CJRDP JCDRP

Canadian Journal of Restorative Dentistry & Prosthodontics

The official publication of the Canadian Academy of Restorative Dentistry and Prosthodontics

Journal canadien de dentisterie restauratrice et de prosthodontie

Publication officielle de l'Académie canadienne de dentisterie restauratrice et de prosthodontie

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PRESIDENT'S MESSAGE

The Canadian Academy of Restorative Dentistry and Prosthodontics (CARDP) is proud to welcome you to our new journal the *Canadian Journal of Restorative Dentistry and Prosthodontics (CJRDP)*. This journal is a natural extension of the membership it represents. It allows members and other dental professionals an avenue to publish on scholarly and current topics of interest for the Canadian dentist. Being peer reviewed, it is also a valuable reference for the dental community at large. I am sure that you will find this to be true after you peruse this issue.

CARDP is a growing national Canadian organization that represents academics, specialists, and generalists dedicated to the advancement of restorative dentistry, prosthodontics, and related disciplines for oral health optimization. Our annual scientific sessions are held each fall in a different Canadian city and bring together a rich blend of members and guests for an outstanding educational and social experience. All dental professionals are welcome and I hope you will avail yourself to attend, possibly this year.

If you would like more information about CARDP please look over our website at www.cardp.ca or feel free to contact me anytime at your convenience. In the meantime, enjoy your read!

Sincerely,
Mike Racich, Dipl ABOP, FAGD
President

MESSAGE DU PRÉSIDENT

L'Académie canadienne de dentisterie restauratrice et de prosthodontie (ACDRP) est fière de vous présenter sa nouvelle publication intitulée *Journal canadien de dentisterie restauratrice et de prosthodontie*. Ce Journal est un prolongement naturel de la représentation de ses membres. Par ce Journal, les membres et les autres professionnels de la Médecine dentaire peuvent publier des articles sur des sujets d'intérêt scientifique ou courant destinés au dentiste canadien. Comme elle est contrôlée par les pairs, elle constitue également une référence extrêmement précieuse pour la communauté des services dentaires. Je suis sûr que vous serez d'accord avec moi une fois que vous aurez lu ce numéro.

L'ACDRP est un organisme national en pleine croissance représentant les universitaires, les spécialistes et les généralistes qui souscrivent pleinement au progrès de la dentisterie restauratrice, de la prosthodontie et des disciplines connexes pour l'optimisation de la santé bucco-dentaire. Nos réunions scientifiques annuelles ont lieu chaque automne dans une ville canadienne différente et permettent de rassembler les membres et invités pour profiter d'une expérience éducative et sociale exceptionnelle. Tous les professionnels de l'art dentaire sont les bienvenus, et j'espère que vous pourrez y assister, possiblement cette année.

Si vous désirez de plus amples informations sur l'Académie, veuillez visiter notre site web www.cardp.ca ou n'hésitez pas à communiquer avec moi. En attendant, bonne lecture!

Cordiales salutations.
Mike Racich, Dipl ABOP, FAGD
Président

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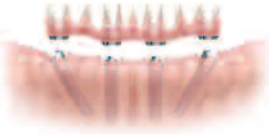

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Content/Sommaire

MAY/MAI 2008

ACADEMY NEWS/NOUVELLES DE L'ACADÉMIE

FEATURES/ARTICLES

INDICATES PEER REVIEWED/
INDIQUE REVUE DES PAIRS

The cover photo of Château Frontenac was chosen in honour of the 400th Anniversary of Québec City. Bonne anniversaire!

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Keeping One's Focus While Multitasking and Sharing the Vision

This, the inaugural issue of the *Canadian Journal of Restorative Dentistry and Prosthodontics (CJRDP*), reflects some of the diversities, and challenges that we as practitioners must learn to cope with on a daily basis. Members of our Academy, as well as concerned clinicians at large, seek a comprehensive and integrated source of information that can contribute to their professional and personal needs. By its very nature, dentistry challenges us to provide quality care within a framework of multiple inputs and the ever-present competitive edge. Multitasking therefore becomes part and parcel of our clinical skills and any resource that can assist in making our work easier and more fulfilling should be a welcome addition.

Multitasking involves the juggling of familiar and new information while we focus on the goal of providing the best possible treatments to our patients. The patient is our immediate and ultimate priority, our raison d'être, so to speak; Regulatory authorities and professional guidelines reinforce this underlying objective. So understanding the needs of our patients is fundamental to our practice. *CJRDP* will keep its "eye on the ball" for you, as we explore information, procedures, technologies, and insights that can empower us.

It is therefore befitting that we underline the important contribution in this issue's article "Relationship Based Dentistry, The 21st Century Formula for Success." Mr. Peter Barry speaks of the day-to-day "people skills" that are essential for our clinical success. References to "Emotional Intelligence" and the "Ability to lead our patients" are but a few of the concepts this author fluidly exposes. Moving to another article, "Aplasia of the Lacrimal and Salivary Glands: Case Presentation," Dr. Rénald Pérusse presents a rare case report detailing the genetic origins of the (ALSG) syndrome. This unique introduction to the intricacies of the differential diagnosis of xerostomia will be followed by a subsequent article pursuing the subject in the next issue of our *CJRDP*. Also, implant dentistry is well represented in this issue with an article dealing with the "Restoration of Posterior Implants: Simple Techniques for the Restorative Dentists and Dental Technicians." In this case report, Dr. Doug Lobb summarizes the integration of implant supported restorations to tooth supported ceramic restorations. The importance of multidisciplinary treatment planning is well documented as are numerous state of the art clinical procedures.

We each have our own vision of how we want to carry out our practice. Such a vision transforms over time, in its attempts to reconcile orientation and experience. It adapts to new information and integrates the knowledge acquired from fellow practitioners. We are all interdependent: general practitioners, specialists, academics. Our Academy is the voice of restorative and prosthetic dentists from all walks and ought to highlight our singularities. By underlining our diversity, we inspire newcomers to join us in our inclusive, quality-oriented outlook. In this issue, you will also read about our Academy's mission, historical background, activities and organizational structure.

Come share your vision with your fellow members. Your editorial team awaits your input and extends a heartfelt invitation to all. What are your most reliable sources of information? Where do you learn new procedures? How do you react to new technologies? What are some of your insights on various dental topics? How do YOU conjugate multitasking and focus? We welcome "Letters to the Editor" and it is available as a tribune for your concerns and comments. Moreover, we offer a "Members' News" section as an accessible means of informing and updating your colleagues. Feel free to use these features as often as you like. *CJRDP's* viability is the concern of each member. Enclosed is a separate "Journal Contribution Form" for you to fill out and return by fax. All article contributions are most welcome and are easy to pass on using e-mail to the editorial team.

On behalf of all who have collaborated closely to the inception of our Journal, I wish to express my sincere thanks to Andrew John Publishing for its invaluable support and resources. They have altogether contributed in finally making this, the inaugural issue of the *Canadian Journal of Restorative Dentistry and Prosthodontics*, a long-awaited reality.

Dr. Hubert Gaucher
Editor-in-Chief

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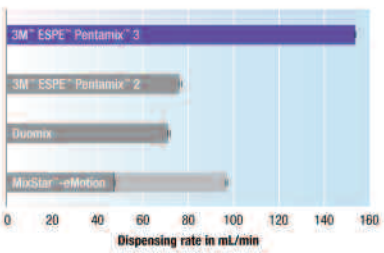

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Polyvalence et partage de la vision : ne vous laissez pas dérouter

Ce numéro inaugural du *Journal canadien de dentisterie restauratrice et de prosthodontie,* présente la diversité ainsi que les défis que les praticiens doivent apprendre à relever tous les jours. Les membres de notre Académie, ainsi que les cliniciens en général, recherchent une source d'information détaillée et intégrée pouvant répondre à leurs besoins professionnels et personnels. De par sa nature, Médecine dentaire nous oblige à fournir des soins de qualité en tenant compte de multiples facteurs et de l'avantage concurrentiel sans cesse présent. La polyvalence devient donc une partie essentielle de nos compétences cliniques, et toute ressource pouvant nous aider à faciliter notre travail et à le rendre plus valorisant est d'autant appréciée.

La polyvalence comporte un meilleur partage entre l'information nouvelle ou déjà acquise et le fait que nous pouvons nous concentrer sur les meilleurs traitements possibles pour nos patients. Le patient est notre priorité immédiate et ultime, pour ainsi dire, notre raison d'être. Les organismes de réglementation et les lignes directrices professionnelles viennent corroborer cet objectif de base. Comprendre les besoins de nos patients est donc fondamental à notre pratique. Nous, au *Journal canadien de dentisterie restauratrice et de prosthodontie* resterons vigilants pour vous et continuerons d'explorer l'information, les procédés, les technologies et les connaissances qui peuvent renforcer notre autonomie.

Il convient donc de souligner la contribution importante de M. Peter Barry dans son article "*Relationship Based Dentistry, The 21st Century Formula for Success*." (La dentisterie fondée sur la relation, la formule gagnante du 21e siècle). M. Barry parle des compétences générales essentielles à notre succès en clinique. Des références au quotient émotionnel et à l'aptitude à guider nos patients ne sont que quelques concepts présentés par cet auteur. Le Dr Rénald Pérusse dans un autre article "*Aplasia of the Lacrimal and Salivary Glands: Case Presentation,*" (Présentation de cas : aplasie des glandes lacrymales et salivaires) présente un rapport de cas rare détaillant l'origine génétique de ce syndrome. Cette introduction unique aux subtilités du diagnostic différentiel de la sécheresse de la bouche sera suivie d'un autre article dans le prochain numéro de notre Journal. Dans ce numéro, on peut lire un article sur les implants intitulé "*Restoration of Posterior Implants: Simple Techniques for the Restorative Dentists and Dental Technicians.*" (Restauration des implants postérieurs : techniques simples pour les dentistes en restauration et les techniciens dentaires). Dans ce rapport de cas, le Dr Doug Lobb résume le jumelage de restaurations implantaires avec des restaurations fixées sur des dents naturelles. L'importance de la planification du traitement multidisciplinaire est bien documentée ainsi que les interventions cliniques de pointe.

Nous avons tous notre propre vision de ce que nous voulons accomplir dans notre pratique. Une telle vision se transforme avec le temps, afin de faire concorder l'orientation et l'expérience. Elle s'adapte à la nouvelle information et intègre les connaissances acquises des collègues praticiens. Nous sommes tous interdépendants : généralistes, spécialistes, cliniciens universitaires. Notre Académie est la voix de tous ceux et celles qui oeuvrent en dentisterie restauratrice et en prosthodontie et se doit de mettre en valeur notre singularité. En soulignant notre diversité, nous encourageons les nouveaux venus à se joindre à nous et à constater notre perspective globale et axée sur la qualité. Dans ce numéro, vous pourrez lire un article sur la mission, l'historique, les activités et la structure organisationnelle de l'Académie.

Venez partager cette vision avec les membres. Votre équipe de rédaction attend vos commentaires et vous invite à les lui communiquer. Quelles sont vos sources d'information les plus fiables? Où apprenez-vous de nouvelles techniques? Comment réagissez-vous face aux nouvelles technologies? Quels sont vos commentaires sur les sujets variés concernant la Médecine dentaire? Comment réussissez-vous à fonctionner tout en étant polyvalent et en ne vous laissant pas dérouter? Nous vous encourageons à envoyer des lettres au rédacteur en chef. Ces dernières peuvent servir de tribune pour vos commentaires. De plus, nous réservons une section « Nouvelles des membres » comme moyen accessible d'informer vos collègues et de faire des mises à jour. N'hésitez pas à contribuer à ces sections aussi souvent que vous le désirez. La viabilité de la Revue concerne chaque membre. Vous trouverez ci-joint un « Formulaire de contribution des membres » que vous pouvez remplir et nous retourner par télécopieur. Vous pouvez également faire parvenir vos articles par courriel à l'équipe de rédaction. Tous les articles sont les bienvenus.

Au nom de tous ceux et celles qui ont collaboré à la création de notre Journal, j'aimerais remercier sincèrement Andrew John Publishing pour son aide irremplaçable et ses ressources. Ils ont contribué finalement à faire de ce numéro inaugural du *Journal canadien de dentisterie restauratrice et de prosthodontie* une réalité tant attendue.

Dr Hubert Gaucher
Rédacteur en chef

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Académie Canadienne de Dentisterie Restauratrice et de Prosthodontie

Committee Structure and Members/Structure des comités et membres

CARDP consists of many volunteers that donate a lot of their time and talents. Below is an outline of the council and committee structure of the academy.

The main governing body is made up of the executive council, which consists of:

The President, President Elect, Past President, Vice President, and Secretary Treasurer. This year, these positions are filled by:

President
Dr. Michael Racich

President Elect
Dr. Stanley Blum

Past President
Dr. Dennis Nimchuk

Vice President
Dr. Vernon Shaffner

Secretary Treasurer
Dr. Les Kallos

The next governing body below this is the group of councillors made up of representatives from the different regions of Canada. They are:

Dr. Maureen Andrea representing the Atlantic Region.

Dr. Jay McMullen representing the Province of Quebec.

Dr. Kim Parlett representing the Province of Ontario.

Dr. Terry Kolteck representing Manitoba and Saskatchewan.

Dr. Doug Lobb representing Alberta and the Northwest Territories.

Dr Gordon Baynes representing British Columbia and the Yukon.

Below this is the group of committee chairs and their committee members. The committees that exist at this point in the academy are:

CONVENTION COMMITTEE
Dr. Ash Varma, Powell River, BC and
Dr. Les Kallos, Burnaby, BC
(*Co-Chairs*)

ADMISSIONS COMMITTEE
Dr. Cary Letkemann, Ancaster, ON
(*Chair*)
Dr. Mary Currie, Pointe-Claire, QC
Dr. Maurice Wong, Vancouver, BC

NOMINATIONS COMMITTEE
Dr. Mel Sawyer Vancouver, BC (*Chair*)
Dr. David Ellis, Kitchener, ON
Dr. Robert David, Montreal, QC

PUBLICATIONS
Dr. Gorman Doyle, Halifax, NS (*Chair*)

CONSTITUTION AND BY-LAWS COMMITTEE
Dr. Dennis Nimchuk, Vancouver, BC
(*Chair*)
Dr. Gerald Skea, Thunder Bay, ON
Dr. Patrick Arcache, Montreal, QC

PHOTO-ROSTER COMMITTEE
Dr. Peter Woolhouse, Westmount, PQ
(Chair)
Dr. Baxter Rhodes, Ithaca, NY
Dr. Les Kallos, Burnaby, BC

SPECIAL FUNDS COMMITTEE
Dr. E.J. Rajczak, Hamilton, ON (*Chair*)
Dr. Andrew Tynio, Toronto, ON
Dr. Larry Pedlar, Burlington, ON
Dr. Ed McIntyre, Edmonton, AB

COMMUNICATIONS COMMITTE
Dr. Ian Tester, St. Catherines, Ont
(*Chair*)
Dr. Alan Schappert, Saskatoon, SK
Dr. David Blair, St. Lambert, QC
Dr. Brian Friesen, Winnipeg, MB

CONTINUING EDUCATION COMMITTEE
Dr. Jim Donaldson, Thunder Bay, ON
(*Chair*)
Dr. Ed McIntyre, Edmonton, AB

HISTORIAN
Dr. William Sehl, Waterloo, ON

CORPORATE LIASON COMMITTEE
Dr. Dennis Nimchuk, Vancouver, BC
(*Chair*)
Dr. Ed McIntyre, Edmonton, AB
Dr. Cary Letkemann, Ancaster, ON
Dr. Larry Pedlar, Burlington, ON
Dr. Maureen Andrea, Chester, NS
Dr. E.J. Rajczak, Hamilton, ON

ANNUAL SCIENTIFIC MEETING COMMITTEE
(*Appointed by the President*)
Organizing Committee 2008 CARDP
(*September 10–13, 2008*)
Meeting Co-Chairs:
L. Kallos and A. Varma
Scientific Chair:
R. Zokol
Table Clinics:
M. Pearce and A. Tejani
Registration and Webpage:
C. Seimens
Promotion and Sponsorship:
A. Varma and L. Pedlar
University Liaison:
C. Wyatt
AV: M. Pearce
Local Arrangements:
D. Racich and B. Wong

The Academy's Four Main Objectives

The Canadian Academy of Restorative Dentistry and Prosthodontics (CARDP) is a not-for-profit, member-based organization that has Four Main Objectives:

(1) To promote the improvement of the health of the Canadian public, through the advancement of the art and science of restorative and prosthetic dentistry.

