants (3.8mm x 13mm): three implants on the left side and two implants in the right mandible.

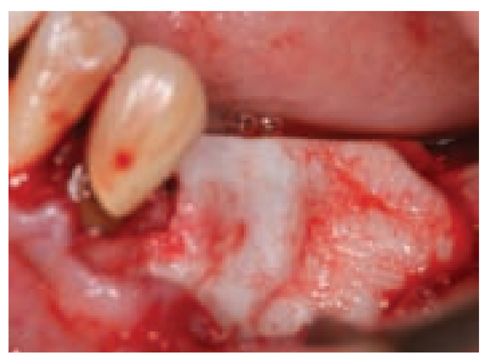

Fig. 20: For obtaining the necessary bone volume in the buccal side, bone substance was used and covered with the resorbable membrane.

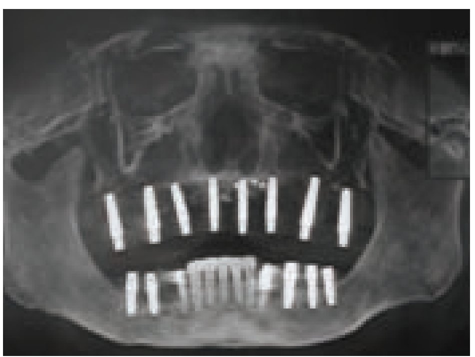

Fig. 21: Postoperative situation.

Impression-taking

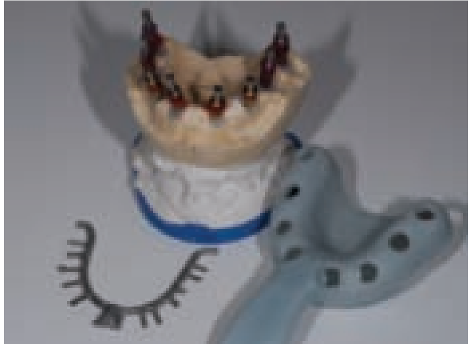

Fig. 22: A custom-made tray for open impression technique was prefabricated on a first master cast. At the same time, a cast metal index frame was made in advance.

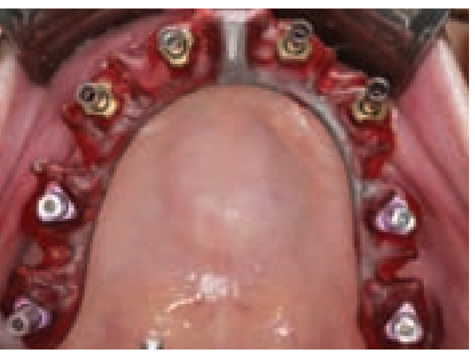

Fig. 23: The occlusal view demonstrated a passive and rigid connection of the impression posts to the metal framework. This prevented any technique-related distortion during impression-taking and later model processing.

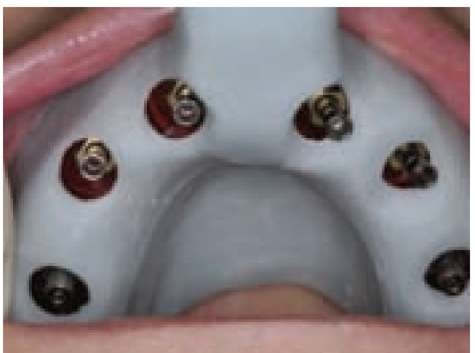

Fig. 24: The impression was taken with a custom tray. The impression posts must not have any contact with the open tray. Using this method, distortion or discrepancies in accuracy can be avoided. This was the basis for a highly accurate master cast to fabricate a very precise framework.

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Provisional prosthesis

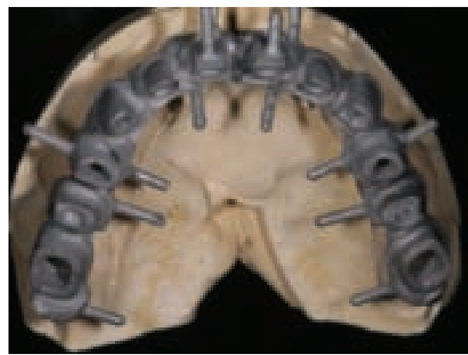
Fig. 25: The framework was designed as a one-piece cross-arch structure based on eigth implants. The restoration was finally cemented on individualized universal titanium alloy abutments.

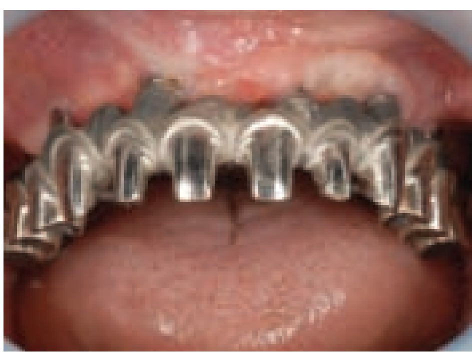
Fig. 26: Framework try-in on the individually prepared abutments, checking for passive fit of the structure. The restoration was designed for a pink base and single crowns bonded to the metal frame.

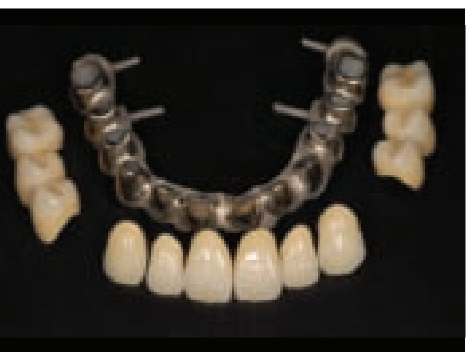
Fig. 27: The individual crowns were cemented to the metal frame utilizing acrylic bonding resin.

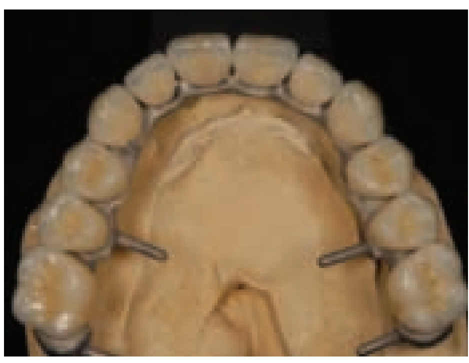
Fig. 28: After cementing the crowns, the gingival part of the restoration was added to the framework.

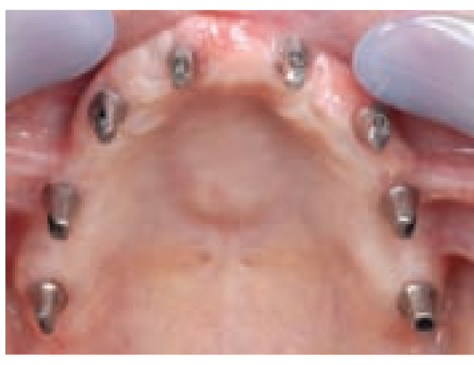
Fig. 29: Healthy soft-tissue situation prior to the installation of the primary provisional restoration.

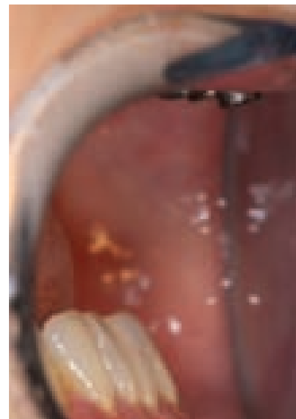
Fig. 30: As a result of the traffic accident, the lower anterior teeth were dislocated. An orthodontic anchor was applied to straighten up the anterior mandibular teeth.

Final prosthesis

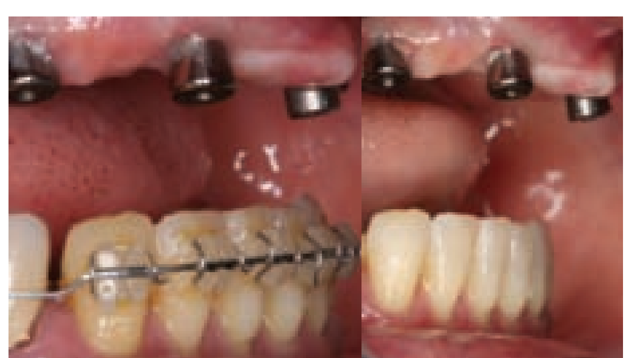
Fig. 31: Orthodontic treatment. The implants were used as anchors in order to shift the teeth labially.

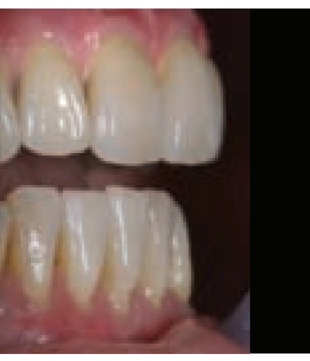
Fig. 32: Final prosthetis in place. In order to achieve a stable occlusion, a vertical stop was created by raising the occlusal height on the molar area.

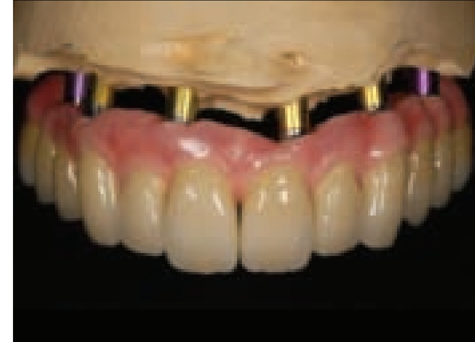
Fig. 33: Hybrid resin was selected for modifications of the substructure.

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Conclusions

This case represented a challenging treatment approach including ridge preservation, bone augmentation and orthodontic treatment. The aim was to achieve an adequate hard- and soft-tissue situation for implant placement and to improve functional occlusion. The result has been very satisfying regarding both the aesthetic and functional outcome. The implants could be placed in positions that ensure optimal static stability. The use of a one-piece unit cross-arch structure with cement-retained single-crown restorations and the application of a gingival portion facilitate comfortable long term maintainability even in the case of tissue loss. Adjustments such as contour adaptations of the gingival portion are easy to perform. The metal framework can be easily polished and allows good hygiene.

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Immediate provisional restoration of Osseotite implants: a clinical report of18-month results.Int J Oral Maxillofac Implants. 2004 Jul-Aug; 19(4): 534-41. PMID: 15346750.

Initial situation

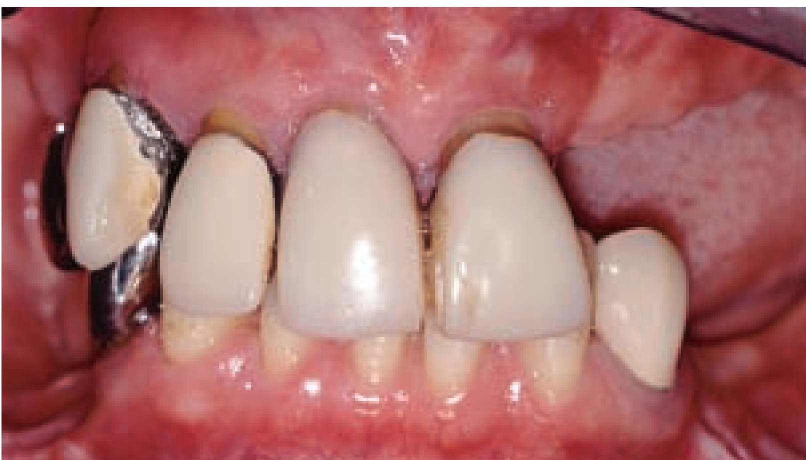

Fig. 34: Initial situation before the start of treatment.

Final situation

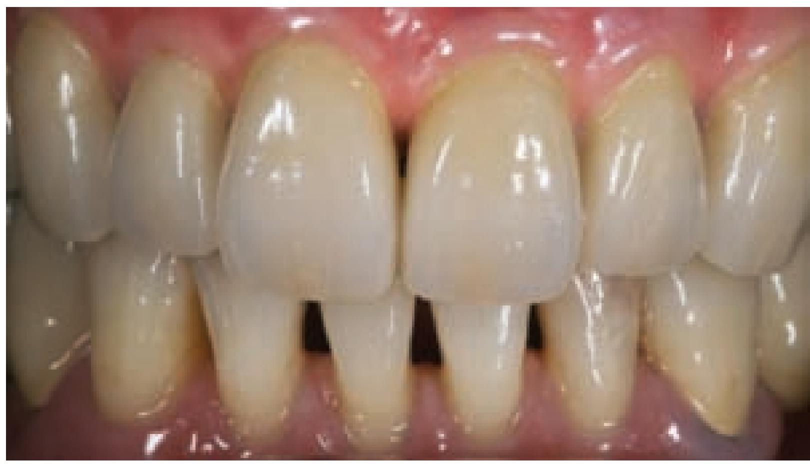

Fig. 35: Clinical situation six years after placing the final prosthesis. Note the clean and stable periimplant soft tissues and well-maintained fixed implant-borne full-arch restoration in the maxilla.

