ORAL PRESENTATIONS

Lawrence Dovgalski

BIOGRAPHY

ABSTRACT

Preserving Our Past to Secure The Future; Lessons in Sustainability

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Jamie Alberga

DDS, MD, PhD

BIOGRAPHY

Jamie Alberga is a maxillofacial surgeon working at the Department of Oral and Maxillofacial Surgery of the University Medical Center Groningen. In her doctoral research, Jamie investigated different aspects determining implant placement for the rehabilitation of head and neck oncology patients. Besides implantology, other areas of interest are salivary gland pathology and cleft surgery.

ABSTRACT

Implantology considerations in craniofacial prosthetics

Craniofacial prostheses are a durable solution for patients with defects in the craniofacial region due to oncologic treatment, congenital disease, or trauma. This presentation will focus on the clinical workflow (preoperative planning, implant placement and aftercare), as well as highlight the long-term outcomes of implants placed in craniofacial regions.

Maarten de Jong

BIOGRAPHY

ABSTRACT

Maarten de Jong has more than fifteen years of experience designing and delivering epitheses in the head and neck area. In 2009 he started his clinical training as an anaplastologist at the Center for Craniofacial Epithetics in Zaventem and the MUMC+ in Maastricht. He subsequently completed his master's degree in Medical Illustrating with honors at the Zuyd University of Applied Sciences / Faculty of Medicine of Maastricht University in 2016, with a focus on head and neck anatomy, anaplastology and the digital possibilities in this area. He is part of several oncological head and neck teams in the Netherlands and Belgium and has extensive experience in treating a diverse patient population. His areas of expertise are implant retained facial prosthetics, digital planning/3D printing to support surgical procedures. He is director and founder of the Dutch Institute for Facial Prosthetics and head of the MKA 3D lab at the MUMC+ in Maastricht.

Patient-Centered Care for Facial Prosthetics

This presentation explores the application and efficacy of implant-retained facial prosthetics in the rehabilitation of individuals who have undergone ablative oncological surgery. The removal of facial tumors often results in significant aesthetic and functional challenges for patients. Implant-retained facial prosthetics offer a good solution by providing a stable base, good ease of use and the possibility for long lasting lifelike prosthetic restorations. This presentation reviews a comprehensive hybrid, digital and conventional, treatment protocol illustrated by clinical outcomes of implant-retained facial prosthetics post-tumor resection. Emphasis is placed on the multidisciplinary approach involving maxillofacial surgeons, anaplastologists, and other specialists in ensuring successful implant placement and prosthetic design of the three main regions: orbital, nasal and auricular. The impact of these prosthetics on patients' quality of life, psychosocial well-being, and overall satisfaction is also considered. Insights from this presentation aim to contribute valuable knowledge to the field of maxillofacial rehabilitation, ultimately enhancing the comprehensive care provided to individuals navigating the challenges of facial tumor resection.

Adrien Naveau

Professor in prosthodontics

Associate Director for International Relationships, Dental Faculty, Université de Bordeaux

Head of Oral Medicine Dept, St-André Hospital, CHU de Bordeaux

President of the Société Française de Réhabilitation et Prothèse Maxillo-Faciales

BIOGRAPHY

Professor Adrien Naveau holds a Doctorate in Dental Surgery and a PhD in Biology from Paris Descartes University, with postdoctoral training at the University of California, San Francisco. A specialist in oral medicine, he has been Associate Professor since 2011 and became a full Professor in 2024. His contributions include developing an online education program in maxillofacial prosthetics, overseeing oral medicine at Saint-André Hospital since 2019, and working within the maxillofacial surgery team to treat oral cancer patients and provide tertiary prevention. He is also the President of the Société Française de Réhabilitation et Prothèse Maxillo-Faciales and a principal investigator at INSERM U1026 Biotis, focusing on 3D bioprinting for regenerative medicine applications.

ABSTRACT

New biotechnologies: the end of maxillofacial rehabilitation?

Maxillofacial rehabilitation is set to experience significant advancements through biotechnological innovations. Biotechnologies can be defined in multiple ways but always involve the exploitation of biological entities or components to generate functional products or services that enhance human welfare. Medical biotechnology encompasses procedures such as utilizing organisms for the production of novel drugs and employing stem cells to replace or regenerate injured tissues, potentially even entire organs. The application categories include DNA/RNA, proteins and other molecules, cell and tissue culture and engineering, process biotechnology techniques, and gene and RNA vectors. This lecture will address a non-exhaustive list of biotechnologies specifically involved in maxillofacial rehabilitation, with a focus on regenerative medicine and tissue engineering. The integration of these biotechnologies into maxillofacial rehabilitation promises substantial improvements in treatment outcomes, providing patients with enhanced functionality and quality of life.