(2) To promote the highest standard of professional ethics among its members and amongst the members of the dental profession.

(3) To encourage the quality and the quantity of teaching of restorative and prosthetic dentistry in Canadian university dental schools.

(4) To provide continuing education in restorative and prosthetic dentistry for its members and for members of the dental profession in Canada.

The membership of CARDP consists of invited and proposed (sponsored) individuals who have earned peer recognition for their aptitude in the practice or teaching of restorative dentistry and/or prosthetic dentistry.

Les quatre buts principaux de l'Académie

L'Académie canadienne de dentisterie restauratrice et de prosthodontie (ACDRP) est un organisme sans but lucratif dont les membres poursuivent quatre objectifs principaux :

(1) Promouvoir l'amélioration de la santé des Canadiens par le biais de l'art et de la science de la dentisterie restauratrice et prothétique.

(2) Améliorer les normes d'éthique professionnelle parmi ses membres ainsi que les membres de la profession en général.

(3) Soutenir la qualité de l'enseignement de la dentisterie restauratrice et prothétique dans les facultés dentaires canadiennes.

(4) Offrir de l'éducation continue à ses membres ainsi qu'aux membres de la profession au Canada en dentisterie restauratrice et prothétique.

Les membres de l'ACDRP sont des individus, invités ou recommandés (commandités) qui ont mérité l'approbation de leurs pairs pour leurs aptitudes dans la pratique ou l'enseignement de la dentisterie restauratrice et/ou prothétique

Annual Scientific Meeting/Congrès Annuel

VANCOUVER

September/Septembre 2008

2008 Annual Scientific Meeting

September 10th - 13th, Vancouver, BC

This year Vancouver has the privilege of hosting both the 16th Annual Canadian Academy of Restorative Dentistry and Prosthodontics General Meeting and the annual meeting of the Academy of Prosthodontics of Canada. Our meeting place will be the very beautiful and intimate Sutton Place Hotel located in downtown Vancouver. Sutton Place has recently undergone a major renovation. It is located in the middle of Vancouver's elegant shopping district. There are plenty of sites to see and places to visit, all within a short distance.

The convention committees have worked very hard to put together a scientific meeting that will prove to be very stimulating, combining ground breaking topics in fast paced lecture format, with case presentations and educational table clinics. For those wanting more, Drs. Chris Wyatt and Ron Zokol have put together a limited attendance University tour, anatomy and scientific session, including lunch at the new UBC dental facility.

As always, there will be an interesting and captivating social program for the partners. And of course, the Thursday outdoor activities of kayaking, sturgeon fishing and golfing will take place. Mark your calendars, because this meeting in Vancouver has all the best that B.C. has to offer, a densely packed educational meeting, lots of activities to take part in, all in a spectacular city that is about to host the 2010 Olympics.

Drs Les Kallos and Ash Varma, Meeting Co-Chairs

Keynote Speaker: Dr. Robert Miller

Dr. Miller received his B.A. from New York University and M.A. from Hofstra University, both in biology. He graduated with honors from New York University College of Dentistry where he received the International College of Dentists Award for clinical excellence. Following graduation, he completed a residency program at Flushing Hospital and Medical Center where he was involved in all phases of dentistry including facial trauma.

Dr. Miller is a board certified Diplomate of the American Board of Oral Implantology/ Implant Dentistry and Diplomate of the International Congress of Oral Implantologists. He is also a Master of the Implant Prosthetic Section of the ICOI and is a Fellow of the American College of Dentists.

Dr. Miller is Chairman of the Department of Oral Implantology at the Atlantic Coast Dental Research Clinic in Palm Beach and lectures on the surgical as well as reconstructive aspects of dental implants. He has lectured nationally on all phases of oral implantology and laser dentistry and has founded The Center for Advanced Aesthetic and Implant Dentistry in Delray Beach, Florida.

Topic: Oral Implantology: Yesterday, Today, and Tomorrow

This lecture will put into perspective the true history of the discipline of oral implantology, including the pre-Branemark concept of osseointegration. Within this historical framework, we will continue by discussing the state-of-the-art in implant dentistry today and emerging technology that will shape our discipline in the future.

Guest Speaker: Dr. Maxwell Anderson

Dr. Max Anderson received his dental degree from the University of Nebraska (1976), his Master of Science in Restorative Dentistry from The University of Michigan (1983) and his Master of Education from George Washington University (1988). He completed a career in the Unites States Navy in 1990 and has served on the faculty of the University of Washington and Indiana University. He served as the Vice President and Dental Director of Washington Dental Service (WDS) a Delta Dental Plan, in Seattle, Washington from 1994 through 2004. His primary research and academic interests are in the management of dental diseases through treating these diseases as bacterial infections and in the analysis of insurance treatment data to identify best practices on risk adjusted populations. He is currently actively consulting regarding risk assessed evidence based dental plan designs and health outcomes.

Dr. Anderson continues his active role in the professional organizations and public service with a primary focus on operative dentistry and cariology. He is the President and CEO of C3 Jian, Inc. a California based biotechnology company developing targeted antimicrobial drugs. Part of the company's research is contracted to and conducted at the University of California at Los Angeles. The company is researching mechanisms to eradicate dental caries, and other infectious diseases, through intelligent drug design. He is the representative to the American Dental Association's Code Revision Committee (CDT-2007 & CDT-2009) for Delta Dental Plans Association and a member of its Dental Policy Committee. He Chairs the ADA's Standards Committee on Dental Informatics Subcommittee on the dental extension of the Continuity of Care Record which is the patient referral record.

More Info Online: www.cardp.ca

Hands on Course with Dr. Ron Zokol: Head & Neck Anatomy and Dissection

Course Introduction by Charles E. Slonecker, DDS, Ph.D.

The Value of a Review of Head & Neck Anatomy for Dental Practitioners

The major value of Anatomy and its sister basic sciences, Physiology, Biochemistry, Pathology, Pharmacology, Medical Microbiology and Medical Genetics is learning the language that forms the basis for Dentistry and Medicine. It is said that the first and second year students learn 25,000 new terms in their dental education. This is equivalent to fluently learning 3 foreign languages. The relationships of anatomical structures and their physiological activities are frequently forgotten as one enters their clinical training and professional careers.

Learning the anatomical relationships of body structures is introduced in the lecture theatre but confirmed in the dissection laboratory. Learning these structural relationships usually requires a laborious dissection commitment where most of the learning time is devoted to removing skin, fascia, fat and connective tissues in order to expose and learn the structural elements that have been emphasized in the lectures. A postgraduate review of Anatomy almost always reveals to the resident student or the practicing dentist how much anatomical information they have stored in their less than readily inaccessible subconscious memory. A concise and visually focused review of important anatomical structures and their 3-dimensional relationships in the body gives one a sense of confidence that they do know a great deal more anatomy than they think they know.

Our review course in Head and Neck Anatomy is designed to give you a one day review of the structures that are important to today's practicing dentists. A series of lectures on the structure and function of hard and soft tissues. nerves, organs and fascial spaces will precede an afternoon laboratory session where prosected Head & Neck specimens can be reviewed. My experience in teaching Head & Neck Anatomy to dental students, residents and clinicians over the past 44 years has revealed that clinicians who have thought that they have forgotten much of the anatomical knowledge are pleasantly surprised and rewarded by their sense of knowledge following such a review course. I hope that you will join us in September 2008 and experience this unique opportunity to revisit a lecture and laboratory course in Head & Neck Anatomy.

Charles E. Slonecker, DDS, Ph.D., Prof. Em. Anatomy

Guest Speaker: Dr. Yvan Fortin

Presentation Topic: Fixed Implant Restoration of the Edentulous Maxilla: The Marius Bridge

Many patients today are looking for an alternative to a full denture as an elective treatment that is easily accomplished. Patients are most interested in this treatment being provided without bone grafting procedures if possible, while still providing predictable esthetic and phonetic results without oral hygiene compromise. For many dentists, this means recommending various forms of "overdenture solutions" that do not really fulfill patient desires for confident fixed function.

The Marius Bridge was developed to provide a routine restorative method to treat the fully edentulous patient having a moderately to severely resorbed maxilla with a fixed implant restoration.

The Marius Bridge includes 3 aspects:

- a surgical rationale
- prosthesis design
- patient presentation method

The objectives of this program are:

- to demonstrate methods of engaging basal maxillary bone to secure anchorage sufficient for a fixed maxillary restoration without bone grafting in most cases
- to explain a prosthesis design that allows lip support in moderate to advanced resorption situations without compromising dental hygiene or phonetics
- to present the research foundation of a patient removable fixed restoration with 14 years follow-up

More Guest Speakers... (tentative)
Dr. Charles Goodacre – Occlusion: The use of 3D digital technology
Byoung Suh – The science of adhesive dentistry
Dorin Ruse – The materials of cosmetic dentistry
Edward Lowe – The clinical aspects of cosmetic dentistry

Get Meeting Info and Register Online at www.CARDP.ca - Sutton Place Hotel, Vancouver, BC

Reservations @ 1-800-961-7555 (book under Canadian Academy of Restorative Dentistry Conference)

Congrès annuel 2008
10 -13 septembre, Vancouver

Cette année Vancouver a le privilège

d'accueillir le 16ième congrès annuel de l'Académie canadienne de dentisterie restauratrice et de prosthodontie, ainsi que le congrès annuel de l 'Association des prosthodontistes du Canada. Notre lieu de rencontre sera le très beau et intime Sutton Place Hotel, situé au centre -ville, dans la zone des boutiques chics. Cet hôtel a tout récemment été rénové et est idéalement placé pour permettre la visite de nombreux sites environnants.

Les comités organisateurs du congrès ont oeuvré afin de vous offrir des rencontres scientifiques stimulantes, en combinant les sujets de fine pointe sous format de conférences dynamiques, avec présentations de cas et de cliniques de table instructives. Pour ceux qui en voudraient encore plus, les docteurs Chris Wyatt et Ron Zokol ont mis sur pied une visite universitaire, comprenant une session scientifique d'anatomie, au nouveau centre dentaire de UBC. Le repas du midi est inclus.

Comme d'habitude, il y aura un programme social des plus captivants pour les invités. Et bien sûr, les activités de plein air du jeudi : kayak de mer, pêche à l'esturgeon et golf auront lieu. Marquez vos calendriers car ce congrès à Vancouver vous offre tout ce que la Colombie Britannique a de meilleur : un programme éducatif bien étoffé, des activités en abondance, dans le cadre d'une ville spectaculaire qui se prépare pour les Olympiades de 2010.

Docteurs Les Kallos et Ash Varma, co-présidents du congrès

Conférencier principal : Dr Robert Miller

Le Dr Miller a reçu son baccalauréat de New York University et sa maîtrise de l'Université Hofstra, les deux titres en biologie. Diplômé en médecine dentaire de New York University College of Dentistry, on lui décerna le prix d'excellence du International College of Dentists. Suivant sa promotion, il compléta un programme de résidence à Flushing Hospital and Medical Centre où il s'impliqua dans tous les aspects de la dentisterie, incluant les traumatismes faciaux.

Dr Miller est diplômé certifié du American Board of Implantology/Implant Dentistry ainsi que du International Congress of Oral Implantologists (ICOI). Il est aussi Maître de la section prothétique du ICOI et Fellow du American College of Dentists.

Dr Miller dirige le département d'implantologie orale du Atlantic Coast Dental Research Clinic à Palm Beach et est conférencier sur les aspects chirurgicaux et de reconstruction des implants dentaires. Il a parlé au niveau national à propos de toutes les étapes de l'implantologie orale et de la dentisterie au laser et est fondateur du Centre for Advanced Aesthetic and Implant Dentistry à Delray Beach en Floride.

Sujet : L'implantologie orale : hier, aujourd'hui et demain

Cette conférence mettra en évidence l'histoire réelle de la discipline de l'implantologie orale, incluant le concept pre-Brånemark de l'ostéointégration. Dans ce contexte historique nous discuterons de la dentisterie implantaire contemporaine de fine pointe ainsi que des technologies à venir qui influenceront cette discipline dans le futur.

Conférencier : Dr Maxwell Anderson

Le Dr Anderson a reçu son diplôme en dentisterie de University of Nebraska (1976), sa maîtrise en dentisterie restauratrice de University of Michigan (1983) et sa maîtrise en éducation de George Washington University (1988). Il compléta sa carrière dans la marine américaine en 1990 et a fait partie des facultés de University of Washington et Indiana University. Il fut vice-président et directeur dentaire de Washington Dental Service (WDS) un projet Delta Dental à Seattle, Washington de 1994 jusqu'en 2004. Ses intérêts premiers en recherche portent sur la gestion des maladies dentaires en les traitant comme des infections bactériennes et sur l'analyse des données d'assureurs dans le but d'identifier les meilleurs soins pour les populations à risque. Présentement, il est consultant pour l'élaboration de plans dentaires concernant les risques et leurs résultats.

Le Dr Anderson est toujours actif à l'intérieur d'organisations professionnelles et de services publics avec une concentration particulière sur la dentisterie opératoire et la cariologie. Il est PDG de C3 Jian Inc., une compagnie de biotechnologie de la Californie qui développe des médicaments anti-microbiens. Une partie de la recherche se fait à University of California à Los Angeles. Le but de la compagnie est de trouver un mécanisme qui pourrait enrayer la carie dentaire ainsi que d'autres maladies contagieuses. Il est aussi le représentant du American Dental Association Code Revision Committee pour Delta Dental Plans Association et membre de leur comité sur la politique dentaire. Il préside le ADA Standards Committee on Dental Informatics Subcommitte qui s'occupe des dossiers de rérérences de patients.

Pour plus de renseignements en ligne : www.cardp.ca

Cours pratique avec le Dr Ron Zokol : Anatomie tête et cou et dissection

Introduction du cours par Charles E. Slonecker, D.D.S., Ph.D.

Le mérite de reviser l'anatomie tête et cou chez les praticiens dentaires

Le mérite premier de l'anatomie et des sciences connexes, telles la physiologie, la biochimie, la pathologie, la pharmacologie, la microbiologie médicale et la génétique médicale, est d'apprendre le lexique de base de la dentisterie et de la médecine. Il semblerait que les étudiants en première et deuxième année doivent connaître 25 000 nouveaux vocables en médecine dentaire. Cet exercice équivaut à l'assimilation de trois langues étrangères. Les relations entre les structures anatomiques et leurs rôles physiologiques sont donc souvent oubliées dans un contexte clinique et dans la pratique de la profession.

L'apprentissage des relations anatomiques du corps s'introduit dans la salle de cours mais doit être démontré dans le laboratoire de dissection. C'est une tâche laborieuse et exigeante durant laquelle la majorité du temps est dédiée à enlever la peau, les fascia, la graisse et les tissus conjonctifs. Des études supérieures de l'anatomie révèlent presque toujours à l'étudiant ou au dentiste en pratique à quel point leur mémoire leur fait défaut en ce qui concerne leur rétention des notions anatomiques. Or, une mise à jour concise et visuellement orientée des structures anatomiques et de leurs relations tri-dimensionnelles dans le corps leur procure une assurance qu'ils en savent beaucoup plus sur l'anatomie qu'ils ne le croyaient.