About the author

Dr Hitoshi Minagawa successfully completed his studies in dentistry at Meikai University, Japan. After several years working for private clinics, he founded his own practice in Hamura, Tokyo in 1994. Dr Minagawa specializes not only in implant treatment, but also in laser treatment. He is an active instructor for laser-technologies (since 2001) and CT (since 2008). He has been one of the top instructors in charge of the advanced course in Tokyo for the CAMLOG® Implant System since 2007. He is a board member and the course instructor for SJCD Tokyo. He also travels domestically and internationally for lecturing. In 2003, he lectured at the "MEET FRIENDS" Experience Exchange in Baden-Baden, and he was one of the speakers for the 1st International CAMLOG Congress in Montreux, Switzerland in 2006 and the National CAMLOG Congress in Tokyo in 2007. Dr Hitoshi Minagawa is committed to his continuing education, and he is a visiting professor for Kanagawa Dental University. He has also published several books about implant treatment, laser treatment, and periodontal treatment.

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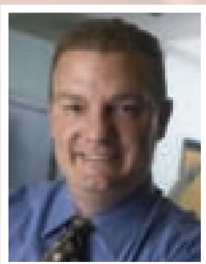


Dr. Joseph A. Favia is a graduate of Loyola University School of Dentistry. He has taken advanced dental education from The Peter Dawson Academy for Advanced Dental Education, The Pankey Institute and an Advanced Bone Grafting mentorship with Dr. Joel Rosenlicht. Dr. Favia currently teaches implant surgical procedures, internationally, to general dentists for Henry Schein's Camlog Implant system. He was honored as the Business Leader of the Year in 2011 by The Chamber of Commerce, received a Heart of Gold Award from the Village of Arlington Heights in 2013, and was voted Best Dentist by the Daily Herald's Readers Choice Awards in 2013, 2014 and 2015. Dr. Joe maintains a private practice in Arlington Heights, IL.

COURSE DESCRIPTION

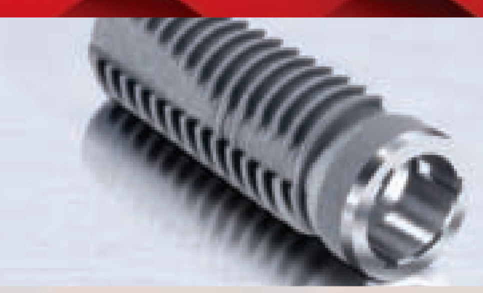
This course is intended for dentists who want to integrate both the surgical and restorative phases of dental implants into their daily practice. Patient selection, treatment planning, critical anatomical structures when considering dental implants, and surgical placement; as well as restorative options with the Camlog implant system, are presented and discussed.

COURSE OBJECTIVES

- Select patients for straight forward implant surgery and restoration
- Treatment-plan the case
- Choose the appropriate surgical and restorative approach and Camlog components for the case
- Understand pre- and post-operative care

COURSE CONTENT

- Why implants?
- Anatomy and important structures
- Patient selection, diagnosis and treatment planning
- Surgical and restorative principles
- Introduction to surgical and restorative aspects of the Camlog system
- Surgical and restorative hands-on: every participant can place their own implant on a practice mandible



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Revisiting the "Pont-abut": A Case Study in the Anterior Zone

Dr. Edy Braun

Revisiter le «Pont-abut»: une étude de cas dans la zone antérieure

Introduction

Modern implantology provides clinicians with a wide assortment of options for treating edentulous patients. Implants come in varying diameters, lengths, prosthetic connections, surface treatments, body shapes, thread designs and materials.[1] These characteristics, combined in various ways, have been used to create implant lines that give optimal behaviour in particular situations to facilitate surgical placement, initial stability and prosthetic versatility. As a result, modern implantology offers highly predictable restorative options for today's clinicians.[2, 3]

While many companies offer a range of implants to address the diverse needs of patients, there is no single universal implant system that is optimal for every possible situation. Thus, the prudent implantologist will be well-versed in a number of different systems and prosthetic techniques to offer the best possible choice to meet the specific aesthetic and functional needs of the individual patient. Clinicians placing implants must also be competent in the management of complications, understand the limitations and risks associated with implant treatment, and cognizant of their own abilities prior to tackling certain cases.[4]

A situation that practitioners commonly face is the narrow edentulous ridge. Depending on the desired prosthesis, aesthetics and anticipated functional load, the site may require additional bone grafting to allow an appropriately-sized implant to be placed. In some cases, anatomic issues such as impacted teeth, root proximity, sinus anatomy, and nerve position may limit the space available. Patients may wish to avoid the additional surgical or orthodontic procedures required to correct these limitations. Therefore, to address the needs of this patient population, narrower implants have increasingly been utilized.[5]

Narrow diameter implants, usually < 3.0mm in diameter, have also been termed "mini dental implants" (MDI) and "small diameter implants" (SDI).

Traditionally, narrow implants have been used as a lower cost, minimally-invasive method to improve the retention of over-dentures with "O-ball" attachments.[6, 7] Advances in the strength of titanium alloys have expanded the range of use for narrow implants to include single-tooth and multi-unit fixed restorations.[8] Long-term studies have shown that appropriate use of narrow implants in these situations has been successful.[9,10]

However, due to the limited implant diameter, most narrow implants are designed as one-piece fixtures with the implant body joined to a straight trans-mucosal

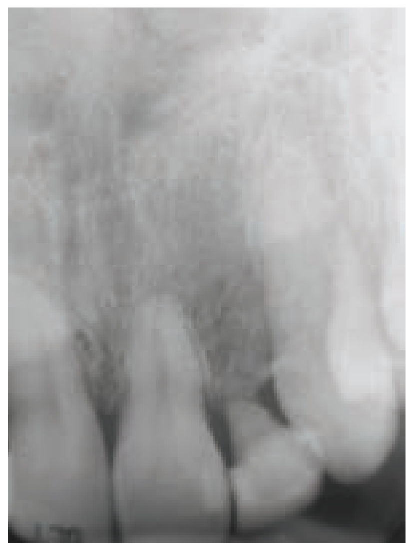

Figure 1: Radiograph at initial presentation

abutment for strength, but with limited options to customize the abutment. This presents a prosthetic and aesthetic challenge in the anterior maxilla, where an angulated abutment may be preferred to improve the emergence profile. As a result, clinicians have developed a method for using the shorter "O-ball" abutment to retain a fixed crown. Case reports using this so-called "pont-abut" crown design have shown long-term success.[11,12] This article reports on a case in which a congenitally missing permanent maxillary lateral incisor was restored using a narrow-diameter one-piece implant and "pont-abut" crown.

Case Report

A 20-year old female patient presented to the clinic with a retained, but very loose, primary maxillary left lateral incisor (#62). A radiograph was taken to reveal a congenitally missing permanent maxillary left lateral incisor (#22) and practically no bone support for the remaining primary tooth (Fig. 1). The adjacent permanent central (#21) also showed signs of apical resorption from previous orthodontic therapy. At the time of orthodontic therapy, the primary tooth was restored to improve aesthetics and maintain the space for a more definitive restoration. Due to severe mobility of tooth #62 and risk of imminent loss, the tooth was extracted and a temporary flipper denture was fabricated. At subsequent appointments, we discussed various treatment options including a Maryland bridge, conventional bridge and implant options. The patient desired an implant to replace the missing tooth, as it would avoid compromising the adjacent teeth.

Radiographic and clinical measurements indicated a narrow ridge bucco-palatally. However, in this case the more limiting dimension was the mesiodistal space remaining between the adjacent teeth #21 and #23, which was even narrower than the bucco-palatal dimension. Radiographic and clinical measurements revealed 5mm of mesiodistal space interdentally at the crest between #21 and #23 (figs. 2 & 3). This crestal dimension was the narrowest constriction between the teeth, as the roots of the adjacent teeth were either parallel or diverged away from each other more apically. There was adequate vertical space available corono-apically (15mm).

The patient did not wish to pursue orthodontic treatment to widen the edentulous space. To ensure a minimum of 1 to 1.5mm of bone on each side of the proposed implant (or 2-3mm total), an implant of diameter ~2-3mm had to be selected. This limited the choice to using a narrow diameter implant and restoring it with a "pont-abut" prosthetic design to manage the aesthetic limitations.

The implant placement procedure was performed with minimal discomfort and no complications were encountered. A conservative flap approach was employed in this case to visualize the exact position of the bone in both mesiodistal and bucco-palatal dimensions at the crest (Fig. 4). It was also important to respect the alveolar ridge anatomy to avoid perforating into the bucco-apical concavity. This required slight angulation of the implant preparation. Soft type-3 bone was encountered and, therefore, the initial osteotomy preparation required only a small perforation of the cortical plate using a 1.1mm pilot drill taken to about one third the depth of the final implant length. The remaining osteotomy was created by the implant as it was self-tapped using a winged thumb wrench to

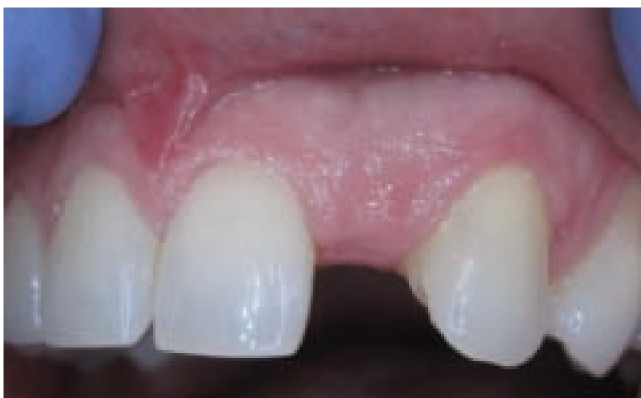

Fig. 2: Edentulous site after post-extraction healing (buccal view)

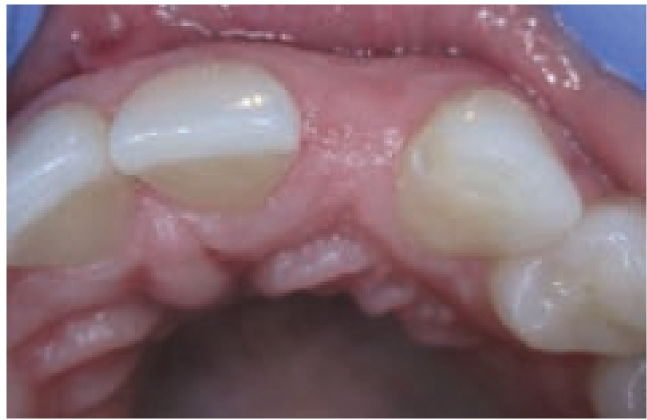

Fig. 3: Edentulous site after post-extraction healing (occlusal view)

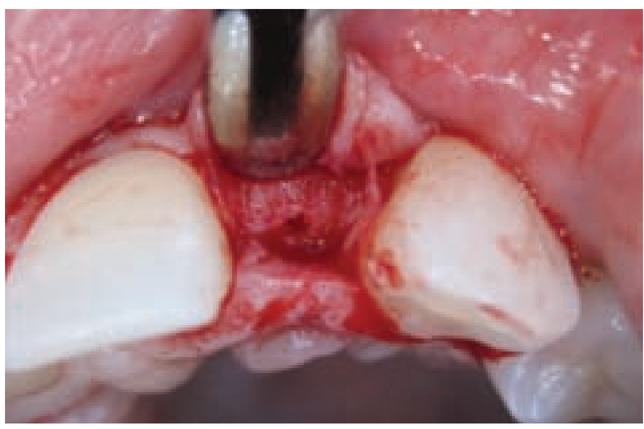

Fig. 4: Flap elevation at time of implant placement

Fig. 5: MOB-15 implant fixture (Imtec/3M ESPE).