B. Srinivasan

Maxillofacial Prosthodontist & Implantologist

BIOGRAPHY

Chief Executive, ENHANCE Head Neck Rehabilitation

Consultant: Sir H.N.Reliance Hospital, Mumbai

Ruby Hall Cancer Centre, Pune

Jehangir Hospital ,Pune

Managing Trustee, ENHANCE Social Initiative

Founder Member, Association for Maxillofacial Prosthodontics and Rehabilitation in India

Vice President, International Society for Maxillofacial Rehabilitation

Ex-Executive Committee Member, Indian Prosthodontic Society

Founder member, Past President, Past Secretary cum Treasurer Indian Prosthodontic Society, Pune Branch

Past Section Editor, Journal of Indian Prosthodontic Society

ABSTRACT

Technology for Impact: The Future is in the Present

In Healthcare, the cure can sometimes be more dreadful than the disease itself, rendering patients physically, emotionally and financially disabled, if unrehabilitated. Timely Maxillofacial Prosthetics and Rehabilitation can give patients a new lease of life and can be impactful enough to rehabilitate not just the patient, but also indirectly rehabilitate the family once he/she becomes productive. However, not every patient is privileged enough to have affordable and accessible solutions to address these disabilities. A skewed doctor-patient ratio in many parts of the world make prosthetic reconstruction and rehabilitations, a luxury. Digital Technology has the potential to disruptively revolutionize conventional treatment protocols and workflows. Patients may not need to travel far in search of a clinician, especially in resource constrained situations; their data can travel through the internet. This would make both doctor and patient location irrelevant and ensure enhanced accessibility. As patients don't have to travel, it saves them indirect costs of treatment like boarding, lodging and loss of pay due to abstaining from work, addressing affordability. De-skilled protocols have the potential to shorten the learning curve and ensure predictability even with entry level clinicians.

The line between engineering and medicine is getting increasingly blurred. A multi and inter disciplinary approach will ensure greater predictability, reproducibility, precision and cost-effective solutions that push the envelope in terms of scientific progress, impact and healthcare economics.

The presentation aims to address the question posed by the UMCG Symposium in 2007 “Do Digital Technologies necessarily enhance Quality of Life”. After 18 years, I can say with conviction that they do, in the right hands.

Rodica Mindruta

MD, Msc, PhD

Surgeon oncologist, Ass Professor

BIOGRAPHY

Dr. Rodica Mindruta-Stratan is a surgeon oncologist who has made a significant impact in the Head and Neck Department of PMSI Institute of Oncology, Republic of Moldova.

Dr. Rodica serves in many high positions such as coordinator of the National Cancer Control Program 2016-2025, chair of the Ministry of Health Committee in Oncology/Haematology. For over 15 years she is the Head of OMF Prosthetic Unit.

Rodica Mindruta-Stratan holds an internship at ENT and maxillofacial surgery department at European Hospital “Georges Pompidou” (2007-2008), observership at oral and maxillofacial surgery department University Medical Center Groningen, Netherlands (2007) and internship at maxillofacial prosthetics department, Lariboisière Hospital AP-HP et European Hospital “Georges Pompidou”, Paris (2007-2008).

PhD degree in “Clinical and genetically aspects of thyroid cancer” (2012); Master degree in Advanced oncology program, Ulm University, Germany (2012).

She has been a valued speaker and contributor at many high-profile oncology conferences, like Regional meeting of experts in paediatric haematology-oncology, St. Jude Global Alliance Convening, United National General Assembly Side Event 2023, HORIZON Europe Conference, OECI Oncology Days, ALSAC, CCI4EU General Assembly 2024.

ABSTRACT

Development of sustainable Maxillofacial Care; Smiles for Moldova- 15 years

The evolution of OMF Prosthetic unit:

2007 - Project ”Smiles for Moldova” started with support of UMCG Groningen

2009 – team training, UMCG Groningen

2010 – service opened. Multidisciplinary team established: Head and neck surgeon, dentist, prosthodontist, dental technician, nurse, radiotherapist, palliative care doctor

2010 – ongoing experts hands on consultancy

2010 - OMF Prosthetic unit covered by National Insurance Company

2014 – law in place (100% free rehabilitation for H&N, mammary gland and orthopaedic cancer patients approved by the Parliament

2017 - Establishment of SOPs

2022 - The OMFP got covered full coverage by National Insurance Company

The OMF Prosthetic unit of the Republic of Moldova:

- The only specialized medical service centre in the field of oral maxillofacial rehabilitation in Moldova
- It's an example of implementation for other medical services
- The project included the renovation of the OMFP unit and Head and Neck 30-bed unit spaces
- Setting up of the pathways to supply the necessary equipment and consumables for the OMFP unit
- Training of specialists of the OMFP unit and technological transfer
- Organization of the interdisciplinary team
- Ongoing support (including visits, workshops, telemedicine) - specialists from the Netherlands and France

Results: Number of treated patients during 2010-2024 - 1303.

In January 2025 the OMFP unit passed a medical accreditation and is licensed for the next 5 years.