Notre cours d'une journée sur l'anatomie tête et cou propose la révision des structures utiles aux dentistes d'aujourd'hui. Une succession de conférences portant sur la structure et la fonction des tissus mous et durs, des nerfs, des organes et des espaces du fasciès précéderont un après-midi en laboratoire durant lequel des spécimens préparés de tête et cou pourront être examinés. Ma propre expérience, longue de 44 ans, dans l'enseignement de l'anatomie tête et cou aux étudiants, aux résidents et cliniciens, a démontré que ceux-ci, qui croyaient avoir tout désappri des notions de l'anatomie, sont agréablement surpris et gratifiés par leurs redécouvertes suite à un tel cours. Je souhaite que vous vous joindrez à nous en septembre 2008 afin de profiter de cette expérience unique.

Charles E. Slonecker, D.D.S., Ph.D., Prof. Em. Anatomie

Conférencier : Dr Yvan Fortin

Sujet : Restauration fixe implanto-portée au maxillaire édenté : le pont Marius

Bon nombre de patients de nos jours voudraient une solution différente et facile qui remplacerait la prothèse complète comme traitement de prédilection. Ils préféreraient ne pas subir de greffe osseuse sans pour autant sacrifier l'esthétique et la phonétique ou compromettre leur hygiène buccale. Chez plusieurs dentistes, ceci implique la recommandation d'une variété de prothèses hybrides qui ne rencontrent pas précisément les attentes des patients en ce qui a trait à la fonction de la prothèse fixe.

Le pont Marius a été développé pour fournir à l'édenté complet qui présente une résorption modérée à sévère au maxillaire, une restauration implantaire fixe.

Objectifs

- Démonstration chirurgicale : méthodes d'engagement de l'os basal maxillaire qui procurent un ancrage adéquat pour la restauration fixe sans greffe osseuse dans la plupart des cas
- Conception prothétique : modèle de prothèse qui assure le support de la lèvre dans les cas de résorption modérée à avancée sans compromettre l'hygiène buccale ni la phonétique
- Démarche de présentation au patient : le fondement d'une restauration avec pièce fixe amovible en exposant un cas de recherche avec un suivi de 14 ans

Autres conférenciers...(provisoire)

Dr Charles Goodacre — L'occlusion : utilisation de la technologie digitale 3D
Byoung Suh — La science de la dentisterie adhésive
Dorin Ruse — Les matériaux de la dentisterie esthétique
Edward Lowe — Les aspects cliniques de la dentisterie esthétique

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MEMBER SPOTLIGHT / COUP D'OEIL SUR LES MEMBRES

By Dr. John Nasedkin

Emo Rajczak (left) and Richard Rhodes. Two well-known members of CARDP are pictured at a meeting of the International Dental Study Club in Toronto, in 2006.

Emo Rajczak is a founding member of the Study Club and Dick Rhodes is the current president. This is a hands-across-the-border group that meets twice annually in each country in alternate years. Their participation in this group is typical of the commitment which they each bring to our profession.

Emo is a '56 graduate of The University of Toronto and a member and fellow of most every substantial dental group. He is also a member and past president of the American Academy of Restorative Dentistry, one of only a handful of Canadians, including Norm Ferguson, and the late Ludlow Beamish to hold this position. He is a former president of both CARD and CAP; at 76 years young and with two artificial hips, he is still in practice. When I was in Ontario this past fall to present to the Niagara District Society, I called Emo and suggested we meet for dinner. He was busy that evening working with Sal Chiappone on teaching material for an AGD Mastership Diagnosis and Treatment Planning program which he presents. He also presents courses on occlusal correction. Right now he is working on a history of our Academy for our newly announced Journal (please see page 26).

As a prosthodontist, grandfathered by examination, and master dentist, Emo is known for his skill in making mucostatic impressions for cast gold or metal partial denture bases, a technique which he learned from the late Ray Garvey. He has the photographic slides of a case which he did on a patient who wore the same partial denture base unrelined over a period of 38 years. There are few subjects on which Emo has not made a presentation. He remembers the early CARD clinics as actual challenging chairside operating sessions in which you could visit from five to seven different dentists treating patients with different restorative procedures. He remembers it as "very impressive stuff." We have come a long way since then and Emo was one of a group of CARD/CAP members who were instrumental in the efforts to establish the single conjoint Academy.

Baxter (Dick) Rhodes practices in Ithaca New York a small city of 25,000 known for Cornell University. He chose to go there because it was a great place to live and has become the go-to prosthodontic problem-solver for the area. More than half of his practice comes from dentist referrals. I called him on a Saturday and he was working at the office where he does his own diagnostic wax-ups and occasionally his own gold castings.

Baxter is a graduate of the Fairleigh Dickinson School of Dentistry in New Jersey. He initially tried an oral surgery residency but found he had more interest in rebuilding rather than removing. He does lots of crown and bridge, implant restorative, and RPDs, but few dentures. He pours his own models and trims his own dies. His wife works with him in the office and he has a part-time hygienist. Dick and Elizabeth have five grown children and three grandchildren. At one time he tried to do some dental school teaching but thinks he would have challenged the faculty because of his profound involvement in quality dentistry.

Sadly, Dick views dentists as becoming competitors and losing the collegial aspect. It is this community feeling that is special to him in CARDP along with the professional education and mutual advancement which prevails.

Dick is very involved in his profession and his community and he is interested in performance cars and retriever dogs. We are proud to have him as our North American colleague.

MEMBER NEWS / NOUVELLES DES MEMBRES

Dr. Hubert Gaucher will undertake a lecture tour in Turkey this coming May and June. He has also been invited by the Turkish Prosthodontics and Implantology Association (TPIA) to present as keynote speaker at its Annual Scientific Meeting in Antalya on the topic of "Non Invasive Restorative Procedures." Additional presentations to dental faculties and dental groups are also scheduled. Dr. Gaucher is sponsored by the Canadian Dental Research Institute (CDRI).

Relationship Based Dentistry:

The 21st Century Formula for Success

From Fixing Teeth to Helping People

By Mr. Peter Barry, CMC, RRDH

ABSTRACT

For most dentists practice management was not something they signed up for when applying to dental school. In fact, for many clinicians, especially first decade dentists; when they hear the word "Practice Management" it conjures up images of rah-rah, hoop-la, Kumbaya, fluffy duffy simplistic concepts and processes that fall well below the realm of their technical knowledge and clinical interests. Unfortunately this viewpoint can be somewhat self limiting because our ability to succeed as clinicians really lies outside the scope of our technical abilities (clinical skills and medical knowledge). In fact, there are many highly skilled clinicians who do not achieve the same level of success and effectiveness as their lesser-skilled colleagues.

RÉSUMÉ

Pour la plupart des dentistes, la gestion de la pratique n'est pas ce qu'ils envisageaient lorsqu'ils se sont inscrits en Médecine dentaire. En fait, pour plusieurs cliniciens, surtout au cours des dix premières années, lorsqu'ils entendent le mot « Gestion de la pratique » ils s'imaginent des images de concepts et procédés très simples qui se trouvent bien bas sur l'échelle de leurs connaissances techniques et de leurs intérêts cliniques. Malheureusement, ce point de vue peut être quelque peu limitatif en soi parce que notre capacité de réussite en tant que cliniciens dépasse le cadre de nos compétences techniques (aptitudes cliniques et connaissances médicales). En fait, il existe plusieurs cliniciens très compétents qui n'obtiennent pas autant de succès et qui ne sont pas aussi efficaces que leurs collègues moins compétents.

This reality was demonstrated in the 1970s when the Andrew Carnegie Foundation funded the largest research study ever done to determine what makes an individual successful. They surveyed more than 300,000 people in four employment sectors, business, industry, education, and government. The findings speak for themselves! It was found that just 7% of your success is determined by your technical knowledge and only 12% by the technical skills you possess. Interestingly, the other 81% of your success was determined by factors unrelated to your technical expertise: mainly your

About the Author

Peter Barry is a speaker, writer, Practice Mastery Coach™, and founder of Successful Practice Architects. He is the creator of "The Dental Olympics Advantage™ Growth & Development Programs." He is also a member of the Academy of Dental Management Consultants and Speaking Consulting Network. Peter coaches dental teams through the implementation of successful and highly profitable systems of patient care and business operation. He provides customized group and one-on-one personal development success training. He can be reached at: peter@practicemastery.com/416-568-5456.

unique approach to life (attitude) and interpersonal skills.

Let's face it; years of university and dental training do little if anything to prepare you for one of your toughest challenges as a dentist (or specialist) "managing your practice while effectively promoting the full scope of your available services to your customers!" While we all know that taking care of patients and being a top-notch clinician is important, most dentists – no matter how brilliant in the clinic or the operating theatre – have little experience or knowledge when it comes to managing, their staff, their time, and the efficiency of their office. As a result, many dentists get bogged down in crammed schedules, staff morale and team unity issues, ineffective billing and collection practices, confusing operational systems, productivity challenges, and the often unbearable stress of having too much to do, no time to fix the problems, and no idea how to make things better or how to take things to the next level of success and fulfillment. To top it all off, this day-to-day business complexity begins to dilute our ability to be fully engaged and influential when it comes to marketing/communicating the value of our services to patients. That's where practice management and leadership skill development becomes important. Practice management should be seen as an empowering natural extension of the clinical excellence mandates dentists' pursue so vigorously throughout their careers. Practice Management (Clinical and Business Leadership) is in fact the soil in which the seeds of success in dentistry are grown.

In the first of this three-part series on practice management we will explore the changing landscape of business and clinical dentistry. We live in a fast-paced, highly stressful, technology driven world that is becoming more and more impersonal all the time. Howard Schultz, founder of Starbucks Coffee believes this loss of human connection is creating a fundamental change in the way consumers buy products and services. Part 2 will take us into the world of case acceptance and communication skills. After all what good is all of our advanced knowledge and superior clinical skill-set if patients aren't asking us for all the wonderful things we are capable of delivering into their lives through the medium of dentistry. Sales used to feel like a bad word that most ethical clinicians wanted to practice above. The real question before us today is "how we can sell/communicate our services to people in a more buyer-based, service-focused, and solution-driven way without sounding like a pushy salesman. And finally in Part 3 we will examine the process of creating a dream dental team with a winning attitude. When it comes down to it unless we work alone our effectiveness as clinicians will be largely impacted by our overall unity and by the alignment of our collective efforts with our co-workers. There is a big difference between a group of highly skilled individuals versus a group of people who are truly playing together as a team. In the words of the great business mind John C. Maxwell…"You don't grow a business you grow the people within your business then together you can take your business anywhere!"

Now for Part 1 … Let's take a moment to consider how dentistry has evolved over the past several decades. It used to be that a dental office was the last place anyone wanted to be. It was associated with negative images of pain and physical disability serviced in an emotionally disconnected environment. These days are gone. These paradigms or belief systems about the field of dentistry are quickly being replaced by more positive and life enhancing images of comfort, connection, and service. Television shows like *Extreme Makeover* have brought 21st century dentistry, and how it can dramatically change people's lives, to the forefront of public awareness. And negative statements like … "If you don't brush your teeth you'll have to go to the dentist" or "I'd rather go to the dentist than go out with him" are quickly being left in the past. In fact today the public is becoming more and more aware that beautiful smiles are not just for the rich and famous, but can be for anyone and our old-school role as the "fire department alleviate pain clinic" is now quickly fading away and being replaced by images of quality of life dental care.

The 21st century is such an amazing time to be in our wonderful profession. From a technical standpoint we've got better diagnostic tools, better materials, and greater clinical and theoretical knowledge. Today we are a much more experienced profession with diversely trained clinicians. Compare this to how society saw us just 25 years ago when the services patients expected to receive could be grouped into one of five most common categories – Drill-Fill-Pull-Dentures-Cleaning. In those days the use of dentistry generally occurred when someone was experiencing a problematic dental condition which they could no longer ignore or live with. The interaction in the office tended to be very generic, subservient, and somewhat routine. Patients walked into the office clutching their wallets tightly while waving the almighty insurance booklet in the air "here's my problem Doc; what is the minimal thing you can do to fix it that will be covered by my insurance – and could you please keep the pain down to a minimum because you know no one really likes being

here." This preamble was usually followed by a reluctant baton pass by the patient to us at which point we proceeded to put the patient through a very clinical and somewhat routine system of diagnoses and treatment delivery. It was a very technical, unemotional and generic process that locked dentistry into an emotionally disconnected reparative image of "fixing your unexpected dental problems at a high cost and sometimes with some physical discomfort."

The good news today is that dentistry is undergoing a major transformation in the way we do business and service our patients. The entire dental community including labs, distributors, manufactures and service companies are one by one repackaging (rebranding) their products and services into a more people friendly human touch experience. Today we live in a service-based economy. The average dental consumer expects quality and service delivered in an honest, caring, and loving environment. Our patient's values have evolved to a point where the most significant part of your practice is no longer the clinical dentistry. Today the most significant part of your practice is you. Please do not assume, even for a moment, that I am negating the importance of clinical excellence. Quality is extremely important. The reality, however, is that when choosing you as their health care provider your patients, more often than not, can't really distinguish between the qualities of available choices (clinicians).

When people make a decision to accept your dental care they are making a decision to accept you – "You" the person not "You" the dentist. The patient's relationship with you and your entire team is the most important element in a successful practice. Patients are committed to us, not to our facilities, our clinical procedures, or our instruments. The difference between good dentistry and great dentistry will never be as clear to them or impress them as much as a good relationship with you will. Their commitment to your business is primarily based on how you make them feel while they are in your presence receiving your care. Simply put, people may forget what you said and what you did but people will never forget how you made them feel and this memory will linger long after they have forgotten which tooth you crowned.

Let's face it; as people and as dental patients it is our basic human nature to want to feel genuinely respected and cared for especially when it comes to placing our health and quality of life in the hands of professionals. The challenge for our profession is that with all the technical learning and training dentists receive something begins to get lost and fade away. While vigorously pursuing clinical excellence is it possible that we begin losing sight of the people attached to the teeth? Is it possible that our clinical focus has diminished our human connection and relationship skills? After years of consulting/coaching dental teams and individual clinicians it is my experience that our communication can very often appear cold and disconnected to

people because it is delivered in a very technical manner devoid of emotion and human connection. As a profession if we are to succeed in repositioning the old school negative paradigms society holds about dentistry then we must begin to look beyond the instruments we are holding in our hands. In our hands we are, in fact, holding the life and feelings of the person attached to the teeth. Patients are filtering all decisions they make through their feelings and personal life circumstances. The time we take to build strong personal relationships with our patients will have a huge impact on our overall ability to sell the full scope of our services. Relationships strengthen your likeability and likeability leads to case acceptance. If I like you and show you that I do you're going to have a tendency to like me. If you like me you will have a tendency to trust me. If you trust me you'll have a tendency to believe the things I say. And if you believe the things I say you'll have greater tendency to accept my treatment advice. Likeability leads to case acceptance and likeability can only be developed by building strong personal relationships with each one of our patients. A people-centred business feels and sounds much different from the traditional generic transaction-oriented business.

We should all take a closer look at our own practice to explore where we stand in our human relations effectiveness. Are you merely processing your patients through a series of generic transactions or are you taking the time to get to know your cus-

tomers, their beliefs, their desires and their fears. Two people can only achieve a strong relationship by reaching beyond the boundaries they usually maintain between themselves and strangers. When we reach out to patients we begin delivering a more connected caring experience. Our ability to reach is driven by our attitudes or what we focus on – as the old saying goes "our eyes cannot see what our mind has not taught us to recognize." If we focus on dentistry we will not see people and our patients will not feel connected to us nor will they be as inspired by our ideas of how we can help them. But if you focus on people then in subtle, powerful, and unseen ways your inner attitude will create patterns of behaviour and communication that are very powerful in influencing and inspiring peo-

ple. This adjustment of focus is not really that difficult. For many it is merely a matter of genuinely reconnecting with your authentic, non-dental, self which is the way we thought and saw things before the world of dentistry started crowding our thinking. There is a buzz word being used today to describe what we are talking about, it is called "Emotional Intelligence" (EI). In our highly technological world raising our emotional intelligence is becoming more and more important so as to not dehumanize the value of dentistry. Human talk, not dental jargon is the language your patients will understand and feel the most.