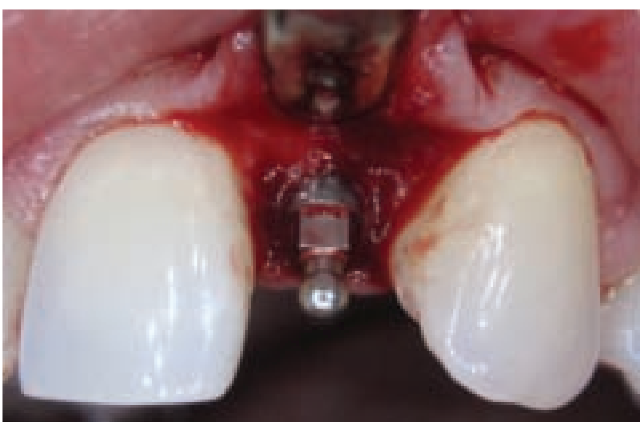

Fig. 6: Optimal implant placement depth

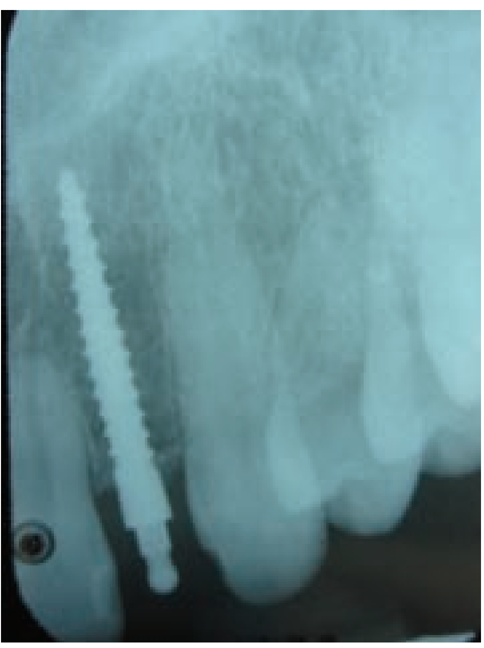

Fig. 7: Radiograph of implant placement

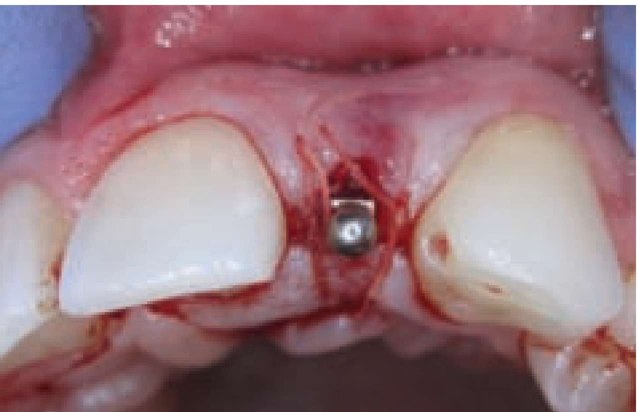

Fig. 8: Implant sutured

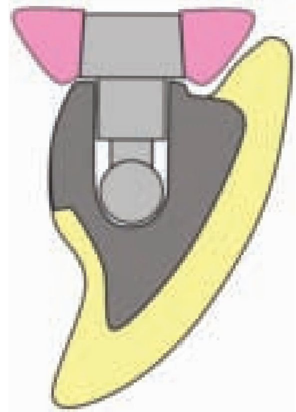

Fig. 9: “Pont-abut” crown schematic

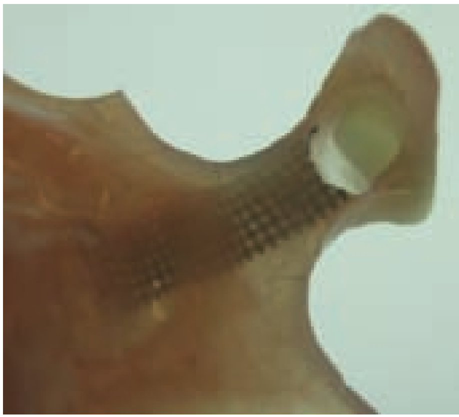

Fig.10: Flipper denture hollowed-out to fit over O-ball

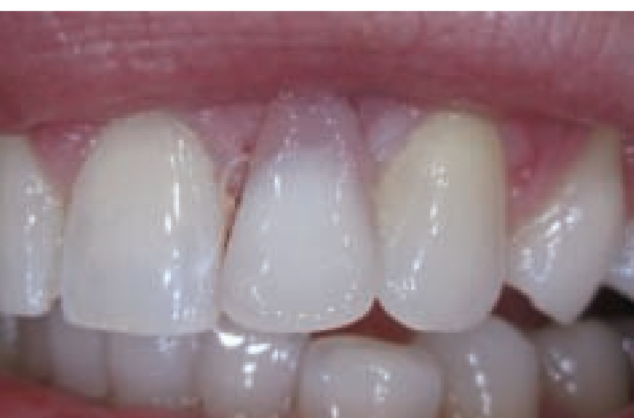

Fig. 11: Flipper denture inserted

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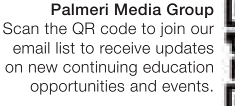

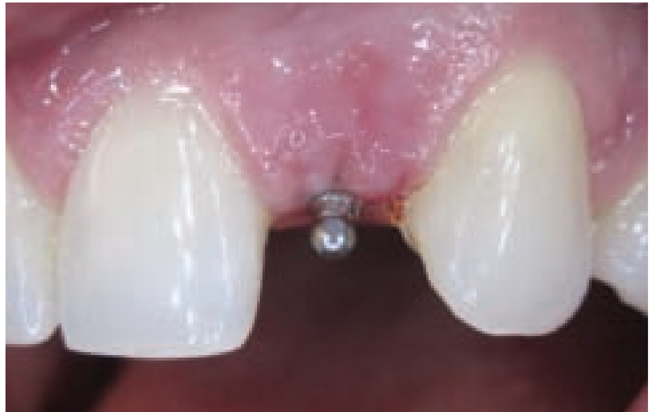

Fig. 12: Implant several weeks after placement (buccal view)

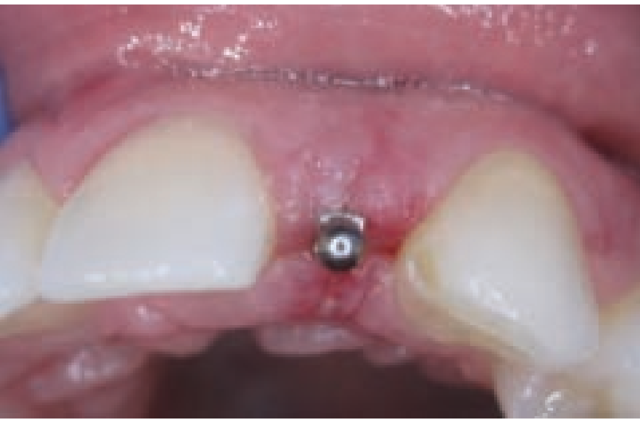

Fig. 13: Implant several weeks after placement (occlusal view)

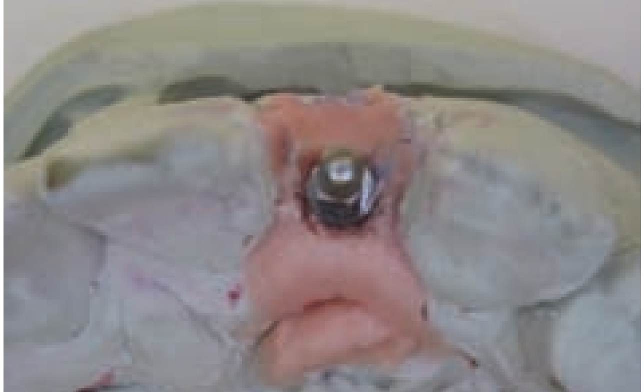

Fig. 14: Implant soft-tissue model

Fig. 15: “Pont-abut” crown

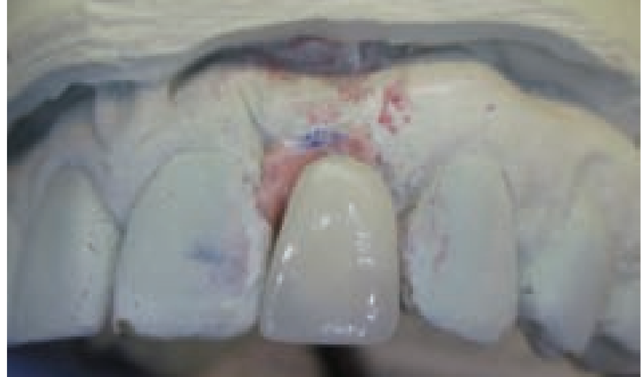

Fig. 16: Crown as seated on model (buccal view)

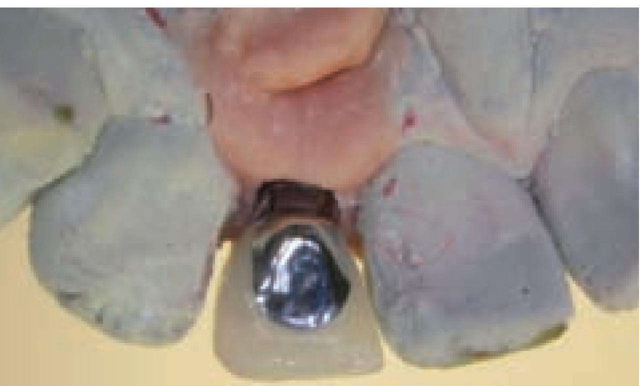

Fig. 17: Crown as seated on model (palatal view)

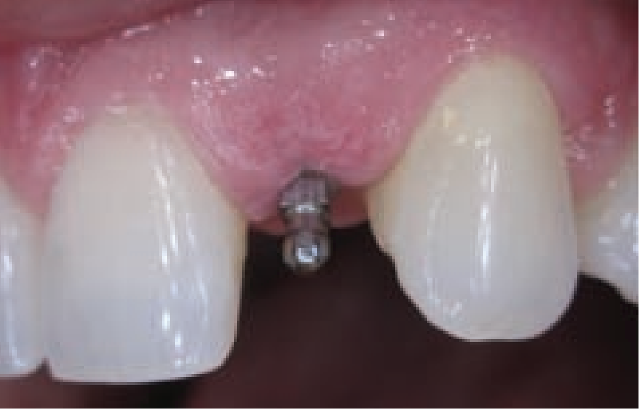

Fig. 18: Implant at 3 months healing (buccal view)

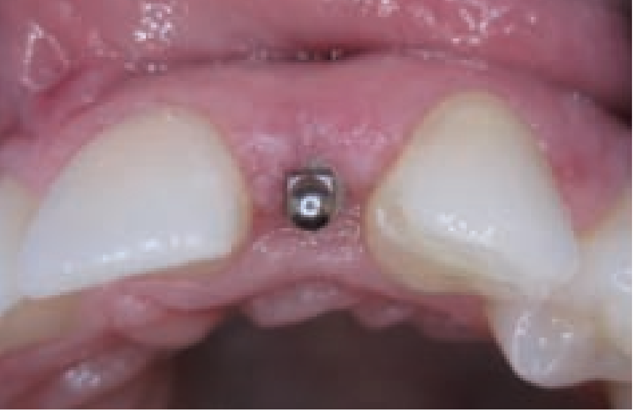

Fig. 19: Implant at 3 months healing (occlusal view)

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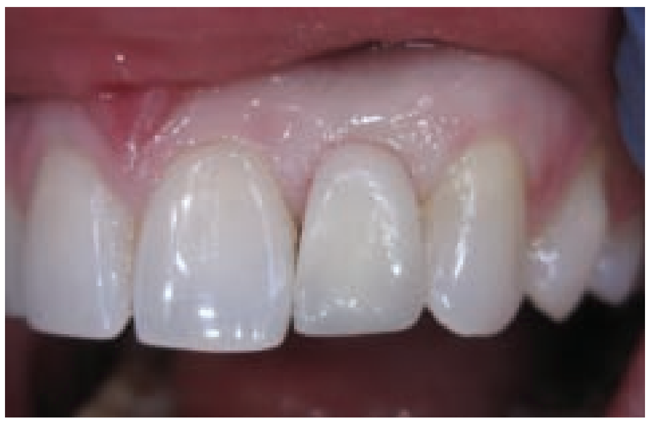

Fig. 20: “Pont-abut” crown inserted (buccal view)

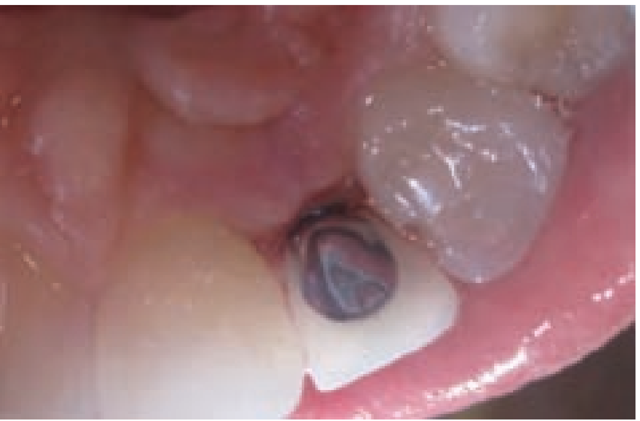

Fig. 21: “Pont-abut” crown inserted (palatal view)

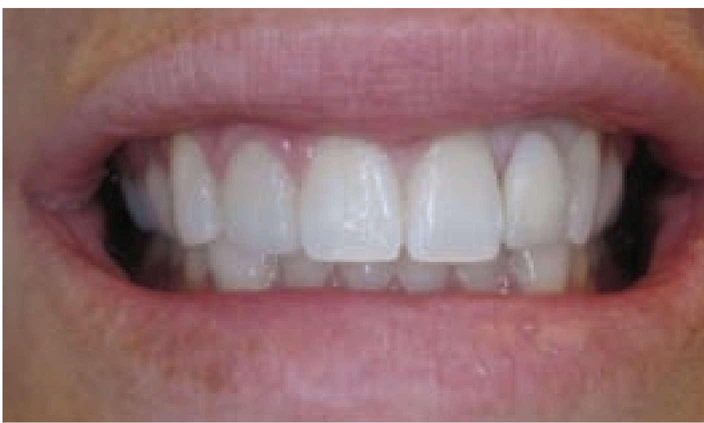

Fig. 22: Happy patient with aesthetic result

the final insertion depth. In this case a 2.4mm x 15 mm MOB (MOB-15) fixture was used (Imtec/3M ESPE). (Fig. 5, 6, 7, 8)

The depth of implant placement and position of the implant neck was chosen based on the prosthetic principles for the “pont-abut” crown. The crown was fabricated to fit past the “O”-ball and engage the square portion of the implant abutment for counterrotational resistance and retention. The marginal fit was flush to the circular platform on the implant just apical to the square (Fig. 9). It was therefore imperative that the implant be placed at a depth which allowed the entire square portion and some of the circular neck of the implant to remain supra-osseous to avoid having the crown impinge on the “biologic width” zone around the implant.