Bianca Kruize

BIOGRAPHY

For many years she has travelled all over the world as a diplomat for the Dutch Foreign Office, mainly as a trouble shooter in challenging areas, before becoming a politician. In 2016 she was diagnosed with oral cancer at the age of 46. After extensive surgeries, treatments and recurring metastases she became palliative. In 2017 she enrolled in a trial with immunotherapy which has proven to be successful until now. In the past years she is continuously being treated for osteoradionecrosis of the mandibula.

After she was deemed unfit for work, she found a huge challenge into flip-thinking her 'social disqualification' by focusing on alternative possibilities to contribute – albeit as a volunteer – to socially relevant causes.

Currently she is a board member of the Dutch Head and Neck Patient Association (PVHH), vice president of the Client Advisory Board at UMCG, ambassador for Maggie's Center Netherlands and member of the Clinical Audit Board of the Dutch Head and Neck Audit as patient representative. Occasionally she still enjoys being a political and strategic lobbyist if one of her causes so requires. As a patient advocate her mission is to ensure that patients and their loved ones are feeling heard and get the best possible treatment, (after) care and information, matching with their personal needs.

ABSTRACT

The patient as a member of the oncological team

Welcome to the rollercoaster of a patient journey. Frequently used terms as value-based care, patient participation and shared decision making: how does that improve quality of care? How does it really affect patients and their loved ones? And what about when the going really gets tough: after care. Is there any added value in informal care, or is it utterly irrelevant?
Based on her experiences and challenges as a patient, best practices, paradoxes, (alleged) biases and perceptions will be addressed in an endeavor to bring some positive inspiration, mixed with a dash of humour.

Anne van den Hoek

BIOGRAPHY

Anne van den Hoek is a radiation oncologist and Medical Team leader Proton Therapy at the Department of Radiation Oncology in the University Medical Centre Groningen (UMCG), The Netherlands.

She finished her training in radiation oncology in the Erasmus Medical Centre in Rotterdam. Since 2013 she has been working in the UMCG with a special interest in the treatment and follow up of Head and Neck Cancer patients. Since the start of proton therapy in the UMCG in 2018, she involved in the implementation and coordination of all new indications for Proton therapy in the UMCG.
In the last 5 years she was a member of the board of the National Committee of Proton therapy in the Netherlands.
Because of her interest in management and governance, she completed the MBA Healthcare Management at the University of Amsterdam in 2023. She is now a medical team leader focusing on proton therapy.

ABSTRACT

Proton Beam Irradiation in Head and Neck Oncology
The techniques of radiotherapy have changed tremendously in recent years. In addition to optimal photon irradiation, nowadays proton therapy is also used within head and neck oncology in the Netherlands. Patients are selected according to the model-based approach, using models to calculate the likelihood of long-term side effects. The first results of proton therapy are promising and show fewer acute and late side effects, such as dysphagia and xerostomia. In addition to less dysphagia and xerostomia, the dose on the teeth is also significantly reduced with proton therapy.

Besides all the advantages, there are also several challenges within proton therapy with regard to reconstructions in the oral cavity and teeth.

You will learn about the benefits and the challenges of proton therapy for patients with head and neck cancers.

Holly McMillan

M.C.D. CCC-SLP, LMP, CLT

BIOGRAPHY

Holly McMillan M.C.D. CCC-SLP, LMP, CLT is a Senior Research Speech Language Pathologist and Co-Director of Trismus Clinic at the University of Texas MD Anderson Cancer Center. She is a doctoral candidate at the University of Texas School of Public Health, a licensed massage therapist, and a certified lymphedema therapist with expertise in oncology and head and neck cancer rehabilitation.

Ms. McMillan leads the manual therapy service lines within the head and neck surgery department, specializing in fibrosis and lymphedema management. She serves as lead clinician on several NIH-funded clinical trials examining lymphedema and fibrosis in head and neck cancer survivorship.

Richard C. Cardoso

BIOGRAPHY

Dr. Cardoso is an associate professor in the Department of Head and Neck Surgery in the Section of Oral Oncology and Maxillofacial Prosthodontics, at The University of Texas, M.D. Anderson Cancer Center. He is also the co-director of the Interdisciplinary Trismus Clinic, which specializes in treating limited mouth opening.

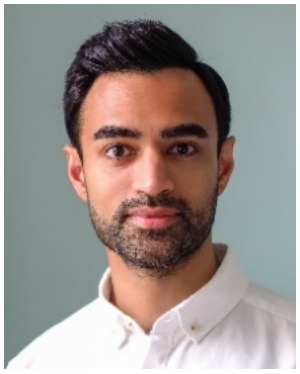
He earned his Doctor of Dental Surgery (DDS) degree from New York University College of Dentistry. Dr. Cardoso completed a Clinical Residency in Combined Prosthodontics at the Michael E. DeBakey Veterans Affairs Medical Center in Houston, Texas. Afterward, he pursued a Clinical Fellowship in Oral Oncology and Maxillofacial Prosthodontics at MD Anderson Cancer Center. He also completed a Master of Science (MS) in Prosthodontics at the University of Texas Dental Branch in Houston.