There is much literature based on solid research today to support the importance of raising our emotional intelligence in the work place. In his groundbreaking book *Working with Emotional Intelligence* researcher Daniel Goleman makes this important point, "Paradoxically, IQ has the least power in predicting success among that pool of people smart enough to handle the most cognitively demanding, fields, and the value of emotional intelligence for success grows more powerful the higher the intelligence barriers for entry into a field. In MBA programs or in careers like engineering, law, or medicine (dentistry), where professional selection focuses almost exclusively on intellectual abilities, emotional intelligence carries much more weight than IQ in determining who emerges as a leader. Today in all fields of human endeavour, society is realizing that the single most important factor in job performance and advancement is emotional intelligence. Emotional intelligence is what sets the stars apart from the mediocre."

The success of a dental practice like any business is directly related to customer loyalty and loyalty is derived from relationships of trust, respect and connection. This kind of loyalty can only happen with employees who are passionately dedicated to developing genuine human connections with people. In the words of Dr. Paul Homoly of The Homoly Communications Institute "4 years of dental school spent studying the medical and technical aspects of fixing the tooth have contracted our human connection skills". A highly successful clinician once said to me "Peter I've never seen a set of teeth walk into an office." How true; they are always attached to a person with unique needs, beliefs, desires, and personal life circumstances. It's when we focus primarily on the teeth that patients will have generic low fulfillment uninspiring dental experience. Patients come into the practice with a suitcase full of everything that is going on in their lives. Our job is to fit the dentistry into that suitcase not into their mouths. We must find the patient's heart before searching for their teeth. If all you have is a hammer, then everything will look like a nail – similarly in dentistry if all you see is your repertoire of skills then every patient will look like a tooth and your case presentation will sound very technical with low "emotional appeal" to the patient. Ultimately it comes down to this, "Your dentistry gets you into a game where relationships win." Today people want products and services that create powerful and enduring emotional connections. The real question is how can we nurture and develop this kind of caring passion for customers in the hearts and minds of every member of our team.

The entire team must take a step back to remember that, you're not in the dental business; you're in the people business. But don't put unnecessary pressure on yourselves. The fact of the matter is that you don't have to have a magnificent personality in order to connect with your patients and have a powerful impact on their lives. Don't label yourself as introverted or extroverted. The most important key to quality communication and interaction is *developing a genuine child-like curious interest in the person you're talking with*. Remember; what you focus on (people versus teeth.) will affect your ability to get curious and interested. You can get to know your patients by asking quality questions. Then you must have a sincere interest in hearing the answers. The best communicators very often say the least and are the best listeners. The same rule applies to the most effective ethical sales people. Remember it's not the extrovert who dominates the conversation that a client feels most connected with, but rather the individual who shows a real and sincere interest in knowing about the life of the person they're talking with. The true secret of success is to find the heart of the patient and not their teeth. All you really need to be is a caring soul and inevitably you will soon find out that learning from and connecting with people is a much more powerful and rewarding experience than simply serving customer's needs. This approach will create an immediate expansion in the level of fulfillment you will feel from your work. Every client has a story. As practitioners, we need to speak less and listen more. We must take the time to understand our client's needs and where they are coming from, and only then can we begin to help them within the context of their lives. In fact this approach will even help them to respond to our treatment better and we will ultimately feel more rewarded.

So what percentage of your daily interaction with patients is transactional as

opposed to relational? I recently asked a young graduate dentist this question because he felt his case presentations were not yielding the results he desired based on his efforts put forth. His response to me was quite interesting, "Peter; I connect with people but I don't know if I can do that fluff stuff." I then asked him, "are you sure your patients are feeling the level of connection you think you're creating?" Sometimes we might feel we are taking this relationship stuff too far – but are we? Our level of connection with people really is the catalyst that will enable us to grow patient interest towards the full scope of things we can do for them. Understand when you're filling a tooth or performing a small procedure, the patient is buying a commodity and you can get away with selling the procedure without building a deep relationship. But when you are involved in multidisciplinary comprehensive dentistry where the fees are higher and the services become more involved patients need a deeper relationship. It is my belief that everyone should be treated with the same personalized care and respect regardless of how much they are spending in your practice. However, having said this, we cannot ignore the common business phenomena that leads dental consumers to expect more caring and personalized treatment at the $5,000 level than at the $500 level.

As previously mentioned strong relationships can only be built when we reach beyond the boundaries we are used to maintaining between ourselves and strangers. The following is a list of things we can do to strengthen our personal connection and overall ability to lead our patients.

- Before seeing your next patient take a brief moment to clear your heart and mind for them.
- When scheduling procedures always factor in connection time into your estimated appointment length.
- Relationship building is a two-way process which means that it's OK to share personal stories that allows patients to get to know who you are as a person.
- Be genuinely interested in them and avoid insincere dialogues (baby talk, overly sweet niceness, counterfeit sincerity, superficial pleasantries).
- Listen to your patients. If they are quiet, guide them by asking insightful questions.
- At the end of each patient visit briefly ask yourself "how connected was my last patient to me?" To find the answer look into your own heart …"as connected as I felt to them and not much more." Patients can feel our sincerity and this will be mirrored back to us through their feelings.

In his book *The Likability Factor*, Tim Sanders makes the argument that more than any other quality; success in life is in direct correlation to one's personal appeal. It may sound like "pie in the sky, chicken soup for the soul" but he backs his arguments with statistics, anecdotes, and academic studies from sources as far reaching as the *New England Journal of Medicine*, Stanford, Yale, and the University of Toronto to support his claim. He breaks down the process of likeability into a metaphor of driving down a road in your car and coming to a series of intersections with stop lights – each intersection representing one of the four components important to achieving high level likeability. When you achieve one component the light turns green and you can drive on to the next traffic light and so on and so forth. The following is a summary of the four components to achieving extraordinarily likeability.

1. **Friendliness**. Your ability to communicate liking and openness to others
2. **Relevance**. Your capacity to connect with others interests, wants, and needs
3. **Empathy**. Your ability to recognize, understand and acknowledge other peoples' feelings
4. **Realness**. The integrity that stands behind your likeability and guarantees its authenticity

"Customer relations" is the main area where we can shine in our patient's hearts thereby cultivating intense loyalty. Remember no two practices can be virtually identical in the people they attract, the work they inspire, the information they pass on, or the emotions and feelings they create. It is impossible! Human beings are too diverse and their interactions in different environments only magnify those differences. We all have walked into a company and immediately detected these forces at work. Passion, energy, caring, and optimism in a dynamic service company, all these qualities are palpable within the first 15 seconds of entering the reception room. You can read the DNA of a company from the receptionist and discover it replicated throughout the practice. Dentistry is no different. You must believe you are worth more to your clients than what you sell. Remember we are not in the "dentistry profession" serving people; we are in the "people business" providing dentistry. Your dentistry gets you into a game where relationships win. Grow your business one relationship at a time.

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Restoration of Posterior Implants:

Simple Techniques for the Restorative Dentist and the Dental Technician

Dr. Douglas Lobb, BSc, DDS

ABSTRACT

As **restorative** dentists, we understand that an intact, functioning posterior dentition is important for a patient's **long-term** enjoyment **of** chewing function, and dental health. To **achieve** that goal, lost or missing teeth have historically been replaced with various treatment modalities, such as fixed bridgework or removable partial denture prosthesis.

The success and long term predictability of implant-supported crowns and/or bridges have caused a paradigm shift in how restorative dentists treat the posterior dentition. The **objective** of this paper is to demonstrate simple yet effective techniques that minimize the amount of complex steps or armamentarium needed by the restorative dentist or dental technician. Using techniques and treatments that are similar to those that we use on a daily basis will lead to outcomes that are predictable, successful, and satisfying for the technician, the dentist, and the patient.

The discussion of these simple techniques is illustrated in a challenging case of a patient who is missing four posterior teeth, which will be restored by implant-supported single crowns.

RÉSUMÉ

En dentisterie restauratrice, nous comprenons que les dents postérieures en bon état sont importantes à la fonction de mastication à long terme et à l'hygiène dentaire du patient. Par le passé, les dents manquantes ont été remplacées soit par un pont fixe ou par une prothèse partielle.

Le succès et la prévisibilité à long terme des couronnes et/ou des ponts avec implants ont provoqué un changement de paradigme sur la manière dont les dentistes en dentisterie restauratrice traitent la dentition postérieure. L'objectif de cet article est de démontrer des techniques simples mais efficaces qui réduisent le nombre d'étapes complexes ou l'instrumentation que devra utiliser le dentiste ou le technicien dentaire. Le fait d'utiliser des techniques et des traitements qui sont semblables à ceux que nous utilisons tous les jours donnera des résultats qui sont prévisibles et satisfaisants pour le technicien, le dentiste et le patient.

Ces techniques sont illustrées dans le cas d'un patient auquel il manquait quatre dents postérieures qui ont été remplacées par des couronnes implanto-portées.

About the Author

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The ability to chew and masticate food well requires an intact and functioning posterior dentition, including at least the first molars. Often, the ravages of dental disease, trauma, patient neglect, biomechanical failure, and other causes; can lead to early tooth loss. Loss of teeth, if not treated, can over time lead to drifting of teeth, over-eruption of opposing teeth, alveolar bone loss and collapse of the posterior dentition, and loss of function. The challenges to the restorative dentist are many, as we address these sometimes complex and challenging situations. Historically, treatments have ranged from no treatment, to fixed bridge prosthetics, to removable partial denture prosthetics.

Over the last half century, root form or endosseous implants have lead to a new and more viable option in our quest to replace missing teeth and restore function. Continual implant improvement in such areas as: science, biology, dental materials, implant design and surface treatment, has lead to predictable, long-term successful treatment. Implant supported crowns are often now considered to be the treatment of choice over fixed partial dentures prostheses, for the replacement of missing teeth. Implant treatment has one significant bonus over the alternative therapies; the ability to preserve alveolar bone. That being said, the consideration of implant therapy depends on having adequate quality and quantity of bone where implants are being considered.

The objective of this paper is to present techniques pertinent to the restoration of implants in the posterior region that are reasonably simple for the restorative dentist and dental technician to master, and which are similar to our everyday crown and bridge techniques. The importance of adequate and complete preliminary dental and medical examination, record taking, thorough treatment planning, and communication with the patient, dental specialists, dental technician are not within the scope of this paper but are paramount to the success of any treatment.

The objective of restoring implants or teeth is to achieve predictable results that are "functionally enduring and esthetically pleasing" (Dr. Robert Winter – personal communication). The outcome objective must be discussed in detail with the patient, restorative dentist, dental surgeon, and dental technician before treatment begins.[1]

It is the authors' experience that involving the dental technician early in the treatment phase is very beneficial both in the planning and outcome. Complete contour wax-up on articulator-mounted models provides visualization of the treatment, areas of concern or limitation, and a way to communicate with the patient and dental team. Thus we create the blueprint for the final result. The expense of a full contour wax-up is offset by the advantages of deciding on the position and placement requirements of the implant, whether bone grafting or tissue augmentation will be needed, and for constructing a surgical stent to guide implant placement. From the complete contour diagnostic wax-up, the restorative dentist has determined where the crown of the tooth needs to be. This then drives where the implant placement is needed to support the crown and the functional load. Thus the treatment is prosthetically driven, not surgically driven.

Often in the posterior region of the mouth there are anatomical structures that may limit or preclude treatment, (e.g., maxillary sinus, mandibular nerve). Inadequate horizontal or vertical bone levels may require bone grafting to aid in achieving the desired outcome for implant support. Both adequate hard and soft tissue support is necessary and if inadequate, may lead to treatment that is compromised or not feasible. Today, we know that sinus elevation bone grafting, horizontal bone grafting, and soft tissue augmentation is predictable, and beneficial. Vertical bone grafting is less predictable. The use of the full contour diagnostic wax-up allows important communication between the restorative dentist and the dental surgeon. An alternative to the complete contour wax-up in less demanding cases is to use a denture tooth or a preformed wax tooth form placed on the articulated study model.

The complete contour diagnostic wax-up establishes the proper or ideal position of the future crown; it does not tell us where the implant should be located below the soft tissues, or how the soft tissues are to be supported. The author recommends following the consensus guidelines established by the International Team for Implantology (ITI) for placement of implants in the Esthetic Zone.[2,3] These guidelines serve us well in the posterior region. The implant shoulder should be placed in the optimum mesiodistal dimension, and no closer than 1.5 mm to the adjacent tooth; orofacial dimension, being placed neither too far facially or palatally, with an ideal position of 1 mm palatally from a line drawn facially from the cemento-enamel junction (CEJ) of adjacent teeth; and coronoapical dimension with the shoulder located about 1 mm apical to the CEJ of the contralateral tooth. The goal would be an implant shoulder being placed 1.5 mm to 2 mm below the level of the gingival tissue. This will allow easy removal of cement during luting procedures. If the depth becomes much greater than 3 mm, consideration should be given to a screw retained crown, or a custom screw retained coping upon which a cemented crown or bridge retainer can be placed.

Our goal is to have an ideally placed implant shoulder that allows everyday techniques by the restorative dentist and dental technician to be utilized. Such techniques as: selecting and torque of solid abutment connectors, capturing the impression with our crown and bridge impression materials, fabricating working models with simple but precise prefabricated system components for the dentist and laboratory, and the use of conventional luting cements for provisional and final cementation. The armamentarium of instruments and components required is minimal, both for the dentist and dental technician.

The simplicity in steps from the removal of the healing cap to the final placement of a crown will be demonstrated in a case report.

Material selection

The implants and system components used in the following case presentation are by Straumann (Institut Straumann AG – Switzerland). Implants used are Regular Neck 4.1 mm diameter implants with a 4.8 mm diameter collar for premolar; and 4.8 mm wide implants with a 6.5 mm diameter collar for the molar applications. All implants are Standard Plus SLA surface treated, and placed in a single stage surgery. They are subsequently fitted with solid abutment connectors for cement retained crowns. The author will demonstrate how a solid abutment can easily be

modified both by the technician and dentist when inadequate occlusal clearance occurs.

Functional Occlusal Concepts for the Natural Tooth/Implant

There are a number of goals that we as clinicians strive for when creating harmony of our patient's functional occlusion. The importance of a stable occlusion will allow long term health for our patients and reduce destabilizing, pathologic, destructive forces. The author will briefly outline the most common functional occlusal goals, some tools, and techniques that are helpful in achieving these goals.

Functional occlusion goals[4,5]:

- All jaw movements and terminal closure must be compatible with a harmonious temporomandibular joint, (TMJ)
- Envelop of function that creates an efficient use of closing and opening movement (muscles)
- Envelop of function that does not create premature loading of the teeth – wear, mobility, temporomandibular dysfunction – (TMD)
- Maximum intercuspation that the brain can find – gnathological positioning system (GPS)
- Maximum intercuspation that is precise with bilateral, equal, intensity contacts
- All occlusal forces should be directed through the long axes of the teeth or implants
- When implants and natural teeth are located within the same arch, the teeth should contact first, then the implant prosthesis. This non-simultaneous occlusal scheme compensates for tooth movement in mixed implant-natural tooth occlusal combinations, (Dr. Chris Stevens – personal communication). The periodontal ligament has about 20µ of movement.
- All posterior teeth disocclude almost instantaneously once a mandibular excursion is commenced – canine guidance
- Cusp/fossa contact directed along the long axes of the tooth is preferred; with cusp/marginal ridge contact being acceptable. All-ceramic restorations are strongest in compressive loading, and weaker in shearing/deflection loading. A cusp/fossa occlusal contact will maximize the compressive strength of porcelain ceramics bonded to teeth, and lessen the likelihood of chipping or fracture.