Notice also that the long-axis of the crown was angled with respect to the long-axis of the implant, as would be expected due to the angulation of the ridge in the maxillary anterior zone. The angle between the crown and implant, along with the relatively coronal position of the “O-ball” abutment, required the buccal aspect of the crown to form a “ridge-lap” which could be adjusted in height to idealize the gingival marginal contour.

The surgical site was sutured, and the patient’s flipper denture was adjusted to passively fit over the “O”-ball of the fixture to avoid creating any micro-movement or pressure on the implant (Fig. 10, 11). The patient was seen regularly for post-operative visits for several weeks while the soft-tissue healed (Fig. 12, 13). Additional monitoring was performed over the course of 3 months, while waiting for osseointegration to occur. An immediate fixed temporary prosthesis could also have been employed, as there was excellent primary implant stability and the occlusion could be adjusted to minimize loading. We erred on the side of caution, and allowed the implant to heal unloaded.

Upon successful osseointegration of the implant, a pick-up impression was taken to produce a laboratory model containing an implant analog (Fig. 14). The ‘pont-abut” crown was fabricated, and the fit and contours checked on the models (Fig. 15, 16, 17). Although there was some soft-tissue recession around the implant during healing, it was not sufficient to expose the circular platform apical to the square portion of the implant (Fig. 18, 19). This platform remained subgingival and had to be exposed for proper impressions and to avoid soft-tissue impingement during seating and cementation of the final prosthesis.

After confirming proper occlusion, contacts, marginal fit and shade, we obtained approval from the patient to proceed with final insertion. The “pont-abut” crown was cemented using a resin-based cement (Fig. 20, 21, 22). Utmost care was taken to manage cement extrusion into the peri-implant sulcus. The patient was instructed on proper flossing techniques to clean the crown, especially under the buccal ridge-lap portion.

Conclusion

In this case, the unconventional use of an “O-ball” abutment with a “pont-abut” crown permitted the placement of a minimally-invasive aesthetic fixed restoration in this very narrow edentulous space. While there are disadvantages to using this approach (difficulty with hygiene, concerns about long-term retention, inability to probe buccally to monitor bone levels), these issues can be mitigated through careful patient case selection, occlusal design and routine professional maintenance. Used prudently, the “pont-abut” narrow implant prosthesis offers clinicians an additional option to treat patients with fixed long-term solutions in situations where anatomical limitations restrict the use of a more conventional implant prosthesis.

We wish to express sincere thanks and acknowledge the contribution of Dr. Julian Bower (general dentist) and Jerry Klein (laboratory technician at JJK Dental Ceramic Studio) for making possible the excellent aesthetic outcome of this case.

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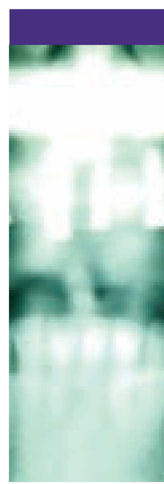
About the author

Dr. Edy Braun, Hon. B. Sc., Cert. Perio, F.R.C.D.(C) is a periodontist who earned his B.Sc. and D.D.S. from the University of Toronto (2001). After general practice residencies and a periodontal program in the USA, Dr. Braun became board certified by the Royal College of Dentists of Canada in 2007. He currently practices at his periodontics specialty office in Vaughan.



Solving Complex Treatment Challenges

Relever les défis relatifs à un traitement complexe

Richard Winter, DDS

INTRODUCTION

Patients often present for treatment with complex issues that can be multifactorial in nature. The skeletal, dental, periodontal, anatomic, and neurosensory' factors can often he misconstrued as one isolated problem set. The patient is usually concerned with the main issues of pain and cost; arguably, two of the most motivating factors in seeking and accepting treatment.

This article is a case study of a patient with a Class II Division 2 malocclusion, severe periodontal disease, and a painful occlusion. The journey undertaken to alleviate her pain led to a treatment plan of full-arch implant rehabilitation, that successfully treated her temporomandibular joint (TM) and occlusal pain, while providing the aesthetic outcome that she desired.

CASE REPORT

Diagnosis and Treatment Planning

This patient {Figure 1) presented with acute pain from chewing, as she bit in to her incisive papilla every time that she closed in to centric occlusion. In addition, she suffered from chronic TMJ pain that negatively affected her overall outlook, leading her to many dentists who strictly proposed dental prosthetic plans that involved replacing crowns to solve her problems. While this modality may have achieved some level of success, having generalized severe periodontitis present may have limited the longevity of any such solution.

The mandibular incisors occluded with her incisive papilla (Figure 2), and indentations from occlusal traumatism were present with mucosa that was denuded, ulcerated, and painful. The tack of anterior coupling, together with advanced (type IV) periodontal disease, led to super-eruption of the mandibular teeth. The curves of Spee and Wilson were uneven, and further demonstrated the lack of occlusal harmony (Figure 3).

Records taken included study models, bite registrations at open- and closed-vertical positions, a face-bow transfer, photographs, a CAT scan, and a diagnostic wax-up.

The decision was made to edentulate the maxilla with socket preservation; use an interim maxillary denture to work out her proper vertical dimension of occlusion (VDO); followed by full-arch implant rehabilitation. The DICOM image was electronically sent to 3DDX (3D Diagnostix) for reformatting. Within 24 hours, the image was delivered so it could be viewed and manipulated with SimPlant (Materialise Dental) software for implant selection, placement, and surgical guide development.

Clinical and Dental Laboratory Protocols

A sterile protocol was observed and the maxillary teeth were extracted with the use of periotomes, luxators (JS Dental), and Physics Forceps (Golden Dental Solutions).

This patient presented with significant buccal exostoses, so the utilization of an atraumatic extraction technique was desired to preserve the buccal shelf of bone. The Physics Forceps works like a Class 1 lever to extract the tooth in an occlusal direction with rotational forces in a gentle fashion (Figure 4). The maxillary edentulation was performed without complications, and the sockets were then filled with demineralized freeze-dried bone allograft with cortical cancellous chips (Puros by Zimmcr Dental), then covered with membranes (Mem-Lok by Bio-Horizons) and sutured with 4-0 Vicryl (Salvin Dental). After healing, the ridge was smooth and keratinized gingiva was abundant (Figure 5).

A provisional denture, lined with tissue conditioner (Hydrocast by Kay-See Dental), was delivered at the time of surgery. The tissue conditioner was changed monthly and resulted in a well-healed maxillary arch.

The VDO was opened 5.0 mm, allowing mandibular tooth display (Figure 6).

The prescription of the maxillary complete denture included the desired overbite, overjet, and VDO; and, it was designed to be the prototypic restoration for the final porcelain bridge rehabilitation. The patient understood that the vertical dimension might need to be changed by cither adding acrylic to posterior teeth or remaking the denture at a later date to ensure that she could accommodate the VDO change (Figure 7).[1]

Within 24 hours of receiving her complete dentures, the patient reported a total cessation of all of her pain. Her joints felt good, and she could eat without biting herself.

The completed denture (approved for speech, aesthetics, comfort, and occlusion) was converted to a scanning appliance by bonding 8 BaSo4 ball (3DDX) to the facial and lingual quadrants of the denture. Then, the patient was sent for a CBCT scan of her maxillary arch utilizing a dual-scan protocol (Figure 7). This protocol included scanning the patient with the

Fig. 1: Preoperative full-facial photo.

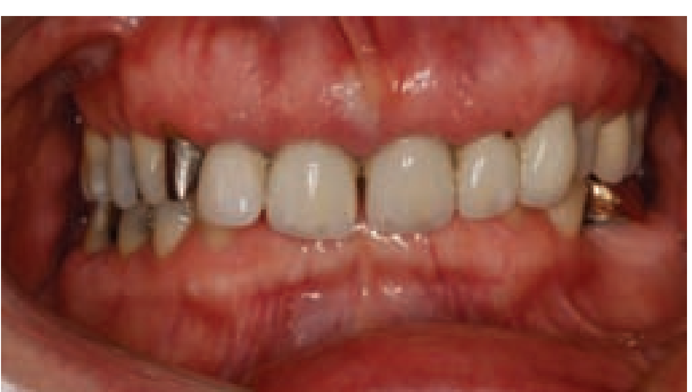


Fig. 2. Retracted preoperative photo showing Class II, Division 2 malocclusion.

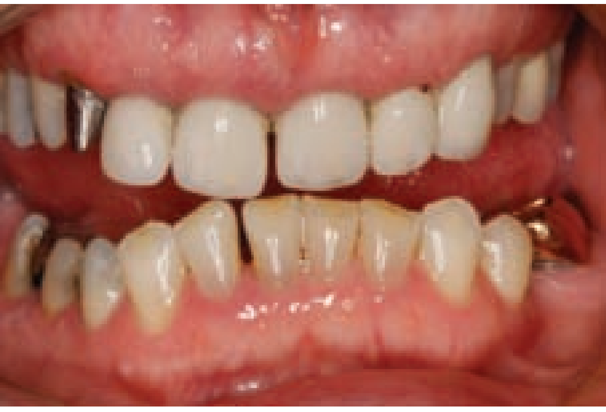


Fig. 3: Retracted intraoral photo showing altered passive eruption, curve of Spee, and curve of Wilson.

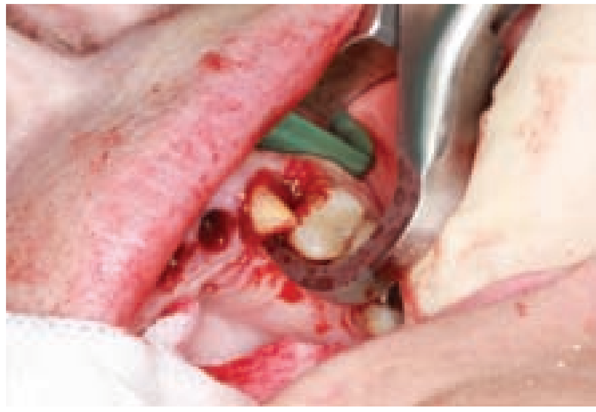


Fig. 4: Physics Forceps (Golden Dental Solutions) being used.

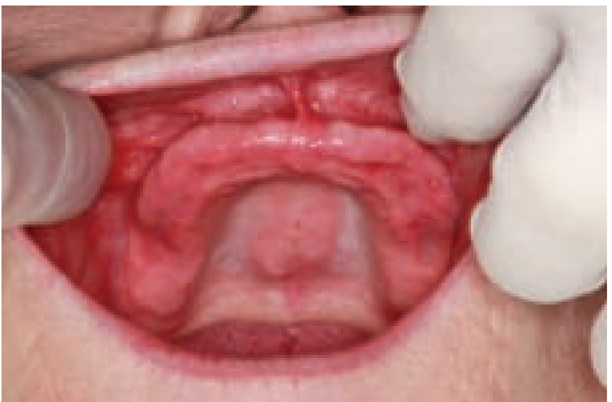


Fig. 5. Maxillary arch after healing.