Dr. Cardoso is a Fellow of both the American Academy of Maxillofacial Prosthetics and the American College of Prosthodontics. His clinical expertise focuses on intra-oral speech prostheses and minimizing the oral complications caused by cancer treatments.

ABSTRACT

A Multidisciplinary Treatment Approach to Battle Trismus

Trismus, defined as the inability to fully open the mouth, is a common oral morbidity associated with tumor infiltration, radiation therapy, and/or surgical injury in the head and neck cancer population. There is limited, well-structured research surrounding oncology-induced trismus diagnosis and treatment efficacy. The Sections of Oral Oncology and Speech Pathology have joined forces at MD Anderson Cancer Center to launch an oncologic, interdisciplinary clinic for the evaluation and treatment of trismus. This session will describe unique oncologic trismus considerations, clinical workflow, and the multidisciplinary approach to evaluation and treatment of oncology-induced trismus.



Jaymit Patel

BSc Hons, BDS Hons, MFDS, MDPH, PGCert, FHEA, M Pros Edin, FDS Rest Dent RCSGlas
Consultant Restorative Dentistry
Leeds Teaching Hospitals Trust

BIOGRAPHY

Mr Patel is a Consultant in Restorative Dentistry. He is a registered specialist in Restorative Dentistry and Prosthodontics and leads the Prosthodontics service at Leeds Teaching Hospitals Trust. He leads in the oral rehabilitation of both Head and Neck Cancer, and Cleft patients in this service. Mr Patel has been awarded the Tyson medal in Prosthodontics. He has a research interest in quality of life, provides post-graduate education across the United Kingdom, and examines at specialty level at the Royal College of Surgeons.

Mr Patel has introduced numerous improvement projects to improve head and neck cancer outcomes, including the introduction of national quality standards for oral health in head and neck cancer care, and the development of a safety net oral health network in Yorkshire. His PhD is investigating oral health related quality of life outcomes in head and neck cancer.

ABSTRACT

Oral Health Related Quality of Life in Head and Neck Cancer – Scoping Review

Head and neck cancers (HNC) and their respective treatments have a profound impact on the quality of life of affected individuals. People with oropharyngeal and oral cancers have specific implications for oral health-related quality of life (OHRQoL), as evidenced by 29% of patients reporting their oral health as “less than good,” and 9% of patients seeking further dental support post-treatment. OHRQoL has multiple domains: function, pain, appearance, and psychosocial. Despite this, the majority of published research reports only on chewing as an oral health impacts of HNC. The true OHRQoL impacts of HNC are not known. Furthermore, it is not clear which QoL tool is most suited to measuring OHRQoL in this population.

The aim of this scoping review is to investigate and report on the QoL used to report on OHRQoL. The primary research question is: Are any of the QoL tools reported by the literature appropriate, valid, or reliable for measuring OHRQoL in curatively treated head and neck cancer?

Lawrence Brecht

BIOGRAPHY

Dr. Brecht is currently the Director of Maxillofacial Prosthetics at Lenox Hill Hospital, Long Island Jewish Medical Center and North Shore University Hospital of the Northwell Health System, the largest hospital system in New York State. In addition, he serves as the Director of Maxillofacial Prosthetics in the Postgraduate Prosthodontic Program of NYU College of Dentistry where he is an Adjunct Associate Clinical Professor of Prosthodontics. Dr. Brecht also has the privilege of an appointment in the Department of Head & Neck Surgery at MD Anderson Cancer Center of The University of Texas.

Prior to its dissolution in 2015, for over 25 years, Dr. Brecht was the Director of Dental Services at the Institute of Reconstructive Plastic Surgery at NYU Langone Medical Center with appointments at NYU School of Medicine in the Department of Plastic Surgery and the Department of Otolaryngology/Head & Neck Surgery.

Dr. Brecht maintains a private practice in Manhattan limited to maxillofacial prosthetics and prosthodontics.

He has authored numerous articles and book chapters on the maxillofacial reconstruction and oral rehabilitation of patients with cancer or craniofacial anomalies. He is part of the team that developed the ”Jaw-in-a-Day” (JIAD) technique for immediate reconstruction of the maxilla or mandible with microvascular composite flaps along with immediate implants and prosthetic rehabilitation. Similarly, he was part of the team that developed nasoalveolar molding (NAM) for the care of infants with a cleft. He is a past-president of the Greater New York Academy of Prosthodontics and the American Academy of Maxillofacial Prosthetics (AAMP). He is also a Fellow of the Academy of Prosthodontics as well as the ITI (USA). He is the Director of the ITI Study Club of Greater New York. In addition, Dr. Brecht has received numerous awards, including the Andrew J. Ackerman Award from the AAMP for outstanding contributions to the field of maxillofacial prosthetics. He is also one of the authors of the textbook, “*The Immediacy Concept”* published in 2022 by Quintessence. He lectures regularly both nationally and internationally on the topics of immediate reconstruction throughout the oral cavity and maxillofacial region.