The goals of functional occlusion are important for the health of the natural dentition, including implant supported prosthesis. The exploration of functional and dysfunctional occlusion is well beyond the scope of this paper. An occlusal examination is important, both pre-treatment and post-treatment, for management of occlusal forces. For completeness, a discussion for the adjustment and management of occlusal forces will be made.

The tools used by the author for occlusal markings and force assessment are shim stock 8µ (Hanel – Germany); thin articulating paper (Accufilm II, Parkell – USA); thick articulating paper 60µ, 200µ (Bausch – Germany); T-Scan III computerized occlusal analysis system (Tekscan – USA).

The author's goals in the case presentation of implant supported crowns and all-ceramic restorations are: restorations with solid interproximal contacts, cusp/fossa occlusal contact relationship, full anatomically sized teeth, with forces directed along the long axes of the tooth/implant. When implants and natural teeth are located within the same arch, the natural teeth should contact and load first, prior to the implant supported crown.

As the teeth are equilibrated, it is important to develop a smooth pathway to maximum intercuspation, while eliminating any excursive interferences. The thin articulating paper is used to mark the centric holding stops, and the thicker articulating paper to mark lateral contacts during excursive movements. All posterior teeth, including canines should have one small contact that holds shim stock during centric contact. Incisors should never hold shim stock in a maximum intercuspal position or centric occlusion. Posterior teeth and canines hold shim stock; incisors only hold articulating paper. There should be no lateral marks or streaks on the posterior teeth during excursive movements, only the canines. The best way to mark the lateral movements is to sit the patient upright and have them chew on the thick horseshoe shaped articulating paper. Chew it as if it were food. This will mark the excursive contacts during function, allowing easy viewing and adjustment.

When natural teeth and implant-supported crowns occur in the same arch, the natural teeth should hold shim stock and the implant-supported crown hold only articulating paper. This is one method in developing a delayed occlusal loading of the implant supported crown. A more effective way would be with the use of the T– Scan III, computerized occlusal analysis tool.[6,7] The forces on the teeth, arch, and implant can be measured both by the intensity of force and during a time period.

The T–Scan III also allows a continuous measurement of forces on the teeth/arch over time in centric biting or loading and excursive movements. Research has shown that clinical goals of complete intercuspation of teeth from initial contact to full contact should occur within 0.2 seconds or less; and disclusion of all posterior teeth in less than 0.4 seconds.

This instrument is a much more precise tool over the articulating papers/shim stock method.

Clinical tip: to mark occlusal contacts on glazed porcelain can be very difficult. Rub a small amount of petroleum jelly (Vaseline) on the articulating paper. This allows excellent markings on the highly polished surface.

Case Presentation

The male patient has been treated by the author since he was 8 years old. The patient presents at age 14 with oligodontia, missing maxillary and mandibular second and third molars, and microdontia, with small teeth generally and peg shaped maxillary second premolars. There are retained deciduous molars and poor occlusion.

The patient was referred for an orthodontic consultation, and subsequent orthodontic treatment. The treatment goal was to align the teeth in a class I occlusion, with tight contacts of the anterior teeth and adequate spacing for implants supporting individual crowns, and restoration of the maxillary premolars. The end result of the orthodontic treatment before the restorative phase is illustrated in Figures 1 to 6.

After four years of orthodontic therapy, the teeth were placed in the ideal position in the arch, allowing restoration of the

Figure1. Pre-treatment pan.

Figure 2. Retracted smile.

Figure 3. Right retracted.

Figure 4. Left retracted.

Figure 5. Maxillary occlusal view.

Figure 6. Mandibular occlusal view.

Figure 7. Healing caps, tooth preparations, occlusal view.

Figure 8. Mirror view left side.

Figure 9. Mirror view right side.

missing teeth and re-establishment of sound posterior occlusal function. Mounted study models were made and a full contour diagnostic wax-up was undertaken. There was concern expressed by the orthodontist about a late growth spurt; the patient was 18 at the time. This potentially could have an impact on implants place at this age frame, should a late growth spurt occur. In consultation with the patient, his parents, and the orthodontist; it was decided to proceed with the implant placement.

Because of the nature of the oligodontia and microdontia, implant site selection would be the first premolar area, bilaterally, in the maxilla. In the mandible, it would be bilaterally, in the first molar region. This would create three premolars bilaterally in the maxilla, and two first molars, bilaterally in the mandible.

In one session under local anesthesia, two Straumann 4.1 mm x 12 mm Regular Neck, Standard Plus implants were placed in the maxilla, and two Straumann 4.8 mm x 12 mm Wide Neck, Standard Plus implants were placed in the mandible (Figures 7–9).

During the healing phase of the implant integration, an occlusal adjustment was performed to stabilize the occlusal contacts and improve the occlusal relationship between the arches. The principles of functional occlusion outlined earlier in this article were followed. This is a unique case as there was little posterior occlusion as a result of missing teeth, microdontia, incomplete eruption of the maxillary first molars, and post orthodontic tooth mobility. Thus, posterior occlusal stability and occlusal contacts will be restored with all-ceramic crowns and implant-supported ceramo-metal crowns. The all-ceramic crowns will restore the small sizes of the maxillary premolars to full anatomic size, and cusp/fossa occlusion. The implant-supported crowns will restore the missing teeth, again to full size anatomical crowns in a cusp/fossa occlusion. The mandibular first molars will be smaller in size, as this relates to the smaller mesial/distal width within the arch. It is important to communicate to the dental laboratory what the desired occlusion outcomes should be.

The maxillary second premolars were restored with 360° veneer type crowns, and for the first premolars, a veneer/onlay porcelain restoration, with their respective preparations (Figures 10 and 11). The goal was to restore the teeth with the most conservative restoration that would maintain the maximum amount of tooth structure. The restorations were pressed feldspathic porcelain (GC Initial - GC E.U.) and were bonded in place with resin cement (Rely-X Unicem – 3M Espe). The maximum

Figure 10. Tooth preps left side.

Figure 11. Tooth preps right side.

amount of enamel possible was conserved, and both the porcelain and enamel were etched and bonded. The author closely observed those recommendations of Biomimetic Principles as established by Dr. Pascal Magne.[8]

During cementation, the author recommends the use of a piezoelectric or ultrasonic, plastic tipped instrument (EMS PiezonMaster 600 – EMS, Switzerland), used in the dry mode, to fully seat the restoration. Despite using minimal amount of cement, and finger or biting pressure during seating of the restoration, the piezoelectric instrument will continue to express further cement, and thus seat the restoration maximally. The author has adopted the use of the piezoelectric instrument as a protocol for cementation of all inlays, onlays and crown restorations. After 3 months, the healing caps were removed and suitably selected solid abutments were torqued into place at 35 Ncm. The goal was to restore the implants with cement retained ceramo-metal crowns. The selection for the maxillary implants was 5.5 mm long solid abutment connectors, and 4 mm long solid abutment connector in the mandibular implants (Figure 12). The torque control driver with suitable solid abutment driver was used to torque the solid abutments in place

To capture the implant location with the solid abutment connector, elastomeric

Figure 12. Solid abutment in place.

Figure 13. Impression cap and cylinder.

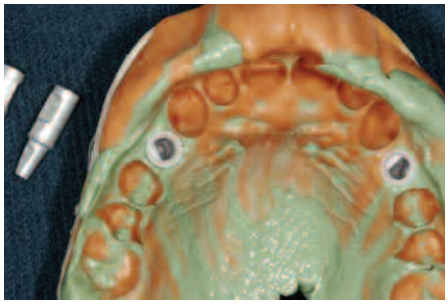

Figure 14. Impression.

impressions are made. Impression caps are first placed and it is important to ensure these caps snap in place solidly, and to hand rotate them to ensure solid seating. A positioning cylinder is next placed within the impression cap to record the flat spot on the solid abutment. A suitable, rigid elastomeric impression is made to capture the arch. A polyvinyl siloxane or polyether impression material is suitable. The author uses a light body/heavy body polyvinyl siloxane material (Affinis – Coltène Whaledent, Switzerland), (Figures 13 and 14). During the restoration phase, the support of the orthodontist and the patient were exceptional. After each change in the restorative phase, the patient would return that day to the orthodontist to have a new stabilizing retainer fabricated and placed. The retainer would stabilize and maintain the position of the teeth and prevent

Figure 15. Provisional.

relapse. This level of support and service is critical (and much appreciated) in the final success of the restorative treatment.

For the maxillary implants, custom provisionals were created using Straumann temporary copings (Figure 15). The mandibular implants were not in a high aesthetic area, thus the Straumann PEEK grey/brown protective caps were selected and provisionally cemented in place.

Clinical tip: removal of provisional cement from either implant solid abutments or prepared teeth after provisional removal is easily accomplished with the use of intracoronal bristle brushes (ICB brushes – Ultradent Products – USA). This is best done with a slow speed handpiece with water irrigation. This allows for effective removal of the provisional cement with minimal disturbance of the soft tissues.

The next phase of treatment encompasses the dental laboratory. Colour coded laboratory analogs were placed into the impression cap. A separating release agent was placed over the impression material and a flexible soft tissue material was placed around the laboratory analogs prior to pouring of the solid model (Gingifast elastic - Zhermack, Italy) (Figure16). The models were then articulated. The maxillary solid abutments were too long and the laboratory reduced their height, and fabricated a reduction coping. This reduction coping will assist the dentist in reducing the height of the solid abutment clinically (Figures 17 and 18). The author recommends the use of Razor burs (Razor carbide burs 1558RZ – Axis Dental) to reduce the titanium analogs. These burs cut efficiently without grabbing or sparking. The dental laboratory selected a precision, plastic analog to cover the solid abutment, and then proceeded to wax and cast the gold frame work. The plastic copings are

Figure 16. Model – close view.

Figure 17. Reduction coping.

Figure 18. Abutment reduction.

designed for either a crown, which has a flat anti-rotational spot, or a bridge, which has no anti-rotational feature. After casting, a self-centering pin/reamer is utilized to remove the outer lip from the gold casting. This lip was for retention of the plastic coping to the laboratory solid analog. Its removal on the gold casting allows a precise fit of the crown to the shoulder of the implant. Conventional ceramo-metal crowns and reduction copings were then returned to the dental office.

In the clinical setting, the maxillary abutments were reduced and the crowns were tried in place. The fit was confirmed both clinically and radiologically. The crowns are now luted into place with a luting cement of the dentist's choice. The author uses a resin-modified glass-ionomer cement (GC FujiCEM – GC Japan).

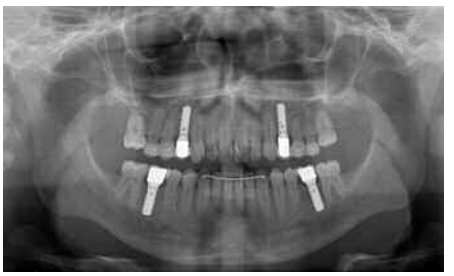

Figure 19. One year follow up pan-edited.

Figure 20. Occlusal view – final, maxillary.

Figure 21. Occlusal view – final, mandibular.

A clinical tip – mix and load the cement within the crown, then place the crown on the laboratory analog, remove and then place in the mouth. This technique expresses most of the unnecessary cement prior to placing the crown on the implant, allowing full seating with minimal cement being expressed into the soft tissue area. Again the use of the piezoelectric tip is used. Minimal use of cement retains the crown and reduces the potential of cement being left behind below the tissue where it could cause inflammation or irritation.

The implant supported crowns have been in place for over two years, and are functioning well, providing the patient with intact, functional posterior occlusion (Figures 19-21).

Conclusion

A sound, intact, and functioning posterior occlusion is important for long term dental health, proper mastication, and occlusal support for our patients. Implant supported crowns and/or bridges offer better options for our patients, for long term, predictable results than fixed or removable partial dentures. The restoration of these implants can be quite simple, utilizing minimal armamentarium and component parts. The restoration of implant supported crowns or bridges utilize techniques that are very similar to what is used every day in conventional crown and bridge treatment. With the use of a case presentation, many of these steps are demonstrated.

Acknowledgement

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Canadian Academy of Restorative Dentistry and Prosthodontics:

Its Origins, Its History

By Dr. Emo Rajczak, DDS

Many of our younger and more recent members understandably know little about the origins of the Canadian Academy of Restorative Dentistry and Prosthodontics (CARDP) other than it is the child of its parents, The Canadian Academy of Restorative Dentistry (CARD) and The Canadian Academy of Prosthodontics (CAP).

Peu de nos jeunes et récents membres ne connaissent, et ceci est compréhensible, les origines de l'Académie canadienne de dentisterie restauratrice et de prosthodontie (ACDRP) autre qu'elle est l'enfant de ses parents, l'Académie canadienne de dentisterie restauratrice (ACDR) et de l'Académie canadienne de prosthodontie (ACP).

This will be the first of what is hoped to be a series of articles that will recount the beginnings of both parent organizations and also the biographies of some of the early visionaries who were our founding fathers.

Although all of the founding members of both CARD and CAP have passed on, there are a few charter members of both groups still with us. A few are still active and healthy and I was able to draw on them to supply as much of the early history as still exists in their memories and records.

The Canadian Academy of Restorative Dentistry

The first meeting of charter members of The Canadian Academy of Restorative Dentistry was held in 1964, at the University of Alberta. It was convened by the two men who are now recognized as the founders, Dr. George Brass and Dr. George Gibb.

Both men were recognized as excellent clinicians and were much respected as such across Canada, internationally, and most certainly, by their respective students.

I am indebted to Dr. Harry Rosen of Montreal for supplying me with the list of the original invitees at that inaugural meeting. They were George Brass (Winnipeg), George Gibb (Edmonton), Ernest Ambrose (Montreal), Harry Rosen (Montreal), Douglas MacDougall (Edmonton), Walter Grenkow (Winnipeg), Norman Ferguson (Vancouver), Owen Yule (Toronto), Ludlow Beamish (Vancouver), E.S. "Denny" Morrison (Halifax), and Blake McAdam (Toronto).

Five of the 11 invitees were asked to do chair-side gold foil demonstrations. Clinical participation of this type was to become a prerequisite for membership in the same way it was a requirement for entry into the American Academy of Restorative Dentistry and into the American Academy of Gold Foil Operators since most of the invitees were members of one or both of those organizations.

Harry Rosen was one of those invited to do a gold foil demonstration and he was chosen to be the first president of CARD with the first formal meeting to be held at McGill University in 1965. It was the custom for the first few meetings to be held at Canadian dental schools where clinical facilities existed, and for some years, live chair-side demonstrations were a significant part of the scientific program. Gradually, lectures and table clinics replaced these chair-side clinical procedures.

The Canadian Academy of Prosthodontics

The Canadian Academy of Prosthodontics was founded by four Toronto dentists, all of whom were members of the American Prosthodontic Society, and who at some point in their careers, donated their time and expertise to the teaching of removable prosthodontics at the University of Toronto, Faculty of Dentistry. In those days the word "prosthodontics" referred exclusively to removable complete and partial dentures, unlike today, where the word encompasses a much broader field of procedures involving both fixed-removable and implant-supported dentures.

These dentists were William G. "Bill"

Woods, R. Lawrence "Larry" Twible, and Charles H. "Charlie" Moses. At present I am in the process of gathering information on the genesis of CAP and hopefully this material will appear in the subsequent issues of *CJRDP*.

George Brass

In this issue, through the kind auspices of Past President Allan G. Osborn of Winnipeg, who was a very close friend of George Brass, we are fortunate to have the following warm and insightful biography of George which Allan wrote on the occasion of George's death.

Dr. George Brass passed away on Saturday, January 18, 1997 at the age of 82. Born in Yorkton, Saskatchewan, the son of a well-known and highly respected dentist, it was natural that George Brass would himself pursue the profession of dentistry, and his was a truly illustrious career. All of us were fortunate to have been the recipients of his wisdom, his dedication, and above all, his enthusiasm for his chosen profession where he shone as an outstanding example of the true professional. It was at the time of entering university that a career as a professional hockey player beckoned, for no less than the Detroit Red Wings were anxious to sign George to a full contract.