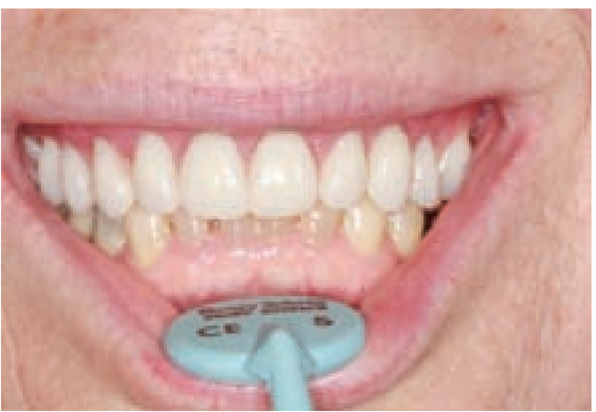


Fig. 6. Retracted view of the first provisional denture showing the increased vertical dimension of occlusion.

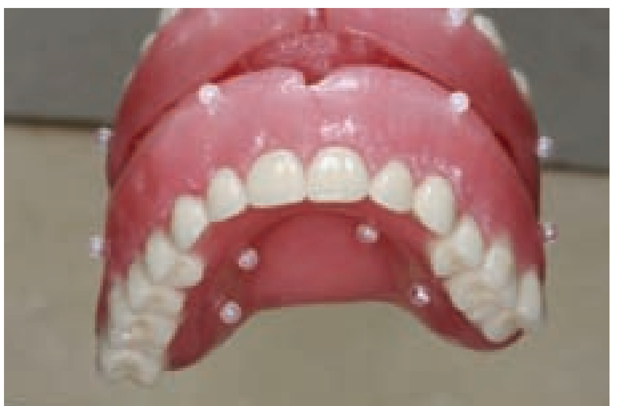


Fig. 7: Approved denture with BaSo4 balls I3DDX [3D Diagnostix]) for CBCT scans.

Fig. 8a: 3DDX rendering of completed maxillary surgical guide.

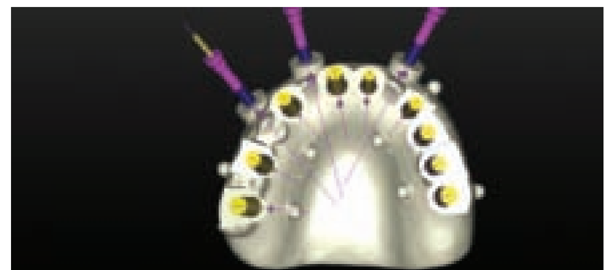


Fig. 8b: Occlusal view of approved surgical guide.

denture in place, along with a separate scan of the denture with the BaSo4 balls, which would then be used to fabricate a surgical guide (Universal SurgiGuide Kit by Materialise Dental) for implant placement.

The 3DDX services include treatment planning, surgical guides, universal keys for osteotomy development, and performing a quality control check on the final SimPlant-based treatment plan. This can ensure a well-fitting surgical guide at time of surgery. Afterr the scan was completed, the balls could simply be removed and cold sterilized for future use. The reformatted images were returned to the doctor and manipulated for proper implant size, distribution, and alignment.

The images were finalized in the SimPlant program and uploaded to 3DDX for surgical guide fabrication and quality control checks (Figure 8).

The surgery was performed utilizing a sterile protocol. After performing two chlorhexidine rinses and anaesthetizing the maxillary arch, the surgical guide was seated and the osteotomy sites were marked with a marking slick. Then, the tissue was trephined with the appropriate soft-tissue trephine drill and plugs removed. The guide was stabilized after making small labial osteotomies and attaching the guide with pushpins to the buccal aspect of the maxillary arch (Figure 9).

Then, the tissue was trephined with the appropriate soft-tissue trephine drill and plugs removed.

The surgical keys were placed to sequentially enlarge the osteotomies and were used to accommodate the different sized surgical drills (Figure 10).

After removal of the guide, the osteotomy placement and

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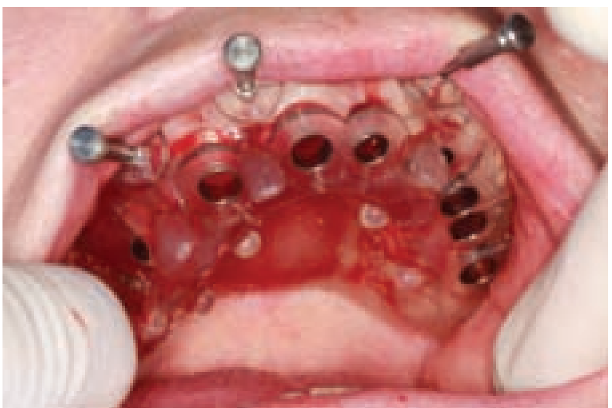

Fig. 9: Surgical guide with pushpins inserted in maxilla.

Fig. 10: Placement of a 2.0-r Tim key for osteotomy development.

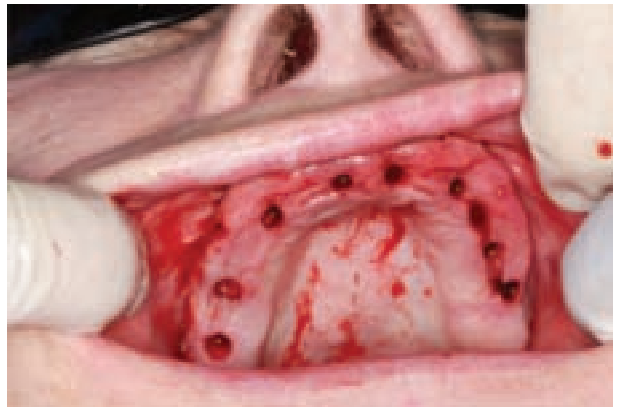

Fig. 11: Appearance of maxillary arch after removal of surgical guide.

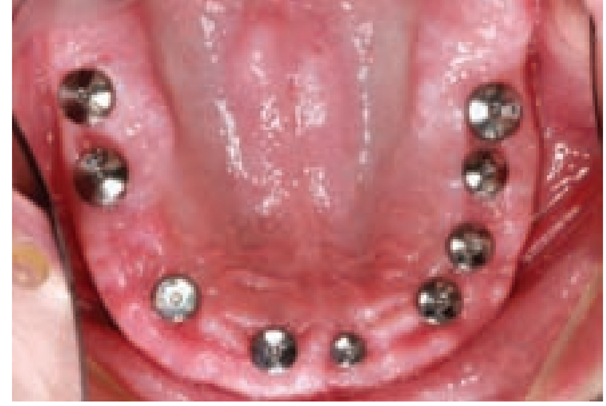

Fig. 12: Occlusal view of all implants with healing abutments prior to imprisoning.

depth were complete, all done without raising a full-thickness flap (Figure 11), Implants (MIS Implants Technologies) were used for their unique condensing design and the use of single-use, sterile, stainless steel final sizing drills. These drills were used immediately prior to the placement of each implant.

Healing caps were placed at the time of surgery (Figure 12) and the denture was relined with tissue conditioner.

After 5 months, the tissues had healed nicely and the panoramic (PANOREX) and individual radiographs displayed no pathology (Figure 13). The removal of the permucosal healing caps demonstrated adequate keratinized gingiva with excellent color and health during placement of the pre-machined abutments (Figure 14),

Placement of the snap cap impression copings (included in the Complete Prosthetic Kit by MIS Implants Technologies) were used for primary' impressions (Hgwe-i5).

A pick-up impression of these snap caps was done with a vinyl polysilox-ane (VPS) impassion material (Aqua-Sil Ultra Extra by DENTSPLY Caulk) that provides up to one minute, 45 seconds of working time. The mouth removal time is 5 minutes, 45 seconds. To transfer the teeth shape, size, incisal edge position, and VDO to the laboratory at the same time, a unique impression transfer method was used.

The approved denture was modified by cutting 4 large openings in the palate of the denture so that impression material could be injected all the way through the denture to the palate.

Then, a pick-up impression of the denture was made so the denture, and the contact with the palate in 4 large circular areas, was all picked up in this impression (Figure 16). When this denture impression was removed, the implant impression could be cross-mounted on to the denture model with the four palatal contact areas. The mushroom- like appendages that stick up from the green and yellow VPS impression can be seen; these are used to orient the denture to the mounted implant

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Dr. Philips is author of the book "Your Guide To The Perfect Smile". His past teaching appointments include Course Director for Aesthetic Dentistry at the University of Toronto, Faculty of Dentistry, Department of Continuing Education; Senior Clinical Instructor for Millenium Aesthethics in Niagara; the Post-Graduate Program in Esthetic Dentistry at the University of Buffalo, SUNY; Continuing Education Course on Cosmetic Dentistry for the Ontario Dental Association; Post Graduate Program in Esthetic Dentistry at Case Western Reserve University School of Dentistry and Professor for the Faculty of Health Sciences, George Brown College. Dr. Philips limits his practice at The Studio for Aesthetic Dentistry in Toronto.

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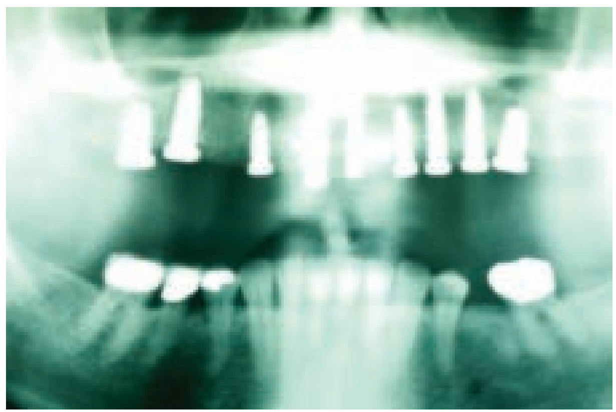


Fig. 13: Panoramic radiograph (PANOREX) showing implant placement.

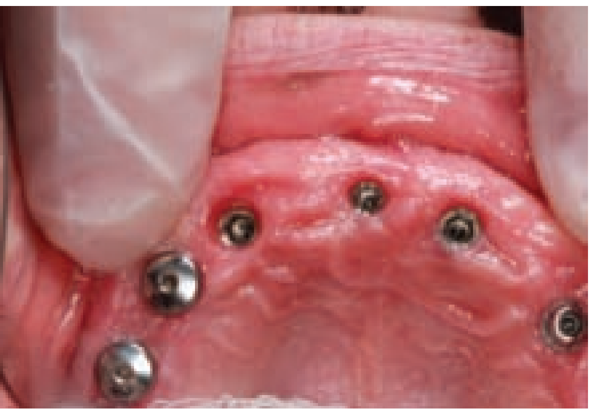


Fig. 14: View of tissue during abutment connection

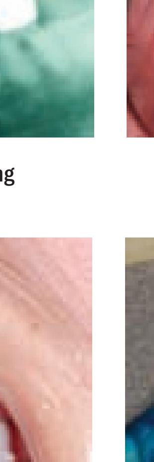
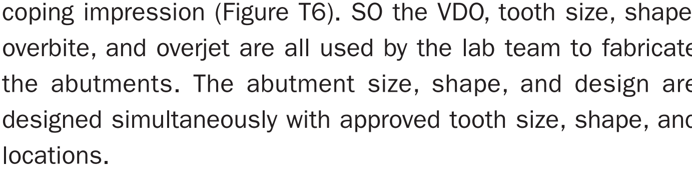


Fig. 15: MIS snap cap impression copping in place (complete Prosthet ic kit [MIS Implants Technologies])

Fig. 16: Aquas il Ultra Extra (DENTSPLY Caulk) pick-up impression of MIS snap caps and imp ression of denture with holes to facilitate cross mounting.



coping impression (Figure T6). SO the VDO, tooth size, shape, overbite, and overjet are all used by the lab team to fabricate the abutments. The abutment size, shape, and design are designed simultaneously with approved tooth size, shape, and locations.

Upon completion of the laboratory mounting, copings were fabricated to ensure that the abutments had been captured properly. Radiographs were taken to ensure all copings were seated and to see that the copings were designed with retentive elements for the secondary pickup. (Mr. Lezek Rapa, MDT, at Rapa Dental Ceramics, developed this coping technique as well as the denture cross-mounting technique.) Pre-machined abutments were selected from the MIS abutment selection kit by the dental lab team. These were more cost effective than fabricating custom abutments, helping to keep the costs for the case with in the patient's budget. Abutments were milled and delivered with abutment placement jigs (Figure 17).

Fig. 17: Abutments were m il led and delivered with abutment placement jigs.

The careful attention to all details allowed the lab team to provide the bridge superstructure for try-in and verification at the time of abutment delivery. The superstructure had the anterior sextant placed in wax (per doctor's prescription) to serve as a further check to verify that the aesthetics and phonetics were accurately transferred.