Dr. Brecht serves as the president of The Maxillofacial Foundation as well as the NextGenFace Foundation.

ABSTRACT

The Future of Advanced Digital Technologies in Maxillofacial Prosthetics in North America

The last 10 years have seen a veritable revolution in the penetrance of digital technologies in maxillofacial prosthetics. The adoption of digital technology however has not been uniform throughout the specialty. This presentation summarizes an exhaustive study, sponsored by The

Maxillofacial Foundation, which resulted in an assessment of the state of advanced digital technologies in North America. The purpose of the study and the subsequent discussion document that was published from it, serves as a starting point for our specialty to begin addressing areas of needed focus in our educational programs, clinical workflows and future research. It is the hope of the authors that this paper will stimulate discussion on how to continue to have maxillofacial prosthetics be the innovator and early adopter of advanced digital technology in medicine and dentistry.

Learning Objectives:

At the conclusion of this presentation participants will be able to or will have gained an understanding of:

1. The current state of digital technology in maxillofacial prosthetics in North America.
2. The benefits of employing digital technology for addressing complex maxillofacial reconstruction.
3. The potential future role of digital technology in planning and executing complex maxillofacial reconstructions.

Miss Stephanie Hackett

BDS (Hons), MFDS RCS Ed, PGCertME, MPros RCS Ed, FDS(Rest Dent) RCS Ed

BIOGRAPHY

Stephanie is a Consultant in Restorative Dentistry at New Cross Hospital, Wolverhampton, UK, providing tertiary level Head and Neck Cancer rehabilitation within the wider multidisciplinary team. Her main interests are fixed and removable prosthodontics and implant dentistry.

Stephanie qualified with Honours from The University of Sheffield in 2014. Following foundation dental training, she went on to complete dental core training posts in the North West and West Midlands in Oral and Maxillofacial Surgery, Paediatric Dentistry and Restorative Dentistry. During this time she completed the MFDS (RCS Ed) examinations and gained a Postgraduate Certificate in Medical Education at Cardiff University.

During her specialty training in Restorative Dentistry at Liverpool University Dental Hospital, Stephanie completed additional examinations to achieve a Membership in Prosthodontics (RCSEd) in 2022 before completing her exit Fellowship in Restorative Dentistry in 2023.

ABSTRACT

Lessons learned and future perspectives of development of a new Maxillofacial Prosthodontic service in the UK.

The author presents their own reflections of establishing a new Maxillofacial Prosthodontic service at The Royal Wolverhampton NHS Trust, UK, within the past year. This busy head and neck unit has operated for many years without a prosthodontic colleague and challenges are presented as cultural, clinical, financial and operational. As an early career consultant, many valuable lessons have been learnt in the early development of the service. Audit, multidisciplinary team collaboration, self-study and management team working relationships have already allowed the author to initiate a change in culture and working practices, driving early maxillofacial rehabilitation and reducing time to primary cancer treatment and hypodontia rehabilitation. The value of formal mentorship networks in the UK are discussed as assistance for single-handed practitioners in day-to-day challenges within a career in prosthodontics. This honest, personal reflective presentation aims to highlight the learning and operational challenges of service development in the UK and opportunities for the future.

Aims:

- To describe and reflect upon the challenges and successes of a new NHS service development in Maxillofacial Prosthodontics in an established head and neck unit
- To evaluate drivers and barriers to advancements in maxillofacial rehabilitation in a single UK unit

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Dennis Rohner

BIOGRAPHY

ABSTRACT

Reconstruction of the maxilla with free vascularized flaps

Defects in the maxilla can have a variety of causes, with defects following tumor removal being the most common and the most challenging. In order to restore both function and esthetics, attention must be paid to what kind of different tissues need to be replaced. Then there is always the challenge of creating adequate function with correct occlusion.

Depending on the age and overall condition of the patient, complex defects can be restored with long-term stability, especially with autologous tissue. Both local pedicled tissue flaps and free vascularized tissue transfers are possible, usually in combination with implants to create an occlusion. For maxillary defects in particular, there are options with temporalis muscles in combination with zygomatic implants and, above all, prefabricated grafts with standard implants. In both techniques, the aim is to achieve rapid and adequate functional rehabilitation.

Thanks to technological advances, such operations are planned digitally and performed using templates and, in some cases, patient-specific implants, which has significantly improved the results over the last few years.

In an overview of various patients, the challenges are shown and the results discussed.