George Brass graduated from Northwestern University Dental School in Chicago in 1939 and upon returning to Canada, joined the Canadian Dental Corps, with which he saw service in Great Britain, Western Europe, the Mediterranean, and Italy. Later he would be a member of a delegation sent overseas by the Canadian government to honour the fallen, in ceremonies throughout Italy. Demobilized in 1946, with the rank of major, George returned to Northwestern University Dental School for graduate study, with special emphasis upon cast gold restorations.

From the time he completed his graduate studies and until 1958, George Brass taught restorative dentistry at the University of Alberta in Edmonton, Alberta. When the new faculty was established in Manitoba in 1958, George was invited by Dean Nielson to chair the new Department of Restorative Dentistry. He gave a rich course of study which, with its accent upon gold, enabled his students to graduate with fine clinical skills and a solid grasp of the basic principles so important

Dr. George Brass perfoming a gold foil restoration.

to everyday practice. To the student he was always known affectionately as "The Boomer" on account of his powerful and penetrating voice. Following his retirement in 1979, the University conferred the title of professor emeritus. Dr. Clifford Miller, associate dean of Northwestern University Dental School travelled to Winnipeg to deliver the keynote address.

George Brass was a life member of the American Academy of Gold Foil Operators, and it could be said that gold foil was his first love in dentistry. He extolled the virtues of G.V. Black and was proud to have been a part of the school from which the great man had originated his work. In 1972, with the formation of the Winnipeg Ferrier Society taking place on the very same day that Canada defeated Russia in the great hockey series, George was a man transported. Throughout the 20 years of the existence of the study club, only the occasional illness prevented his attendance. A charter member of the Operative Academy, George anticipated the annual journey with considerable pleasure. He both lectured and gave table clinics at these meetings, enjoying the scientific and social aspects of the gatherings equally. He was awarded the Thomas Hinman Bronze Medal. In Canada, George Brass was one of the founding fathers of the Canadian Academy of Restorative Dentistry, and was later made an honourary member of that organization. He was also president of the Canadian section of the International College of Dentists, a member of the Royal College of Dentists, life member of the Canadian Dental Association, and the first honourary member of the Manitoba Dental Association.

George was proud of his Scottish ancestry and would, on occasion turn out in full regalia to the annual dinner meeting of the Winnipeg Ferrier Society. He was a member of The Burns Society in Winnipeg, avowing a healthy suspicion of all Sassenachs. He knew a great deal of Robbie Burns' poetry by heart, and took particular pleasure in narrating the "Ode to a Haggis" prior to slaying "the wee beastie." His was a life full of achievement, of helping others, of leading by example … we are privileged to have been counted amongst his friends.

My thanks goes to Allan Osborn for much of the above, but on a personal note, I remember George Brass as a curmudgeon who would not hesitate to tell a student, a colleague or a lecturer how his approach to any dental procedure could be improved. Most importantly, he was a lovable curmudgeon and you could accept any criticism from him, knowing full well, that his dental life was all about the relentless pursuit of perfection.

In a future issue we will present a history of the Canadian Academy of Prosthodontics. Any information that anyone has on the early honourary members of both CAP and CARD, please submit your information and recollections to the editor.

Canadian Journal of
Restorative Dentistry & Prosthodontics

The official publication of the Canadian Academy of
Restorative Dentistry and Prosthodontics

Journal canadien de
dentisterie restauratrice et de prosthodontie

Publication officielle de l'Académie canadienne
de dentisterie restauratrice et de prosthodontie

Call for Papers

Canadian Journal of Restorative Dentistry and Prosthodontics

CARDP's Executive has recently concluded a publishing agreement with Andrew John Publishing Inc. The Academy's new Journal will have a circulation of 2,500 and be published three times a year, starting this May, followed by issues in August and December.

Editor – Dr. Hubert Gaucher
Associate Editors – Drs. Maureen Andrea, Emo Rajczak, and Dennis Nimchuk

The success of this Journal will depend on membership editorial contributions. Please consider submitting original articles, reviews, or participating in any of the following areas;

I – **Articles (Original, Reviews, Case Reports):** Please refer to the attached "Instructions to Authors" for details. Due dates are February 26, July 15, and October 30, 2008.

II – **Membership News:** Please forward any news of interest to the profession.

III –**Young Authors Awards Fund:** Financial contributions to this fund will recognize a dentist with 5 years' experience or less in practice and/or a graduate student in Canada, who will receive a $1,000 award for the best published article of the year.

IV – **Dental Student Award Fund:** Financial contributions to this fund will recognize a dental student in Canada, who will receive a $500 award for the best published article of the year.

V – **Section Editors:** Should you wish to serve as a section editor, please contact me and indicate your subject(s) of interest. It is important that a significant number of members become involved to reflect the broadest spectrum of member interests. Section editors for specific fields of interest (e.g., Dental Materials, Occlusion, Oral Biology, Microdentistry, CAD/CAM, Ceramic Restorations, Implant Dentistry) would be submitting articles and/or identifying potential Journal authors/contributors in their respective field.

If you have any comments or suggestions about submissions or would like to become more involved in the Journal, please contact me at:

hgaucher@sympatico.ca
Tel: (418) 658-9210
Fax: (418) 658-5393

Please visit www.cardp.ca for the CJRDP/JCDRP Instructions to Authors.

Demande de communications

Journal canadien de dentisterie restauratrice et de prosthodontie

Le bureau de l'Académie canadienne de dentisterie restauratrice et de prosthodontie a conclu une entente avec Andrew John Publishing Inc. La nouvelle revue de l'Académie aura un tirage de 2500 exemplaires et sera publiée trois fois par année, soit en mai, en août et en décembre.

Rédacteur en chef – Dr Hubert Gaucher
Rédacteurs adjoints – Drs Maureen Andrea, Emo Rajczak, et Dennis Nimchuk

Le succès de cette revue repose sur la contribution de tous les membres. On demande aux membres de bien vouloir soumettre des articles originaux, des comptes rendus ou participer à ce qui suit :

I – **Articles (originaux, comptes rendus, rapports de cas) :** Veuillez consulter le formulaire ci-joint « Instructions aux auteurs » pour plus de détails. Les dates d'échéance sont le 26 février, le 15 juillet et le 30 octobre 2008.

II – **Nouvelles aux membres :** Veuillez nous envoyer toute information pertinente à la profession.

III – **Bourse pour les jeunes auteurs :** Les contributions financières à cette bourse permettront de remettre une bourse de 1000 $ à un dentiste ayant moins de 5 ans de pratique et/ou à un(e) étudiant(e) gradué(e) au Canada pour le meilleur article publié au cours de l'année.

IV – **Bourses pour étudiant(e)s en Médecine dentaire :** Les contributions financières à cette bourse permettront de remettre une bourse de 500 $ à un étudiant ou une étudiante en Médecine dentaire au Canada pour le meilleur article publié au cours de l'année.

V – **Rédacteurs d'une section :** Si vous désirez agir à titre de rédacteur d'une section, veuillez communiquer avec moi et indiquer les sujets qui vous intéressent. Il est important qu'un grand nombre de membres participent pour mieux délimiter la polyvalence des domaines d'intérêt des membres. Les rédacteurs d'une section pour divers domaines (p. ex., matériaux dentaires, occlusion, biologie orale, microdentisterie, CFAO, céramique dentaire, dentisterie implantaire), pourraient soumettre des articles et/ou identifier des auteurs ou collaborateurs dans leur domaine respectif.

Si vous avez des commentaires ou des suggestions à faire ou si vous désirez vous impliquer davantage dans la revue, veuillez communiquer avec moi :

hgaucher@sympatico.ca
Tél : (418) 658-9210
Fax : (418) 658-5393

Veuillez consulter notre site web www.cardp.ca pour les "Instructions aux auteurs" du CJRDP/JCDRP.

Contributions

I - Young Authors Award Fund

Financial contributions to this fund will recognize a dentist with 5 years' experience or less in practice and/or a graduate student in Canada who will receive a $1,000 award for the best published article of the year. Call for Papers include specific award rules and procedures for submissions to the Editor of the Canadian Journal of Restorative Dentistry and Prosthodontics (CJRDP)

II - Dental Students Award Fund

Financial contributions to this fund will recognize a dental student in Canada who will receive a $500 award for the best published article of the year. Call for Papers include the specific award rules and procedures for submissions to the Editor of the Canadian Journal of Restorative Dentistry and Prosthodontics (CJRDP).

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Les contributions financières à cette bourse permettront de remettre une bourse de 1000 dollars à un dentiste ayant moins de 5 ans de pratique et/ou à un(e) étudiant(e) gradué(e) au Canada pour le meilleur article publié au cours de l'année. La Demande de communications comporte des règlements et des procédures spécifiques à la soumission au rédacteur du Journal canadien de dentisterie restauratrice et de prosthodontie (JCDRP).

II – Bourse d'étude en Médecine dentaire

Les contributions financières à cette bourse permettront de remettre une bourse de 500 dollars à un étudiant ou une étudiante en Médecine dentaire au Canada pour le meilleur article publié au cours de l'année. La Demande de communications comporte des règlements et des procédures spécifiques à la soumission au rédacteur du Journal canadien de dentisterie restauratrice et de prosthodontie (JCDRP).

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Aplasie des glandes salivaires et lacrymales:

présentation de cas, **PARTIE I**

Dr. Rénald Pérusse DMD, MD, LMCC, FRCD(C), C.S. (ODQ)

RÉSUMÉ

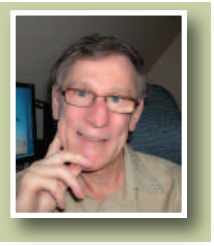
Cet article relate le cas d'une patiente porteuse de deux prothèses dentaires complètes dont une prothèse implanto-portée inférieure, qui a consulté pour une sensation de brûlure intermittente de sa cavité buccale. L'investigation de cette patiente a démontré la présence d'une aplasie des glandes sous-maxillaires et sub-linguales, d'une hypoplasie des glandes parotides et d'une atrésie du canal naso-lacrymal droit, éléments compatibles avec le diagnostic d'un syndrome d'aplasie des glandes lacrymales et salivaires (AGLS). La présentation de ce cas nous permettra de discuter du syndrome AGLS et de nous attarder dans un deuxième article sur les principales causes de la xérostomie, problématique à laquelle le clinicien est souvent confronté.

L'aplasie des glandes lacrymales et salivaires (AGLS) est un désordre héréditaire relativement rare considéré comme une variante allélique du syndrome lacrymo-auriculo-dento-digital (LADD) avec lequel il partage un certain nombre de manifestations cliniques[1]. Le syndrome AGLS est secondaire à certaines mutations du gène du facteur de croissance fibroblastique 10 (FGF10), mutations qui ont aussi été démontrées dans le syndrome LADD.[2] Quarante-cinq cas d'aplasie des glandes lacrymales et salivaires ont été rapportés jusqu'à ce jour dans la littérature médicale et dentaire. L'atteinte sévère de la fonction salivaire observée dans le cadre de ce syndrome entraîne généralement une perte prématurée de la dentition primaire et permanente favorisée par un processus carieux accéléré. De plus, les sujets affectés par ce syndrome éprouvent souvent d'importantes difficultés à s'adapter à des prothèses dentaires conventionnelles en raison de leur xérostomie, ce qui les amènent éventuellement à recourir à des restaurations implanto-portées.

D'autres désordres génétiques syndromiques ou non syndromiques peuvent être associés à une agénésie complète ou partielle des glandes salivaires majeures. C'est le cas notamment de l'agénésie salivaire isolée, de la dysplasie ectodermique anhydrotique et de certaines dysembryopathies cervicofaciales caractérisées par des anomalies du premier et du deuxième arc branchial (dysostose mandibulofaciale, microsomie hémifaciale, spectre oculo-auriculo-vertébral incluant le syndrome de Goldenhar et la microsomie hémifaciale).[3] La découverte d'une agénésie salivaire chez l'adulte, qu'elle soit liée ou non à d'autres malformations congénitales, constitue cependant un phénomène plutôt exceptionnel. En revanche, certaines conditions comme le diabète, la maladie de Sjögren ainsi que les dysfonctions salivaires iatrogéniques consécutives à la radiothérapie ou à la prise de médicaments anticholinergiques ou sympathomimétiques sont des causes nettement plus fréquentes de xérostomie chez des sujets plus âgés.

Biographie sommaire de l'auteur :

Le Dr Rénald Pérusse est détenteur d'un doctorat en médecine dentaire et en médecine. Il enseigne et exerce comme spécialiste en médecine buccale à la faculté de médecine dentaire de l'Université Laval. Il est l'auteur ou le co-auteur d'un volume, de trois cédéroms et de 52 publications scientifiques. Ses champs d'intérêt sont les manifestations orales des désordres systémiques, les urgences médicales et la pharmacologie dentaire. Il peut être contacté à: renaldperusse@videotron.ca



Cas clinique

Une patiente de 71 ans consulte pour sensation de brûlure intermittente touchant la face interne des deux lèvres et la partie antérieure de deux muqueuses jugales depuis environ 5 à 6 ans. Cette dame est porteuse de deux prothèses dentaires complètes, dont une prothèse implanto-portée inférieure fixée sur 4 implants.

Le questionnaire médical nous permet d'apprécier qu'elle est traitée pour une hypothyroïdie et pour une arythmie cardiaque à l'aide de Synthroid, de Cordarone et d'Aspirine. Elle prend aussi certaines vitamines et produits naturels sous forme de vitamine C, de vitamine D, de calcium, de magnésium et de glucosamine. Deux chirurgies ont été subies dans le passé soit une arthroplastie du genou gauche ainsi qu'une hystérectomie pour un cancer de l'endomètre. La patiente est enfin porteuse d'une atrésie du canal naso-lacrymal droit, condition qui toucherait aussi deux autres membres de sa famille. Il n'y a pas de xérophtalmie signalée par cette dernière.

L'examen clinique nous permet d'abord de constater que les prothèses dentaires sont d'excellente qualité. Il n'y a pas de lésion visible à l'inspection des lèvres et des muqueuses jugales. La surface dorsale de la langue est inflammée et dépapillée. Les muqueuses ne sont pas lubrifiées de façon optimale. Il n'y a pas de salive s'écoulant des canaux de Sténon et de Wharton. Les glandes parotides et sous-maxillaires ne sont pas palpables à l'examen cervico-facial. Une radiographie panoramique révèle la présence d'une arthrose temporomandibulaire bilatérale et confirme le fait que les implants sont parfaitement intégrés (figure 1).

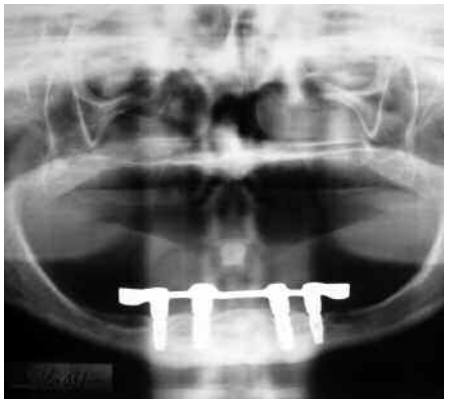


Figure 1. : Radiographie panoramique démontrant la présence de 4 implants mandibulaires et d'une arthrose bilatérale des ATM.