Endodontics

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With **Rony E. Dagher,**
B.Sc., DDS, M.Sc.(Cert. Endo), FRCD(C)
Specialist in Endodontics and Traumatology

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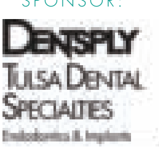

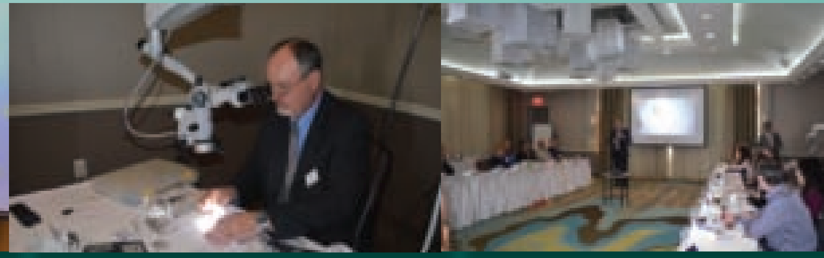

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The course objectives will be for GPs to become confident in diagnosis, anesthesia, anatomy, instrumentation, irrigation and obturation.

The hands-on component will involve various Tulsa rotary systems and products.

Dr. Rony Dagher is an Endodontist and a fellow with royal college of Dentist of Canada who maintains a private practice in Mississauga, Ontario, Canada.

He is a graduate from University of Toronto with a Bachelor of Science degree. He attended Case Western Reserve University where he graduated with a DDS.

He attend Toronto General Hospital surgical residency program and practiced general dentistry for 7 years prior to enrolling and completing a specialty master's degree in endodontics at the University of Toronto.

Dr. Dagher has served as an instructor at both the undergraduate and graduate endodontic department at the University of Toronto. He is currently on the board of endodontic examiners for the Royal College of Dentist of Canada.

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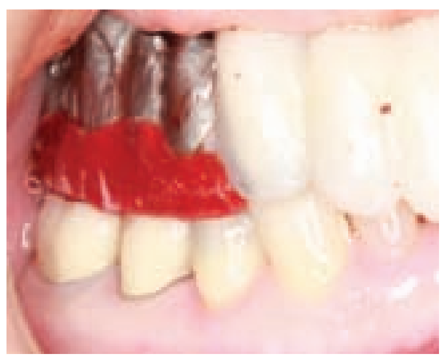
Fig. 18a: Right lateral view of bridge framework with (Primotec USA) and wax-up of anterior teeth: verifying aesthetics, phonetics, and the maxilla-mandibular relationship.

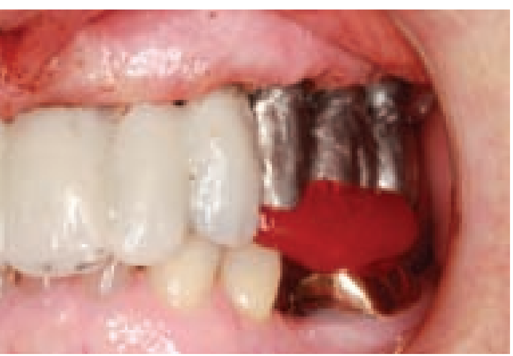
Fig. 18b: Left lateral view of same.

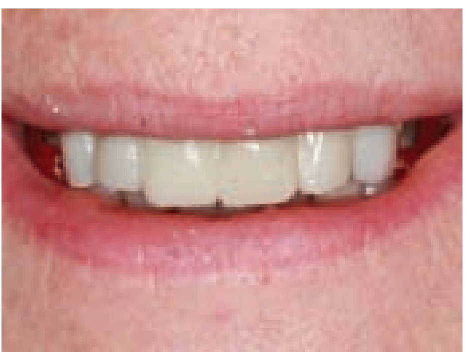
Fig. 18c: Framework with white anterior wax-up to verify aesthetics and the in cisal-edge position.

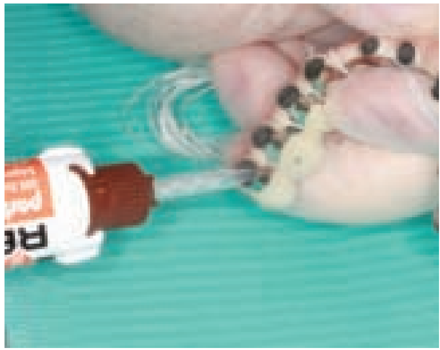
Fig. 19: Cementation (Retrieve [Parkell]) of the definitive bridge.

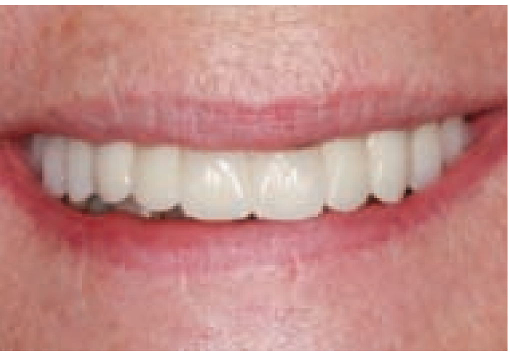
Fig. 20: Postoperative smile.

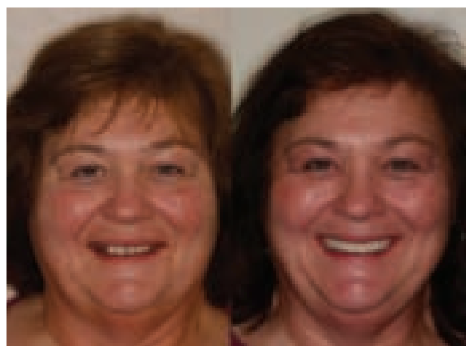
Fig. 21: Pre-op and post-op photos.

The posterior bite registration was placed in Primotec pattern resin (Primotec USA) on the posterior occlusal surfaces to verify that concentric closure was occurring and the bite had been registered correctly (Figures 18a and 18b). It is notable that changes to the wax-up of the anterior 6 teeth were made with wax carving instruments chairside to ensure that the overjet and overbite were indicative of that desired by the patient and doctor (Figure 18c). This superstructure (with the posterior occlusal relationship, anterior tooth size, shape, and position all verified) was locked in to the mandibular arch with another bite registration of Blu-Mousse (Parkell).

This would serve for remounting purposes and well as to protect the wax up from fracture during transport.

The definitive bridge had been tried in its bisque bake form, and the patient had approved the aesthetics and phonetics. After final characterization and firing, a resin-based (implant) cement (Retrieve by Parkell) was used to cement the bridge while allowing for the possibility' of retrieving it at a later date, should the need arise. This resin-based long-term temporary cement has an inherent flexibility that allows for retrieval in an atraumatic fashion as its shear strength will allow for dislodgement (Figure 19),

The final photos display the countenance of the patient and nonverbally verify the correct VDO. The patient was aware that she would still have a Class II occlusion at the end of treatment and was absolutely fine with that, as l o n g as her pain was eliminated.

She could finally chew and have a smile that she was proud of, after years of being dissatisfied (Figure 20).

CLOSING COMMENTS

The bilateral balanced and lingualized occlusal schemes selected for this patient helped allow maxillo-mandibular freedom to

decrease stress on her joints in working and non-working movements, and in protrusion.2 The shallow occlusal guidance and restoration of lost VDO further helped her achieve bone-braced condylar positions.

This position was found by using her removable denture as the prototypic restoration and recreating it in a porcelain-fused-to-gold maxillary implant prosthesis. The subject of VDO and its resulting stability after altering this measurement are subject to debate. It is conjectured that VDO is a range, not a definitive number. The adaptive response of the patient, the occlusal biting scheme, and frequency of resting contacts can help determine stability of a dentition after altering the VDO. Inevitably, it is the responsibility of the clinician to help the patient achieve a restorative result that falls within the envelope of an acceptable VDO. The ability to find a comfortable joint position and a cosmetic improvement helped maintain a strong and favorable relationship during all phases of surgical and prosthetic rehabilitation. After seeing the before and after photographs (Figure 21), the patient remarked, "That picture shows me, and how I felt at the beginning and end of treatment...that photo tells the entire story!"

Acknowledgement

Dr. Winter would like to thank Mr. Leszek Rapa, MDT (Rapa Dental Ceramics) for the innovativeness and laboratory excellence that he brings to Dr. Winter's cases.

References

1. Girtelson GL. Vertical dimension of occlusion in implant dentistry: significance and approach, Implant Dent. 2002; 11; 33-40.
2. Pound E. Let /S/ be your guide. J Prosthet Dent. 1977; 38:482-489

About the author

Dr. Winter is a Master in the AGD and a Diplomate in the American Board of Oral Implantologists/Implant Dentists and in the International Congress of Oral Implantologists. He holds Fellowships in the Academy of Dentistry International and the International College of Dentists. He graduated from the University Of Minnesota School Of Dentistry in 1988. He has published numerous articles on implant and reconstructive dentistry emphasizing upgradeable dentistry and general dentistry as a specialty. He can be reached tor lecture information via e-mail at rick@winterdental.com.

Dental Facial Aesthetics

NEW Regular Feature

Therapeutic use of Botulinum toxin *for the treatment of periodontal disease*

Warren Roberts, DMD and Janet Roberts, BSc, DMD

The primary mechanism of action of botulinum toxin type A (BoNT-A) is on the vesicle release containing acetyl choline at the neuromuscular synapse. This action of BoNT-A causing muscle relaxation has been used extensively in the cosmetic area to relax muscles causing facial lines and therapeutically in hyper-contraction of muscles causing conditions such as distonias, bruxing and clenching.

Although there are numerous articles documenting the primary mechanism of action of BoNT-A, and its therapeutic use in hyper-muscular contraction, the current literature is extremely scarce with respect to the secondary and tertiary mechanisms of action of BoNT-A and its therapeutic use on pain and the CNS.

This paper presents the results and conclusions of two different research papers on the topic of stress, anxiety and depression: The first paper is a current concept consensus report on the research concluding that stress and depression can cause or exacerbate periodontal disease.

The second paper concludes that BoNT-A placed in the glabella decreases negative mood and depression.

Treatments directed at decreasing stress, anxiety and depression can improve periodontal conditions.

Hypothesis: The Glabella placement of BoNT-A in individuals with periodontal conditions, caused or influenced by stress, anxiety and/or depression can improve the condition of the periodontium.

Background

Numerous practitioners have realized the benefits of treatment with Botulinum Toxin type A (BoNT-A) and have incorporated it into their treatment plans. Others have a mistaken preconception that it is only a cosmetic procedure. This article is intended to bring awareness to the use of BoNT-A into the broad treatment regime for our patients.

Relaxed

#1 Full Face Frontal
f-9, 1.5m

#2 Sagittal Right
f-9, 1.5m

#3 Sagittal Left
f-9, 1.5m

#4 45° Right
f-9, 1.5m

#5 45° Left
f-9, 1.5m

Active
Contract neck muscles, clench teeth, draw lower lip (as in expression of sadness/melancholy).

#6 Full Face Frontal
f-9, 1.5m

#7 Sagittal Right
f-9, 1.5m

#8 Sagittal Left
f-9, 1.5m

#9 45° Right
f-9, 1.5m

#10 45° Left
f-9, 1.5m

Fig. 1a

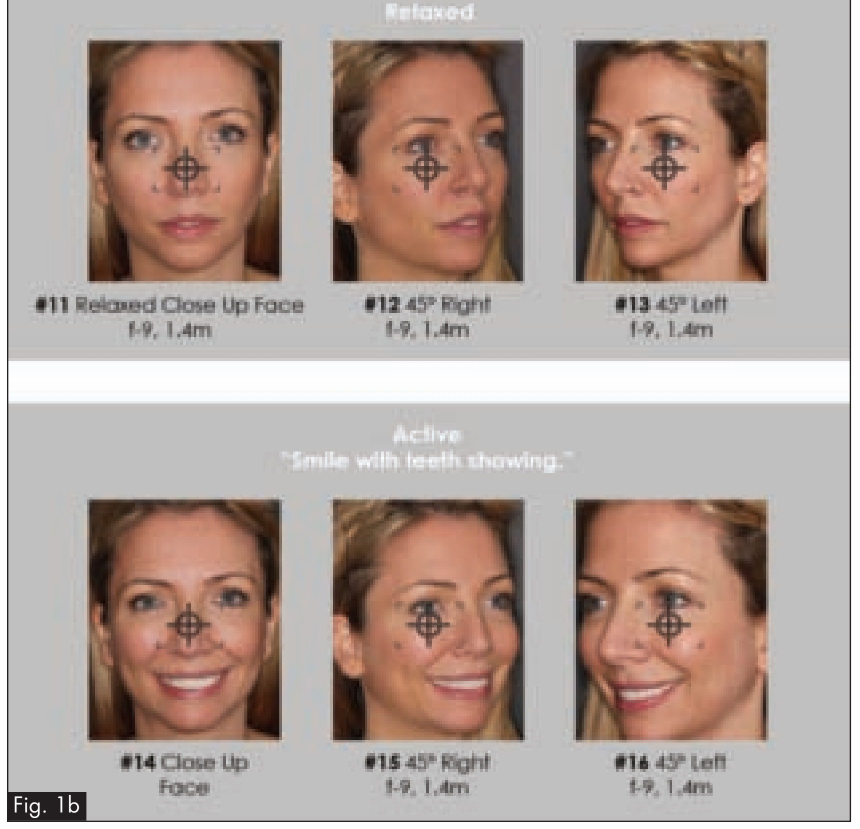

Fig. 1b

Historically the first commercial use of BoNT-A was not for cosmetic purposes. Dr. Scott in the 1960's was using BoNT-A 'Octagon®' for the ophthalmic treatments of blepharospasm and 'lazy-eye syndrome.' Serendipitously, the cosmetic use was discovered when injecting to relax the hyper contraction of the lateral rectus, close to orbicularis oculi, resulting in a smoothing of the 'crow's feet'.