Chris Butterworth

BIOGRAPHY

BDS(Hons), MPhil, FDSRCS (Eng.), FDS (Rest Dent) RCS (Eng.) FDSRCPS (Edin) ad hominem.
Consultant in Maxillofacial Prosthodontics

Liverpool Head & Neck Centre, UK

Professor Chris Butterworth is a UK-based Maxillofacial Surgical Prosthodontist who has worked at University Hospital Aintree since his appointment in 2003. He has built an international reputation for innovative care in the field of oral & facial rehabilitation following head & neck cancer and has won several national and international awards for his work on implant-based prosthetic rehabilitation. He has pioneered the combination of skeletally anchored zygomatic implants in combination with microvascular free flap reconstruction for patients with maxillary and mid-facial malignant diseases (the ZIP Flap technique). He is actively involved in research within the Head & Neck Centre and regularly lectures at national and international meetings. He was the youngest ever national president of the British Society of Prosthodontics in 2011/12. He organised the first international conference on zygomatic implants in London in March 2019. Chris has authored over 80 scientific papers, several textbook chapters and has contributed to national guidelines for UK based head & neck cancer patients. He is an Associate Postgraduate Dental Dean in North West England overseeing dental specialist training. In 2024, he was awarded an honorary fellowship ad-hominem by the Royal College of Surgeons of Edinburgh for his contribution to dentistry in the UK.

ABSTRACT

Zip-flap and the use of implants in maxilla reconstruction

The management of patients presenting with maxillary malignancy presents significant challenges. The aggressive nature of these tumours often leads to reduced survival outcomes despite appropriate treatment. The loss of the low-level maxilla impacts significantly on appearance, mastication, swallowing, self-esteem and speech. Therefore, techniques aimed at rapid rehabilitation as well as reconstruction are fundamental to restoring quality of life for patients. Whilst simple prosthetic obturation can be successful in the Brown class 2 maxillectomy, techniques involving dental and zygomatic implant support for dental prostheses have advanced over the last decade to provide additional benefits to patients. The ZIP flap, first described in 2017, as a primary reconstructive/rehabilitation treatment approach for malignant tumours utilises remote skeletal anchorage to provide fixed dental rehabilitation combined with soft tissue free flap reconstruction of the palatal defect. The first case was performed by the author in 2015 and has changed the way that these tumours are now managed in our unit and to some extent in many others. This lecture will outline the genesis and development of this technique together with lessons learned along the way and the outcomes achieved in a large consecutive series of maxillary tumours.

Max Witjes

BIOGRAPHY

MD, DDS, PhD

Professor, OMF Surgeon/Head & Neck Oncology, Dep Oral & Maxillofacial Surgery, University Medical Center Groningen, The Netherlands

Max JH Witjes is appointed full professor in Head & Neck oncology at the department of Oral & Maxillofacial Surgery of the University Medical Center of Groningen the Netherlands. He obtained his medical and dental degree at the University Medical Center of Groningen. During his studies he worked as a research assistant at the department of Biomaterials in Groningen as well as the department of Biomaterials, University of Alabama at Birmingham (USA). In 1997 he obtained his PhD (cum laude) on the subject of “Photodynamic therapy and fluorescence localisation of experimental oral dysplasia and squamous cell carcinoma” which was completed partially at the Erasmus Medical Centre of Rotterdam. He is leading PI in several clinical trials on targeted fluorescence image guided surgery of head and neck (pre)malignancies (www.omig.nl).

Next to his daily practice in H&N oncology he has a specific interest in developing optimal functional reconstruction of craniofacial defects using 3D virtual planning techniques. He has pioneered and published on the advanced 3D planning of the reconstruction of craniofacial

defects. He has integrated 3D virtual planning in the daily clinical work and initiated the start of the UMCG wide 3D lab which he now manages (www.3Dlabgroningen.nl).

He is councillor of the International Association of Oral Oncology, member of the committee for revision of the Dutch guidelines for head and neck tumours, member of the Research steering committee of the Dutch Head and Neck Society (NWHHT) and member of the grant review committee Research & Implementation of the Dutch Cancer Society.

ABSTRACT

Back to the future in 3D

The evolution of 3D technology in mandibular reconstruction feels like a glimpse into "Back to the Future"—an innovation that, while futuristic and is transforming the present-day treatment of oral cancer, may have appeared before in another form. The ability to generate precise 3D models has greatly advanced surgical planning, allowing for tailored solutions to reconstruct the mandible after tumor removal. These advancements have the potential to restore functions such as chewing and speech, significantly improving patients' quality of life. Titanium osteosynthesis remains the gold standard for fixation due to its strength and biocompatibility, ensuring long-term stability. However, polymer osteosynthesis, offers a promising alternative for metal plates. These advancements in materials and technology are redefining mandibular reconstruction.

Neil Poyser

Jason Watson

BIOGRAPHY

Neil Poyser and Jason Watson have worked together since 2006 as part of the maxillofacial head and neck cancer rehabilitation team at the Queen's Medical Centre, Nottingham, UK.