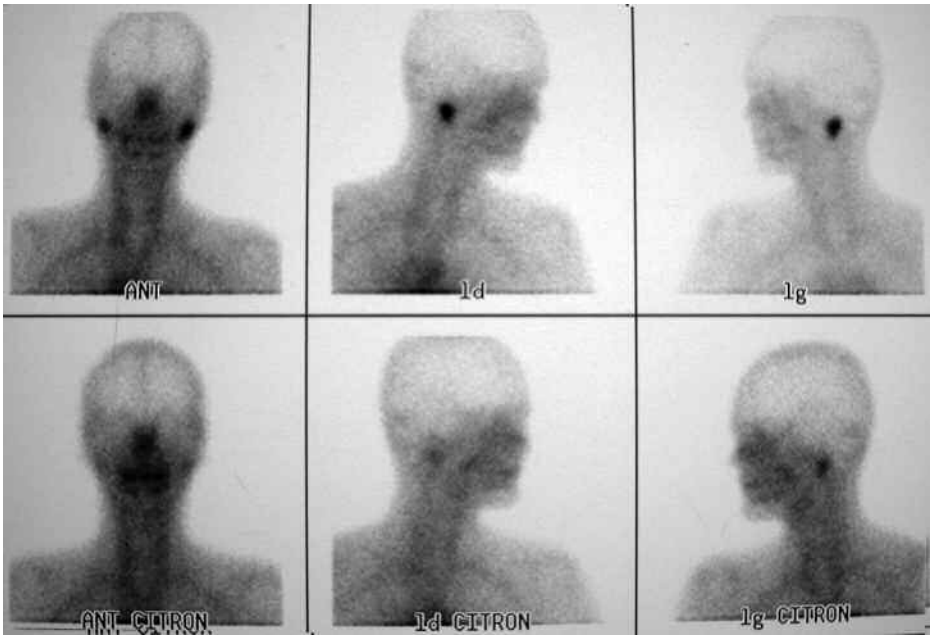


Figure 2a. : Scintigraphie salivaire au Tc^{99} de la patiente : notez l'absence de captation du radiotraceur au niveau des glandes sous-maxillaires et sub-linguales ainsi que la captation réduite en regard des deux glandes parotides (rangée supérieure). Un certain retard d'élimination du radiotraceur est observable au niveau de la parotide gauche après la prise de citron (rangée inférieure). Remarquez de plus que la glande thyroïde n'est pas fonctionnelle.

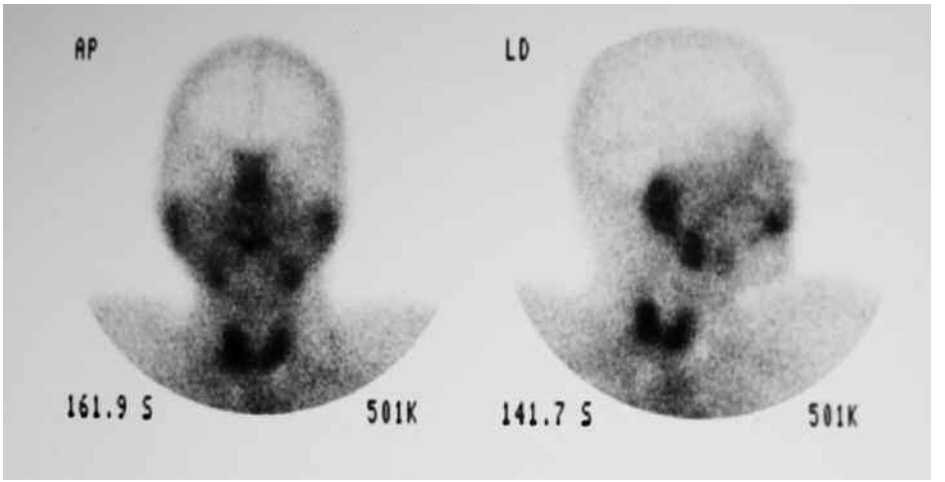


Figure 2b. : Scintigraphie salivaire au Tc^{99} chez un sujet normal : notez la captation adéquate du radiotraceur au niveau des glandes salivaires et de la thyroïde.

Des examens de laboratoire sont demandés afin d'évaluer la xérostomie : hémogramme (complete blood count), vitesse de sédimentation (erythrocyte sedimentation rate), glycémie, ferritine, acide folique, vitamine B_{12}, anticorps antinucléaires, facteur rhumatoïde et anticorps anti-ENA. Une culture de la langue, une scintigraphie salivaire au Tc^{99} ainsi qu'une tomodensitométrie cervicale complètent l'investigation. Les analyses de laboratoire sont strictement normales. La culture de la langue est positive pour le Candida albicans. La scintigraphie salivaire démontre que les glandes parotides sont nettement diminuées de volume et qu'il n'y a aucune captation du radiotraceur en regard des glandes sous-maxillaires et sub-linguales (figure 2). Une tomodensitométrie cervicale confirme la présence d'une aplasie des glandes sous-maxillaires et sub-linguales ainsi qu'une hypoplasie importante de la glande parotide droite et modérée de la glande parotide gauche (figure 3).

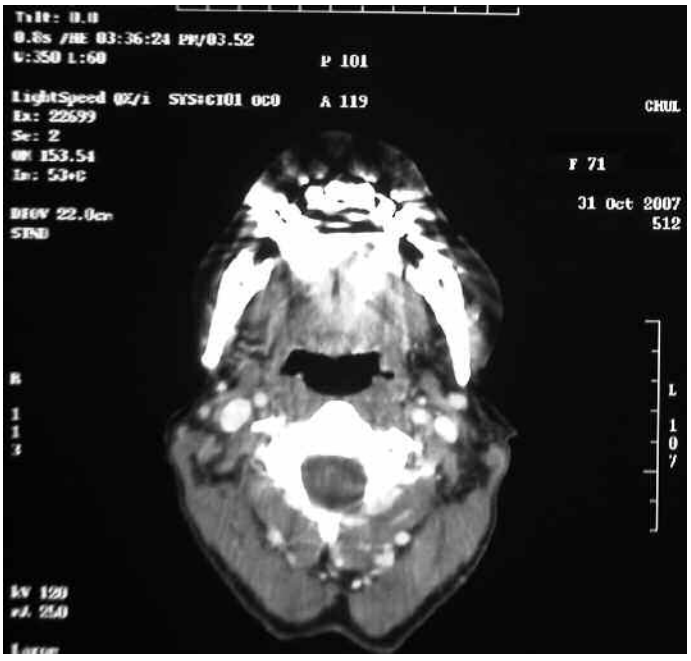


Figure 3a. : Tomodensitométrie cervicale de la patiente avec plan de coupe passant au niveau du bord inférieur de la mandibule: notez l'absence des glandes sous-maxillaires.

Figure 3b. : Tomodensitométrie cervicale de la patiente avec plan de coupe passant au niveau de la partie inférieure de la branche montante : notez l'hypoplasie importante de la glande parotide droite et modérée de la glande parotide gauche.

Discussion

Le syndrome AGLS est une affection relativement rare. Jusqu'à ce jour, 45 cas seulement ont été publiés dans la littérature médicale et dentaire. Le syndrome AGLS est un désordre héréditaire d'expressivité variable se transmettant de façon autosomique dominante avec pénétrance complète. Des cas sporadiques et familiaux de ce syndrome ont été rapportés[4]. Ce dernier est secondaire à certaines mutations du gène du facteur de croissance fibroblastique 10 (FGF10) cartographiées au locus 5p13-5p12[4]. Le facteur FGF10 joue un rôle majeur dans l'organogénèse de plusieurs structures dont celles de la région cervicofaciale. Une haploinsuffisance de ce facteur à un stage critique de la formation des glandes lacrymales et salivaires majeures serait impliquée dans la pathogenèse du syndrome AGLS.[1] Le syndrome AGLS est aussi considéré par certains auteurs comme une neurocristopathie soit une dysplasie tissulaire ou organique découlant d'une anomalie de la migration, de la différenciation, de la division ou de la durée de vie des cellules de la crête neurale[5]. Ces deux concepts ne sont pas mutuellement exclusifs car il a été démontré, à titre d'exemple, que les mutations du gène TCOF1 responsables de la dysostose mandibulofaciale (Treacher Collins) entraînent une apoptose des cellules de la crête neurale en réponse à l'incapacité de ces cellules à compléter la synthèse de l'ADN ribosomal leur permettant d'entrer en phase S, mettant ainsi en relief les impacts d'une mutation génétique sur la maturation des cellules de la crête neurale.[6]

Le syndrome AGLS est caractérisé par une aplasie ou une hypoplasie des glandes lacrymales et des glandes salivaires majeures pouvant être associée à une absence des points lacrymaux (lacrimal puncta) et une atrésie des canaux nasolacrymaux.[1,4] Les manifestations cliniques du syndrome AGLS sont très variables, les plus classiques étant la xérophtalmie, la conjonctivite chronique, la kératoconjonctivite chronique, l'épiphora (larmoiement spontané), la dacryocystite (infection du sac nasolacrymal), la xérostomie, la stomatopyrose, l'érosion dentaire, la perte prématurée de la dentition causée par la carie et les atteintes parodontales, la candidose orale, la dysgueusie, l'hypogueusie, l'intolérance aux prothèses dentaires, les sialadénites bactériennes secondaires à une infection rétrograde, la dysphonie, la dysphagie, la pharyngite et la laryngite chronique.[1,2,4] Le syndrome AGLS ne doit pas par ailleurs être confondu avec la maladie de Sjögren qui est une exocrinopathie auto-immune existant sous deux formes la maladie de Sjögren primaire (syndrome sec ou sicca syndrome) et la maladie de Sjögren secondaire apparaissant dans le cadre d'une connective telle l'arthrite rhumatoïde et le lupus érythémateux principalement.

Un chevauchement important existe par ailleurs entre le syndrome AGLS et le syndrome LADD, deux désordres considérés comme des variantes alléliques au locus 5p13-5p12.[1] Diverses mutations du FGF10 ont été décrites dans le syndrome LADD, ce qui explique certaines manifestations communes entre les deux conditions, notamment sur le plan ophtalmologique et buccal.[2] Le syndrome LADD est aussi caractérisé par certaines mutations hétérozygotes des domaines tyrosine kinase des récepteurs 2 et 3 du facteur de croissance fibroblastique (FGFR2, FGFR3).[1,7] Les mutations des récepteurs FGFR2 et FGFR3 ou de leur ligand FGF10 interfèrent avec l'activation de la voie de signalisation FGF10-FGR2b essentielle à la morphogenèse de plusieurs structures et organes tels les glandes salivaires majeurs, les glandes lacrymales, les extrémités, la glande thyroïde, le sein, le poumon et le pancréas.[7]

Tout comme le syndrome AGLS, le syndrome LADD est un désordre hérédi-

taire relativement rare se transmettant de façon autosomique dominante avec pénétrance complète. Au total, 64 cas sporadiques ou familiaux ont été rapportés jusqu'à ce jour dans la littérature médicale et dentaire.[2,8–10] Les manifestations du syndrome LADD sont extrêmement variables. Ces dernières intéressent non seulement l'appareil lacrymal et les glandes salivaires majeures mais aussi la dentition, les maxillaires, l'oreille et les extrémités. Outre la perte prématurée des dents et les autres complications découlant de la xérostomie, des cas d'hypoplasie de l'émail, d'éruption dentaire retardée, de microdontie, d'hypodontie, de palais ogival et étroit, de fente palatine, de prognathie et d'hypoplasie condylienne ont été signalés dans le syndrome LADD.[11,12] L'atteinte de l'oreille prend la forme d'une surdité mixte ou neurosensorielle et d'oreilles en cupules, petites (microtie, anotie), dysmorphiques ou mal implantées.[12] Des malformations des doigts ou des orteils sont aussi monnaie courante : syndactylie, clinodactylie, pouce hypoplasique, bifide ou triphalangé, patron métacarpophalangien altéré, bifidité ou élargissement du gros orteil.[11,12] Certaines anomalies urogénitales ont aussi été rapportées soit hypospadias, reins polykystiques, malformations de l'arbre urinaire, néphropathie, agénésie ou hypoplasie rénale.[12]

Quelques cas d'agénésie salivaire isolée, sporadiques ou familiaux, ont aussi été rapportés dans la littérature.[3,13,14] La mutation du FGF10 n'a jamais été détectée ni recherchée jusqu'à ce jour chez les sujets porteurs d'une agénésie salivaire isolée. La découverte de cette mutation permettrait d'établir un continuum entre l'agénésie salivaire isolée, le syndrome AGLS et le syndrome LADD, démontrant ainsi l'expressivité très variable des différents syndromes caractérisés par la présence d'une mutation du FGF10 ou de ses récepteurs FGFR2 et FGFR3. À cet égard, il est intéressant de souligner que la voie de signalisation FGF10-FGFR2b joue un rôle critique dans la formation du palais et de la glande sous-maxillaire, ce qui est d'ailleurs corroboré par la publication récente d'un cas d'agénésie salivaire chez un enfant de 5 ans porteur d'une fente labio-palatine bilatérale.[15] Quoiqu'il en soit, les patients porteurs d'une agénésie salivaire isolée peuvent présenter une absence ou une hypoplasie simple ou combinée, uni ou bilatérale des glandes parotides, sous-maxillaires ou sub-linguales, ce qui peut entraîner une importante xérostomie qui pourra cependant varier d'un sujet à l'autre selon le nombre de glandes atteintes et la capacité fonctionnelle des glandes salivaires accessoires de la cavité buccale.

Certains cas d'agénésie salivaire ont enfin été signalés chez des patients souffrant de dysplasie ectodermique anhydrotique16 et de certaines dysembryopathies cervicofaciales telles la dysostose mandibulofaciale (Treacher Collins), la microsomie hémifaciale et le spectre oculo-auriculo-vertébral (syndrome de Goldenhar et microsomie hémifaciale)[3]. Ces dysembryopathies, tout comme le syndrome AGLS lui-même, sont considérées par certains auteurs comme des exemples de neurocristopathies touchant les structures dérivées du premier et du deuxième arc branchial.[3,17,18]

Conclusion

Le syndrome AGLS constitue l'une des principales causes d'agénésie salivaire n'étant devancé à cet égard que par le syndrome LADD. Un chevauchement important existe entre ces deux désordres qui sont considérés comme des variantes alléliques au locus 5p13-5p12 ayant en commun diverses mutations du gène du facteur de croissance fibroblastique 10 (FGF10), facteur impliqué notamment dans la formation des glandes salivaires majeures. La découverte d'un syndrome AGLS chez l'adulte est plutôt exceptionnelle, ceci pouvant s'expliquer en partie par le fait que ces cas de reconnaissance tardive sont peu symptomatiques, les patients s'étant adaptés progressivement à leur dysfonction salivaire. En revanche, plusieurs désordres systémiques et traitements médicaux peuvent contribuer à l'apparition d'une dysfonction salivaire chez l'adulte. Ces conditions feront l'objet d'une discussion approfondie dans un deuxième article consacré au différentiel de la xérostomie.

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Aplasia of Lacrimal and Salivary Glands:

Case Presentation, PART I

Dr. Rénald Pérusse DMD, MD, LMCC, FRCD(C), C.S. (ODQ)

ABSTRACT

This article relates the case of a patient with two complete dentures, including a lower implant-borne prosthesis, who consulted for an intermittent burning sensation in the oral cavity. An examination revealed the presence of an aplasia of the submaxillary and sublingual glands, a hypoplasia of the parotid glands, and an atresia of the right nasolacrimal duct. This clinical presentation is compatible with the diagnosis of an aplasia of lacrimal and salivary glands (ALSG) syndrome. We use this case presentation to discuss the ALSG syndrome in a first article and, in a subsequent article, we will discuss the main causes of xerostomia, a condition often faced in a clinical setting.

Aplasia of lacrimal and salivary glands (ALSG) is a relatively rare hereditary disorder deemed to be an allelic variant of the lacrimo-auriculo-dento-digital syndrome (LADD syndrome), with which it shares a number of clinical manifestations.[1] ALSG syndrome is secondary to some mutations in the gene coding for fibroblast growth factor 10 (FGF10) that are also described in the LADD syndrome.[2] To date, 45 cases of aplasia of lacrimal and salivary glands have been reported in the medical and dental literature. The severe salivary dysfunction observed in relation with this syndrome generally leads to a premature loss of primary and permanent dentition, hastened by an accelerated caries process. In addition, because of xerostomia, patients presenting this syndrome often have significant difficulties adjusting to conventional dental prostheses and must resort to implant-borne restorations.