There are currently only eight FDA approved usages of the medication. However, there are over a hundred off-label uses. In 2007, British Columbia dentists were among the first to utilize BoNT-A for cosmetic treatments, and to subsequently appreciate the potential in dental therapeutic treatments. In the USA, the majority of state boards have approved, or are in the process of approving, the usage.

Clinically, BoNT-A can be integrated in the dental therapeutic treatments and diagnosis of bruxism, clenching, TMD, pain management, myofacial pain, trigeminal neuralgia, periodontics, endodontics, implant surgery, sleep apnea, and their effect on smile design enhancement.

Relaxed

#17 Upper Face (Frontalis)
f-16, 0.8m

#18 Upper Face (Glabella)
f-16, 0.8m

#19 Upper Face Right 45°
(Crow's feet)
f-16, 1m

#20 Upper Face Left 45°
(Crow's feet)
f-16, 1m

Active

#21 Upper Face (Frontalis)
f-16, 0.8m
"Lift your eyebrows."

#22 Upper Face (Glabella)
f-16, 0.8m
"Eyes slightly open and frown like you're really mad."

#23 Upper Face Right 45°
(Crow's feet/Bunny lines)
f-16, 1m
"Eyes slightly open and squint like you're in a sandstorm."

#24 Upper Face Left 45°
(Crow's feet/Bunny lines)
f-16, 1m
"Eyes slightly open and squint like you're in a sandstorm."

Fig. 1c

There are numerous articles in the medical literature of which the majority of treatments, as previously stated, are off-label; few of those articles being in the dental literature. Where are the research articles in the periodontal literature illustrating the therapeutic use of BoNT-A?

Clinical Hygiene Periodontal Protocol -Part of our diagnosis and treatment for all adult patients is a thorough exam and periodontal probing. Depending on the individual patient's maintenance requirements, a 3- to 6-month recall program is instituted, as part of our standard maintenance protocol. Often, there is a patient that is following their recall instructions properly and attending their recall appointments, however, various periodontal pockets persist . Another scenario is when a long term 'normal-hygiene' patient returns for

Fig. 1d

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Full Face
Frontal Non-Retracted View
f-9, 1.5m

Full Smile
Frontal Non-Retracted View
f-29, 1:3 Magnification

Full Smile
Right Non-Retracted View
f-29, 1:3 Magnification

Full Smile
Left Non-Retracted View
f-29, 1:3 Magnification

Upper & Lower Teeth
Frontal Retracted View
f-29, 1:3 Magnification

Upper & Lower Teeth
Right Retracted View
f-29, 1:3 Magnification

Upper & Lower Teeth
Left Retracted View
f-29, 1:3 Magnification

Maxillary Arch
Occlusal Retracted View
f-29, 1:3 Magnification

Mandibular Arch
Occlusal Retracted View
f-29, 1:3 Magnification

Maxillary Anterior View
Frontal Retracted View
f-32, 1:1.5 Magnification

Maxillary Anterior View
Right Retracted View
f-32, 1:1.5 Magnification

Maxillary Anterior View
Left Retracted View
f-32, 1:1.5 Magnification

Fig. 1e

Fig.1a-e: PTIFA_RFRP

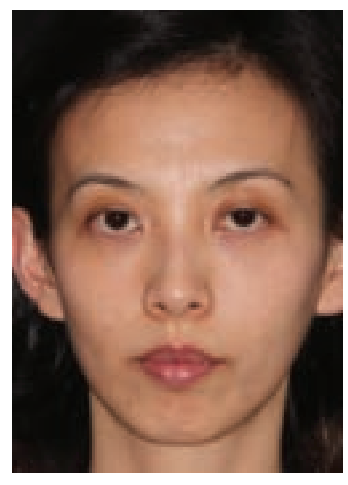


Fig. 2A: Full Face Frontal Relaxed - pre Botox treatment

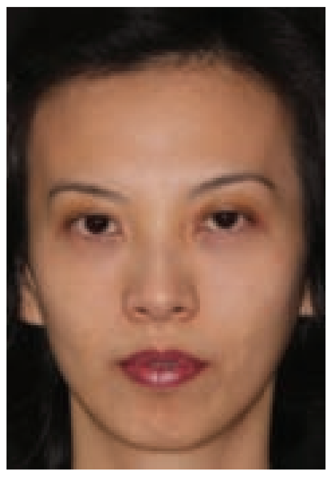


Fig. 2B: Full Face Frontal Relaxed 2 weeks post Botox Cosmetic (upper face) treatment with increased Mx tooth display

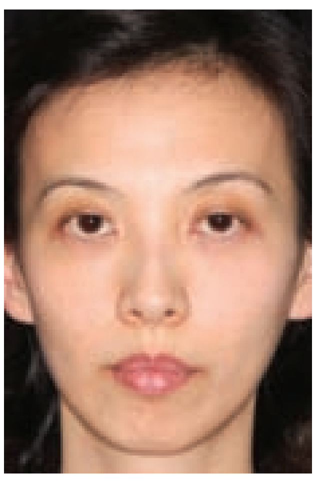


Fig. 3A: Close up Face Relaxed -pre Botox treatment

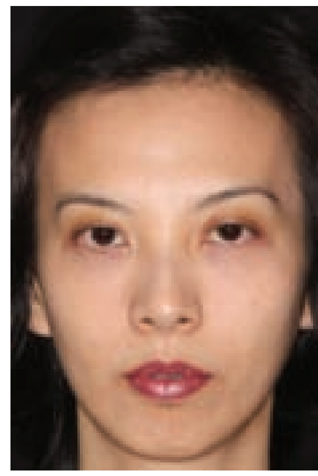


Fig. 3B: Close up Face Frontal relaxed 2 weeks post Botox Cosmetic (upper face) treatment with increased Mx tooth display

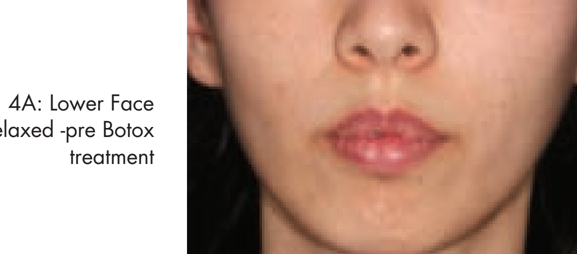


Fig. 4A: Lower Face Relaxed -pre Botox treatment

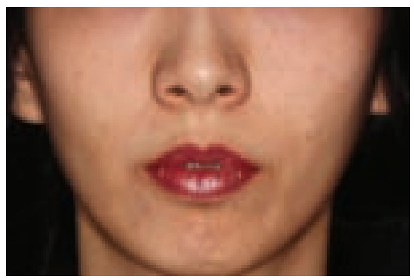


Fig. 4B: Lower Face Relaxed 2 weeks post Botox Cosmetic (upper face) treatment with increased Mx tooth display

Fig. 5A: Full Face Frontal Relaxed pre Botox-first appointment

Fig. 5B: Full Face Frontal Relaxed 2 weeks post Botox Cosmetic (upper face) treatment with increased smile

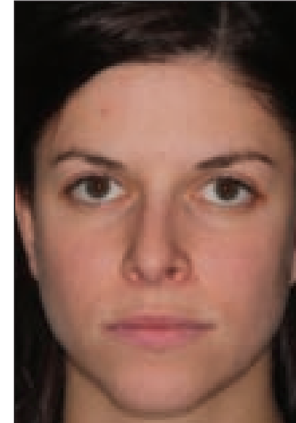


Fig. 6A: Close up Face Relaxed pre Botox -first appointment

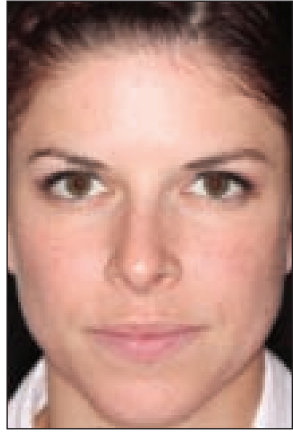


Fig. 6B: Close up Face Relaxed 2 weeks post Botox Cosmetic (upper face) treatment with increased smile

their recall appointment, only to discover a quick onset of extensive decay or periodontal problems that were not evident 3-6 months prior. What is the cause of these periodontal conditions? Could the origin, perhaps, be stress, anxiety and depression?

In addition to our general dental procedures, we offer Botox® therapy to our patients. We observe that after Botox® therapy of the upper face, including the Glabella frown lines, the patient has a more alert, awake, happier facial presentation. If you look good, subconsciously, you feel good.

We document each BoNT-A patient visit with the Roberts Facial Rejuvenation Photography series of 29 standard photographs (Fig. 1A-D)(Ref. 1). From the patient's perspective, there is an increase in self confidence and self esteem from the improved facial appearance. At the 2 week Botox® recall appointment, we notice individuals returning for their exam with a changed behavioral pattern, increasing their grooming due to their improved appearance (Fig. 2 to 11). There is an improvement, not only in the biological aspects but, in addition, an improvement in the behavioral aspect. In the June 2009 issue of the Journal of the Canadian Dental Association, an article called 'Relationship between Stress, Depression and Periodontal Disease.' by Anthony Iacopino was published (Ref. 2). It reads:

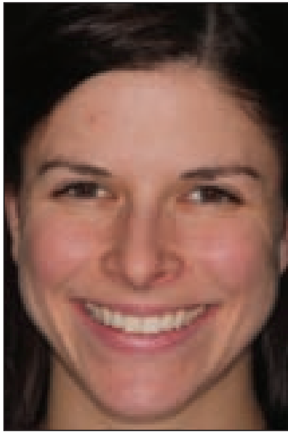


Fig. 7A: Close up Face Smile - pre Botox treatement

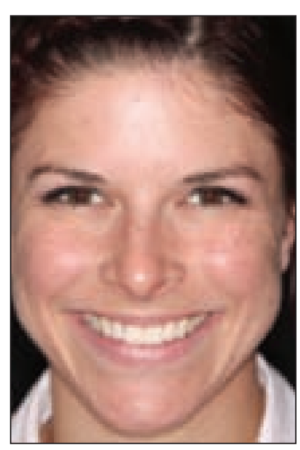
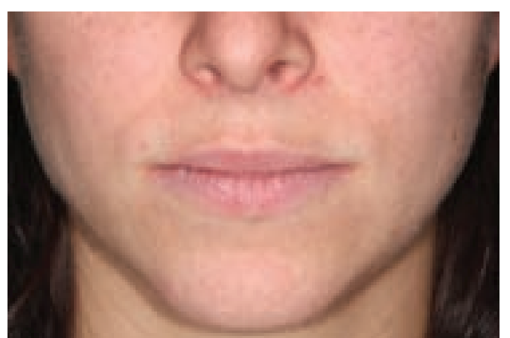


Fig. 7B: Close up Face Smile 2 weeks Botox Cosmetic (upper face) treatment with increased Smile



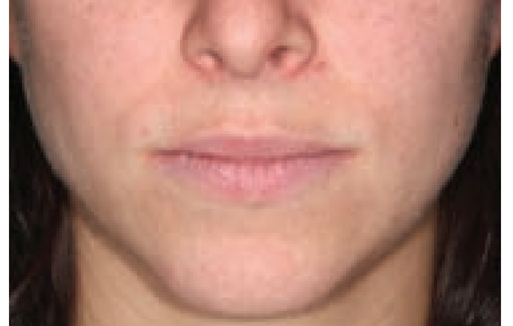


Fig. 8A: Lower Face Relaxed -pre Botox -first appointment

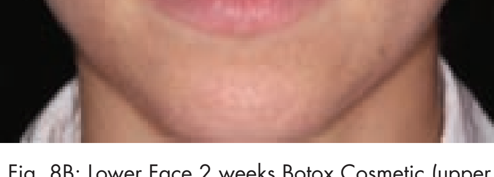


Fig. 8B: Lower Face 2 weeks Botox Cosmetic (upper face) treatment with increased smile

Let us look more closely at this report.