Neil is Consultant Restorative Dentist and Jason is Consultant Clinical Scientist.

ABSTRACT

Distraction osteogenesis in head and neck reconstruction

The presentation will discuss the use, planning and execution of distraction osteogenesis for a range of defects in the maxilla and mandible, and implant based prosthetic rehabilitation.

Kenneth S. Kurtz

DDS, FACP, FDS RCPSS (Glasgow), FRCSI

BIOGRAPHY

Dr. Kurtz received his DDS from the NYU College of Dentistry (NYUCD), prosthodontic training at Montefiore Medical Center/Albert Einstein College of Medicine and subsequent maxillofacial prosthetic training at the Bronx VAMC/Columbia University School of Dental Medicine completing the NYU Surgical Implant Fellowship under the direction of Dr. Dennis Tarnow in 2009. He is a Diplomate of the American Board of Prosthodontics, a Fellow of the American College of Prosthodontists (ACP), Greater New York Academy of Prosthodontics (GNYAP), and serves as the current President-Elect of the ACP. Dr. Kurtz is a Fellow of two royal academies (Scotland & Ireland) and is a Clinical Professor and Director, Division of Maxillofacial Prosthetics at Stony Brook School of Dental Medicine (SBSDM). He holds academic appointments at Montefiore Medical Center/Albert Einstein College Of Medicine in both the Department of Dentistry and Department of Otorhinolaryngology (Head & Neck Surgery) as the Director of Prosthodontic Research in the graduate prosthodontic program. A Visiting Professor at Trinity College Dublin, he has co-authored over fifty peer reviewed scientific papers, serves on the Editorial Board of three prosthodontic journals (JPros, JPD, and IJP) and is a Past-President of the IADR Prosthodontics Research Group. His private practice is in New Hyde Park NY, Academic Prosthodontics of Long Island (ap-li.com) which is in close proximity to LIJ Medical Center where he is an attending maxillofacial prosthodontist and is appointed to the faculty as a Clinical Professor of Dentistry at the Northwell/Hofstra University School of Medicine.

ABSTRACT

Dental Implant Intervention for Syndromic & Non-Syndromic Childhood Partial Edentulism

Young patients with hypodontia, oligodontia, and anodontia require careful evaluation for tooth replacement therapy in a comprehensive fashion. Guidelines for intervention require flexibility, and infrequently some clinical conditions require aggressive intervention. A review of Delphi Studies for a subset of Ectodermal Dysplasia patients will serve as the basis for a broader discussion of who, what, where, and when indicated elective treatment can and should proceed. Multiple dental specialty providers can provide a team approach to address these patient needs and a discussion of parental vs. patient consent will be included, as well as the genetic basis of the underlying conditions, and possible future epigenetic long-term consequences of the conditions.

Course Objectives:

-Understand definitions of missing teeth

-Review timing of dental implant intervention

-Appreciate the underlying genetic & possible long-term sequalae

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Sander Tabernée Heijtmeijer

BIOGRAPHY

Sander Tabernée Heijtmeijer is a Technical Physician, a protected healthcare profession in the Netherlands, with nearly four years of experience at the University Medical Center Groningen (UMCG). His expertise lies in applying 3D technology in healthcare, specific for the department of maxillofacial surgery, centre for special dentistry, orthopaedic surgery and trauma surgery. 3D technology has become standard practice for many patient groups at UMCG. He plays a crucial role through the combination of his medical and technical expertise and close cooperation in the multidisciplinary treatment team, ensuring state-of-the-art patient care and enhancing patients' quality of life.

His focus includes complex reconstructions in oncology, complex implantology, and orthognathic surgery, among others. Additionally, Sander is pursuing a PhD, researching innovative methods to translate 3D virtual surgical planning (VSP) into the operating and treatment room, continuously pushing the boundaries of care for patients.

ABSTRACT

Accuracy of augmented reality navigated surgery for placement of zygomatic implants; a human cadaver study

Zygomatic implants improve prosthetic retention after maxillectomy but pose placement challenges due to limited bone mass, implant length, and proximity to vital structures. This study evaluated a second-generation AR navigation system using 12 cadaver skulls and 36 implants placed by three experienced surgeons. Accuracy was assessed by comparing post-operative scans with preoperative virtual planning.

Results showed mean deviations of 3.82 mm (entry point), 3.81 mm (exit point), and 4.12° (3D angle). Compared to 3D-printed surgical guides, AR navigation had significantly higher entry-point and angle deviations but similar exit-point accuracy. While surgical guides remain the gold standard, AR navigation offers adaptability in cases where guides are impractical, such as larger-than-expected resections. Future improvements, including a navigated drill bushing, aim to enhance precision. AR navigation also holds promise for other surgical applications.