Other syndromic and nonsyndromic genetics disorders may be associated with a complete or partial agenesis of the major salivary glands. These include, most notably, isolated salivary gland agenesis, anhydrotic ectodermic dysplasia, and some cervico-facial dysembryopathies characterized by anomalies of the first and second branchial arches (mandibulofacial dysostosis, hemifacial microsomia, oculo-auriculo-vertebral spectrum encompassing Goldenhar syndrome, and hemifacial microsomia).[3] However, a salivary gland agenesis presenting in an adult, whether or not associated with other congenital malformations, is a rather exceptional phenomenon. Yet some conditions, such as diabetes, Sjögren's syndrome and iatrogenic salivary dysfunctions stemming from radiation therapy or the use of anticholinergic and sympathomimetic drugs are clearly more frequent causes of xerostomia among older adult patients.

Clinical Presentation

A 71-year-old female patient consults for an intermittent burning sensation felt over

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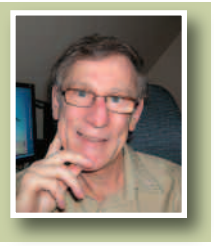

a period of about five to six years on the internal face of both lips and the anterior part of two jugal mucosas. The patient has two complete dentures, including a lower implant-borne prosthesis set on four implants.

We learn from the medical investigation that she is being treated for hypothyroidism and cardiac arrhythmia with the help of Synthroid, Cordarone and aspirin. She is also taking some vitamins and natural products containing vitamin C, vitamin D, calcium, magnesium, and glucosamine. She has had two surgical operations, namely an arthroplasty of the left knee and a hysterectomy to remove an endometrial cancer. She also presents an atresia of the right nasolacrimal duct, a condition that also affects two other family members. There is no reported xerophthalmia in the family.

Under clinical examination, the dental prostheses proved to be of excellent quality. An inspection revealed no visible lesions on the lips or jugal mucosas. The dorsal surface of the tongue was inflamed and depapillated. The mucosas were not optimally lubricated. No saliva flowed from the Stenon or Wharton ducts. The parotid and submaxillary glands were not palpable under cervico-facial examination. A panoramic radiograph revealed the presence of bilateral temporomandibular osteoarthritis and confirmed that the implants are perfectly integrated (Figure 1).

The xerostomia was investigated with lab tests: complete blood count, erythrocyte sedimentation rate, glycemia, ferritin, folic acid, vitamin B_{12}, antinuclear antibodies, rheumatoid factor and anti-ENA antibodies. A tongue culture, a Tc^{99} salivary

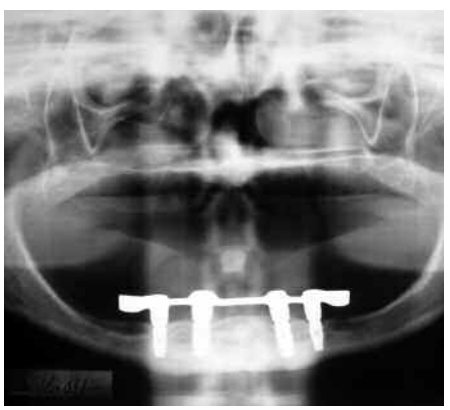

Figure 1. Panoramic radiograph demonstrating the presence of 4 mandibular implants and bilateral arthrosis of the TMJs.

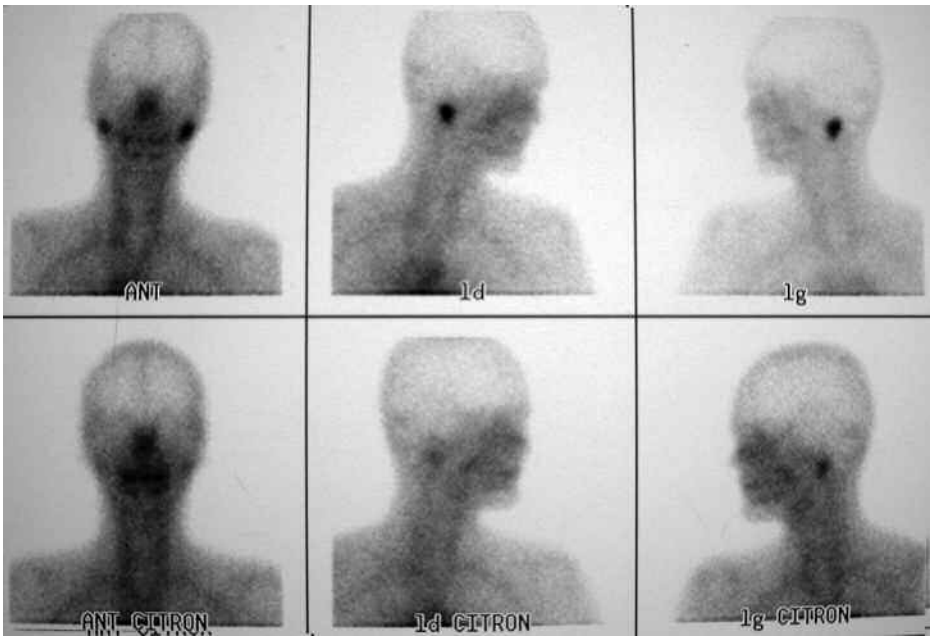

Figure 2a. Patient's Tc^{99} salivary scintigraphy: note the absence of caption of the radiotracer at the level of the sub-maxillary and sublingual glands and the reduced caption of both parotid glands (upper row). A certain delay in eliminating the radiotracer is noticeable at the level of the left parotid following lemon intake (lower row). In addition, note that the thyroid gland is not functional.

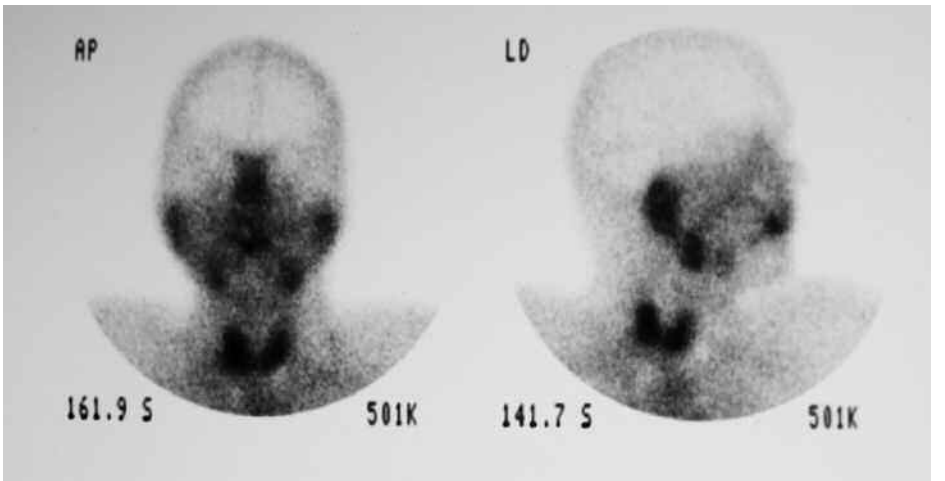

Figure 2b. Tc^{99} salivary scintigraphy of a normal subject: note the adequate caption of the radiotracer at the level of the salivary glands and the thyroid.

gland scintigraphy, and a computerized axial tomography of the cervical spine rounded out the investigation. The lab results were strictly normal. The tongue culture was positive for *Candida albican*s. The salivary scintigraphy showed that the parotid glands were clearly reduced in volume and that the submaxillary and sublingual glands had no radiotracer uptake (Figure 2). A computerized axial tomography of the cervical spine confirmed the presence of an aplasia of the submaxillary and sublingual glands as well as a significant hypoplasia of the right parotid gland and a moderate hypoplasia of the left parotid gland (Figure 3).

Discussion

ALSG syndrome is a relatively rare complaint. To date, only 45 cases have been reported in the medical and dental literature. ALSG syndrome is an autosomal dominant hereditary disorder with complete penetration but variable expressivity.

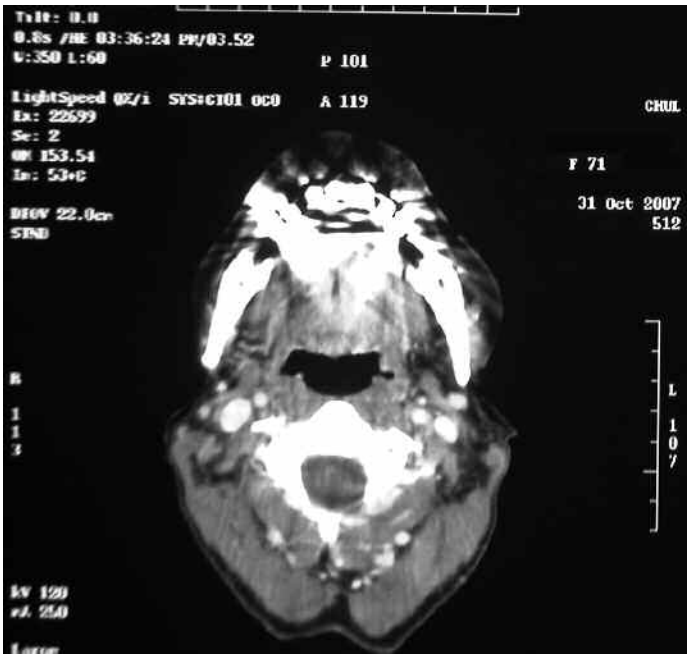

Figure 3a. Cervical tomodensitometry of the patient showing the lower mandibular border axial cut: note the absence of sub-maxillary glands.

Figure 3b. Cervical tomodensitometry of the patient showing the lower ramus axial cut: note the important hypoplasia of the right parotid and moderate of the left parotid.

Sporadic and family cases of this syndrome have been reported.[4] It is secondary to some mutations mapped to locus 5p13-5p12 in the gene coding for fibroblast growth factor 10 (FGF10).[4] Factor FGF10 plays a key role in the organogenesis of several structures, including those in the cervico-facial region. A haploinsufficiency of this factor at a critical stage in the formation of the lacrimal and major salivary glands appears linked to the pathogenesis of the ALSG syndrome.[1] ALSG syndrome is also considered by some authors to be a neurocristopathy in the form of a tissular or organic dysplasia caused by an anomaly in neural crest cell migration, differentiation, division or life span.[5] These two concepts are not mutually exclusive; it has been shown, for example, that the mutations in the TCOF1 gene responsible for mandibulofacial dysostosis (Treacher Collins syndrome) lead to a neural crest apoptosis owing to the inability of these cells to complete the ribosomal DNA synthesis and thereby progress to the S phase. This underscores the impact of a genetic mutation on the maturation of the neural crest cells.[6]

ALSG syndrome is characterized by an aplasia or hypoplasia of the lacrimal and major salivary glands that can be associated with an absence of lacrimal puncta and an atresia of the nasolacrimal ducts.[1,4] The clinical manifestations of ALSG syndrome vary widely, the most classical being xerophthalmia, chronic conjunctivitis, chronic keratoconjunctivitis, epiphora (spontaneous tearing), dacryocystitis (infection of the nasolacrimal sac), xerostomia, stomatopyrosis, dental erosion, premature loss of dentition caused by caries and periodontal disease, oral candidiasis, dysgeusia, hypogeusia, intolerance to dental prostheses, bacterial sialadenitis secondary to a retrograde infection, dysphonia, dysphagia, pharyngitis and chronic laryngitis.[1,2,4] In addition, ALSG syndrome must not be confused with Sjögren's syndrome, which is an autoimmune exocrinopathy classified into two forms: primary Sjögren's syndrome (dry-eye or sicca syndrome) and secondary Sjögren's syndrome, which occurs mainly in the context of a connectivity such as rheumatoid arthritis and lupus erythematosus.

There is also significant overlapping between ALSG syndrome and LADD syndrome, both considered to be allelic variants at locus 5p13-5p12.[1] Various mutations in FGF10 have been described in the LADD syndrome, which explains some manifestations common to both conditions, especially ophthalmological and buccal manifestations.[2] LADD syndrome is also characterized by some heterozygous mutations affecting the tyrosine kinase domains of fibroblast growth factor receptors 2 and 3 (FGFR2, FGFR3).[1,7] Mutations in the FGFR2 and FGFR3 or their FGF10 ligand interfere with the activation of signalling pathway FGF10-FGR2b, essential for the morphogenesis of several structures and organs, including the major salivary glands, lacrimal glands, extremities, thyroid gland, breasts, lungs, and pancreas.[7]

As is true of the ALSG syndrome, LADD syndrome is a relatively rare autosomal dominant hereditary disorder with complete penetration. In all, 64 sporadic or family cases have been reported to date in the medical and dental literature.[2,8–10] Manifestations of LADD syndrome are extremely variable. They involve not only the lacrimal apparatus and the major salivary glands but also dentition, maxillae, the ears and the extremities. Apart from premature loss of teeth and the other xerostomia-induced complications, cases of enamel hypoplasia, delayed eruption of teeth, microdontia, hypodontia, narrow ogival palate, cleft palate, prognathia, and condylar hypoplasia have been signalled in the LADD syndrome.[11,12] Ear manifestations take the form of a mixed or neurosensory deafness and cup-shaped ears, small ears (microtia, anotia), dysmorphic

or poorly implanted ears.[12] Finger and toe deformities are also common: syndactylia, clinodactylia, hypoplastic, bifid or triphalangeal thumb, altered metacarpophalangeal pattern profile, bifidity or widening of the big toe.[11,12] Some urogenital anomalies have also been reported, namely hypospadias, polycistic kidneys, deformities of the urinary tree, nephropathy, renal agenesis, or hypoplasia.[12]

A few sporadic or family cases of isolated salivary gland agenesis have also been reported in the literature.[3,13,14] To date, no mutation in the FGF10 has been sought or detected in patients with an isolated salivary gland agenesis. If it were to be discovered, it would establish a continuum between isolated salivary gland agenesis, ALSG syndrome and LADD syndrome and thereby illustrate the highly variable expressivity of the various syndromes characterized by the presence of a mutation in FGF10 or its receptors, FGFR2 and FGFR3. In this regard, it is worth pointing out that the signalling pathway FGF10-FGFR2b plays a crucial role in the formation of the palate and the submaxillary gland, which we note has been corroborated by the recent publication of a case of salivary gland agenesis in a 5-year-old patient presenting a bilateral cleft lip and palate.[15] However that may be, patients with an isolated salivary gland agenesis may present a simple or combined, unilateral or bilateral aplasia or hypoplasia of the parotid, submaxillary or sublingual glands, resulting in a xerostomia of varying degrees of severity, depending on the number of glands involved and the functional capacity of the accessory salivary glands of the buccal cavity.

Lastly, some cases of salivary gland agenesis have been observed in patients with anhydrotic ectodermic dysplasia16 and some cervico-facial dysembryopathies, such as mandibulofacial dysostosis (Treacher Collins syndrome), hemifacial microsomia and oculo-auriculo-vertebral spectrum (Goldenhar syndrome and hemifacial microsomia).[3] These dysembryopathies, like the ALSG syndrome itself, are considered by some authors to be examples of neurocristopathies affecting the structures derived from the first and second branchial arches.[3,17,18]

Conclusion

ALSG syndrome is one of the main causes of salivary gland agenesis and is second only to LADD syndrome in this regard. These two syndromes overlap considerably, as both are considered allelic variants at locus 5p13-5p12 and both describe various mutations in the gene coding for fibroblast growth factor 10 (FGF10), which is a key factor in the formation of the major salivary glands. Cases of ALSG syndrome in an adult patient are rather rare. This may be explained in part by the fact that adults who have gradually adjusted to their salivary dysfunction present few symptoms, with late detection being the result. Yet several systemic disorders and medical treatments can contribute to the onset of a salivary dysfunction during adulthood. These conditions will be discussed in detail in a second article devoted to the differential diagnosis of xerostomia.

Declaration

The author declares no competing financial interest and warrants the originality of this article.

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