- **Two Critical Areas of Interest:**
  - 1st "individualized medicine" for effective care
    - Variations in the severity of periodontal disease are in-fluenced by many individual factors:
    - Coexisting systemic conditions, genetics, oral hygiene & age
    - Other factors — including psychological factors
  - 2nd Studies indicate strong relationships between stress, depression and periodontal disease (Ref. 6).

Fig. 9A: Full Face Frontal Relaxed pre Botox treatment -first appointment

Fig. 9B: Full Face Frontal 2 weeks Botox Cosmetic (upper face) treatment with increased Mx tooth display

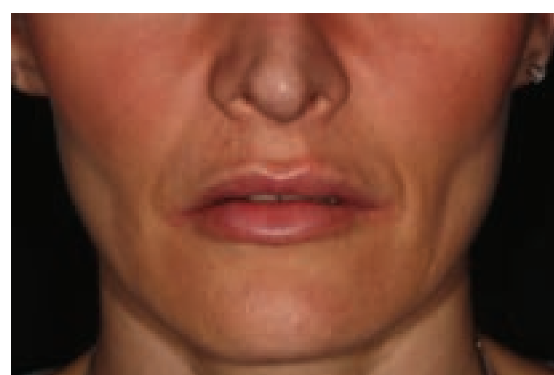


Fig. 10A: Lower Face Relaxed pre Botox treatment-first appointment

Fig. 10B: Lower Face Relaxed 2 week Botox Cosmetic (upper face) treatment with increased tooth display

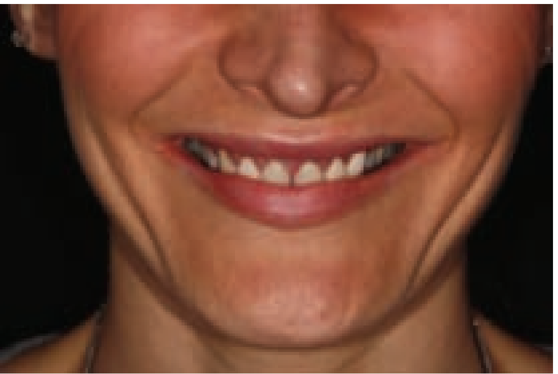


Fig. 11A: Lower Face Smile pre Botox treatment -first appointment

Fig. 11B: Lower Face Smile 2 week Botox Cosmetic (upper face) treatment with increased smile

- Biological link
  - Stress and depression can reduce the immune system function and facilitate chronic inflammation
  - Mediated through the hypothalamic-pituitary-adrenal axis
  - The production of cortisol, a glucocorticoid capable of reducing immunocompetence.
  - Cortisol inhibits immunoglobulin A, G, and neutrophil function, which leads to increased biofilm colonization and reduced ability to prevent connective tissue invasion.
  - Additionally –after periods of chronic elevation, cortisol loses its ability to inhibit inflammatory responses initiated by immune reactions.
  - This leads to sustained inflammatory destruction of the periodontium.

- Behavioural link
  - Emphasizes that people suffering from stress & depression may increase poor health behaviours:
  - Smoking, drinking, unhealthy diet & neglecting oral hygiene
  - This leads to oral biofilm burden and a resistance of the periodontium to inflammatory breakdown

Currently, patients with stress, anxiety and depression are prescribed a number of psychotropic medications, which can include antidepressants, benzodiazepines, mood stabilizers and antipsychotics (Ref. 7).

There are numerous side effects that can affect individuals on these medications, including interaction with other dental medications, sedation, xerostomia, urinary retention, constipation etc.

Are there medications that we could employ that do not have these negative side effects? Are there individuals that may be treated alternatively with BoNT-A and also have a positive effect on the periodontium?

This article is directed to spark a paradigm shift in periodontal therapy.

In April 2009 Dr. Michael Lewis, an experimental Psychologist at Cardiff University in Wales, published a paper “Botulinum toxin cosmetic

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therapy correlates with a more positive mood" (Ref. 8). In his article Dr. Lewis presents the following:

'Facial muscles not only express emotions, but they are also involved in the experience or feeling of emotions' (Ref. 9).

'Facial-muscular action can affect our mood and perception' (Ref.10).

'The corrugator muscles are universally important in the expression of negative emotions including sadness, fear, anger and distress' (Ref.11).

'People who have received BoNT-A treatment for frown lines are rated as showing less negative facial expressions' (Ref. 12).

'BoNT-A injections into the corrugator frown muscles could be used as a treatment for depression' (Ref. 13).

'Anecdotal evidence of a general improvement in the mood of patients having received BoNT-A therapy' (Ref. 14). 'This mood effect may help to explain why BoNT-A treatment leads to higher satisfaction ratings than other forms of cosmetic treatment' (Ref. 15).

Patients who had their frown lines treated with BoNT-A tended to be happier.

There were 25 women in the Lewis study: 12 frown lines treated with BoNT-A only and the control group of 13 with other facial treatments (glycolic peels, laser treatments and Restylane).

Questionnaires were completed after treatment: The attractiveness ratings of the two sets of participants were greater after treatment, than before treatment. The size of the change was small. Appearance did not seem to explain the difference.

The Irritability-Depression-Anxiety-Scale (IDAS) indicated that the BoNT-A group scored consistently lower than the control group. This was significant.

All the women treated with BoNT-A scored "significantly lower" on the anxiety and depression scale.

"Facial feedback" is the cause for happier feelings. Frown muscles are referred to as "negative muscles" and trigger negative responses in the brain. "Positive muscles" used for smiling release endorphins to the brain, and endorphins make you happy.

BoNT-A therapy can relax muscles. When placed in the Glabellar muscles, this therapy prevents you from using your negative muscles and promotes positive muscle use, thereby causing the release of endorphins in your brain, and making you feel happier.

The significance of Dr. Lewis' research indicates that BoNT-A therapy not only improves a person's appearance. Additionally, BoNT-A can have a compound therapeutic effect, resulting in less anxiety and depression and, thus, can have an impact on the periodontal health of our 'risk-factor' patients.

Risk factors and treatment alternatives

Every one of us has different risk factors that determine which treatments will work on each particular individual (individualized medicine). We now have additions to our armamentarium of standard treatment modalities such as scaling, root planning and curettage. Laser-assisted new attachment procedures (LANAP) have proved beneficial in the periodontal sulcus (Ref.16). On a bacterial level, we can now test for specific microbes. We can now treat the specific bacteria involved in periodontal disease utilizing specific mouth rinses (Ref.17). On a psychological level, we can utilize BoNT-A therapy and have less depression and anxiety leading to an improvement in the patient's periodontal health thanks to both psychological and behavioral influences.

Allergan is currently working on research to gain FDA approval for the use of Botox® in the treatment of anxiety and depression. Recognizing the connection between BoNT-A and anxiety and depression, should our institutions be researching a possible role for BoNT-A in treating periodontal disease? Some of the current medical literature is often dismissed as unrelated to the practice of dentistry.

A recent research article demonstrated a direct link from extra-cranial nerves to intra-cranial nerves, via the sutures (Ref.18). In the Glabella area (Lewis's research area), the anterior frontal bone, has the metopic suture. As BoNT-A therapy becomes more mainstream in dentistry we will find other uses of BoNT-A and further unravel the primary, secondary and tertiary mechanisms of action of BoNT-A for additional treatments.

With the increase in elective cosmetic dental procedures such as implants and smile design, we can now include cosmetic BoNT-A into our complete facial aesthetics and, additionally, benefit from the therapeutic uses to improve and maintain our patients' periodontal health. More research is required to determine the results. I look forward to assisting our academic community in catching up with the beneficial actions of BoNT-A.

Welcome to the world of BoNT-A in dentistry. ■

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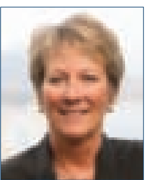
Pacific Training Institute for Facial Aesthetics

Dr. Warren Roberts is the Clinical Director for the Pacific Training Institute for Facial Aesthetics (PTIFA) and is a leading Botox educator whose Vancouver clinic is the #1 administrator of Botox across North America dental practices. He is the developer of the Roberts Facial Rejuvenation Photography series, the PTIFA Cosmetic & Therapeutic Marking Templates, the PTIFA injection technique and established the first online Botox Study Club. He can be reached at drwarren@ptifa.com or 1-855-681-0066.



Dr. Janet Roberts is the Senior Clinical Instructor for PTIFA and is also a Clinical Director for the Frontier Institute. She is in the final stages of her AACD accreditation - the world's most recognized advanced credential program. Currently, she is the leading voice on how the combination of cosmetic dentistry and facial rejuvenation treatments can work together to push patient satisfaction to the next level. Through her work with PTIFA and Dr. Warren Roberts – she is creating a new understanding of how doctors can achieve better outcomes in therapeutic and cosmetic cases with the two disciplines working together. She can be reached at drjan@asmileabove.ca or 1-855-681-0066

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CARDP's Executive Board has concluded a publishing agreement with Palmeri Publishing Inc. The Academy's Journal (**CJRDP/JCDRP**) will be published two times a year. Schedule is accessible at http://www.cardp.ca/sitedocs/2015%20CJRDP%20Production%20Schedule.pdf

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Demande de communications

L'ACDRP a conclu une entente de publication avec Palmeri Publishing Inc. Le journal de l'Académie (**CJRDP/JCDRP**) est publié depuis 2008 et a une circulation de 7 000 à 13 000 exemplaires. Il y a quatre parutions par année. La cédule de production 2015 du Journal est accessible à http://www.cardp.ca/sitedocs/2015%20CJRDP%20Production%20Schedule.pdf

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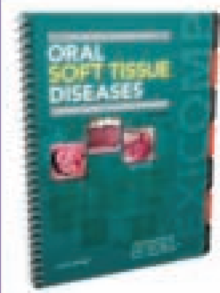

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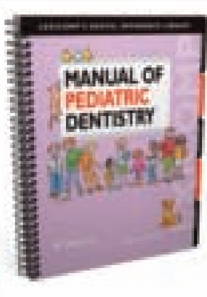

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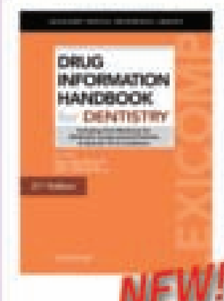

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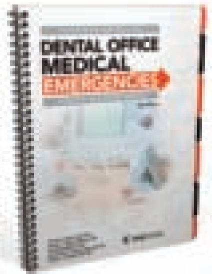

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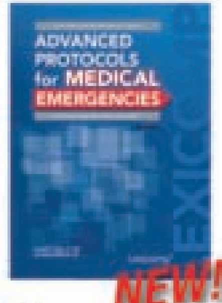

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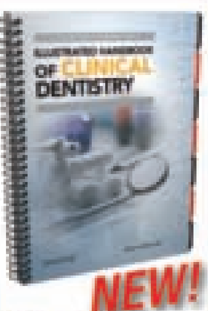

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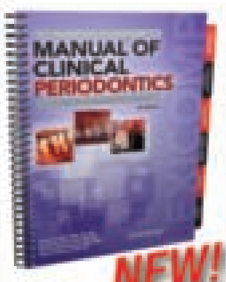

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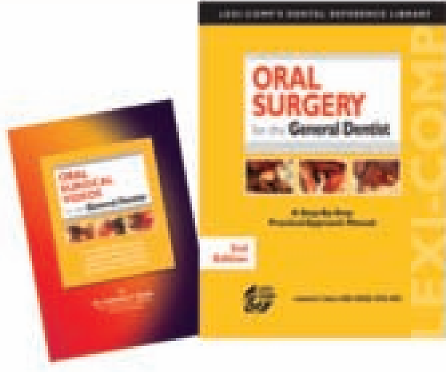

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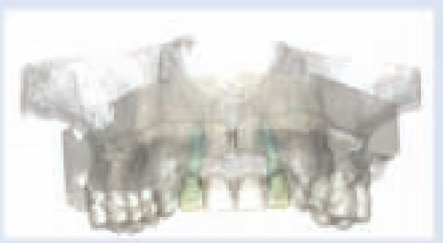

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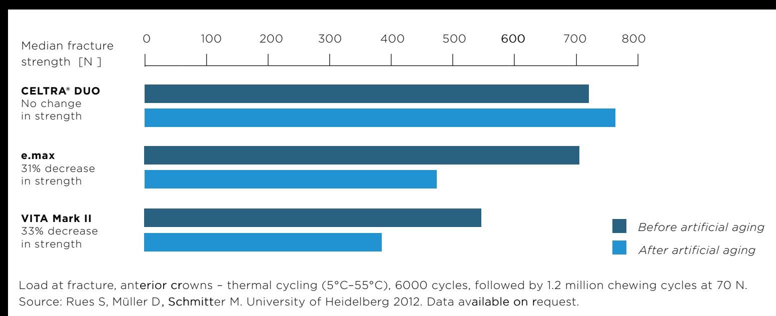

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