Derk Jan de Jager

DMD, PhD

BIOGRAPHY

Dr. Derk Jan Jager is a specialist in maxillofacial prosthodontics, working as an assistant professor at the department of Oral and Maxillofacial Surgery at the Amsterdam UMC. He is particularly focusing on patients with complex conditions like Sjögren's disease. Dr. Jager earned his DMD and PhD from the University of Groningen, as well as advanced prosthodontics training in both Groningen and at the Royal College of Surgeons in Edinburgh. In addition to clinical practice and teaching, he conducts research on oral rehabilitation of Sjogren's disease patients and new therapies for oral dryness related to Sjögren's disease. Furthermore, he is head a dry-mouth outpatient clinic in Amsterdam. He published more than 50 peer-reviewed articles, several book chapters and fulfilled leadership roles in national and international dental and scientific associations.

ABSTRACT

Dental implants and implant supported overdentures in Sjogren's Disease patients

Objectives: Related to a reduced salivary secretion, patients with Sjögren's disease (SjD) are likely to be prone to the development of progressive dental caries and oral infections. As a result, tooth loss is common and patients are in need of replacement therapy. Therefore, we investigated the success of dental implants in dentate SjD patients and implant supported overdentures in edentulous SjD patients.

Materials and Methods: 51 implants were placed in 12 edentulous SjD patients and 50 implants in 12 non-SjD patients to support overdentures. 37 implants were placed in 17 dentate SjD patients and 26 implants in 17 non-SjD patients to replace missing (pre)molars by implant supported crowns. Clinical performance, marginal bone-level changes, patient satisfaction and oral health related quality of life (OHRQoL) were assessed at 1, 6, 12 and 18 months after placement of the superstructure. Patient satisfaction, ability to chew and OHRQoL were assessed with validated questionnaires. Marginal bone-level changes were measured on standardized dental radiographs. Clinical performance included implant and overdenture/crown survival, plaque, bleeding and gingival indices, and probing depth.

Results: Implant survival after 18 months was 100% in patients with SjD. Mean marginal bone loss after 18 months did not differ between patients with SjD and non-SjD patients, (edentulous group: 1.12±0.74 mm and 1.43±1.66 mm, respectively ($p=0.58$); dentate group: 1.10 ± 1.04 mm and 1.04 ± 0.75 mm, respectively ($p=0.87$)). Clinical performance was good with no differences between the groups for all outcome measures ($p>0.05$). OHRQoL in patients with SjD improved significantly and clinically relevant after placement of implant supported overdentures or crowns at all measuring moments compared to baseline ($p<0.05$). Nevertheless, ability to chew

tough and hard food was significantly better for non-SjD patients at all timepoints after placement of an implant supported overdenture ($p<0.05$). Furthermore, patient satisfaction and OHRQoL remained significantly higher for patients without SjD at all measuring moments ($p<0.05$).

Conclusion: Implant-supported overdentures and crowns have a positive effect on OHRQoL and dental implants can be successfully applied in patients with SjD with nearly similar outcomes as in non-SjD subjects.

Myrthe Hol

MD, PhD

BIOGRAPHY

Prof. Dr. Myrthe Hol, born in Utrecht, after attending the Christelijk Gymnasium, also completed her medical studies in Utrecht (1995-2002). She completed her ENT training at Radboudumc in Nijmegen (2003-2009) and in 2005 she defended her thesis: “BAHA - New indications and long-term patient satisfaction” at the Radboud University.

Subsequently, she went to Lucerne, Switzerland (www.fimf.ch) for a fellowship in otology (2009). In the period from January 2010 to 2021, she worked as an academic staff member, ENT-surgeon (otologist) in the Radboudumc with a focus on implants anchored in bone, middle ear and ear canal surgery as well as auricular abnormalities.

Since February 1, 2021, she works as head of the ENT department at UMCG (www.umcg.nl) and professor of ENT, with focus area otology, hearing loss, microtia and bone conduction devices at the University of Groningen (www.rug.nl).

Anke Korfage

DMD, PhD

BIOGRAPHY

Anke Korfage is a specialist in maxillofacial prosthodontics, working at the department of Oral and Maxillofacial Surgery of the University Medical Center of Groningen (UMCG), the Netherlands. She focusses on the treatment of patients with congenital and acquired anomalies, as well as medically compromised patients. She obtained her dental degree and PhD on the subject 'Dental implants in maxillofacial prosthodontics- An asset in head and neck cancer and Sjögren's syndrome patients' at the University of Groningen. In addition to clinical practise, she is actively involved in research projects on head and neck oncology, implantology, and Sjögren's syndrome. Additionally, she is engaged in teaching and supervising student internships. She is involved in national and international dental and scientific associations.

ABSTRACT

Shaping the Future; Optimizing the Care Pathway for Microtia Patients

Microtia treatment at the University Medical Center Groningen (UMCG) has evolved from a fragmented approach to a structured, interdisciplinary pathway. Previously, patients were assessed by different specialties independently, often at varying ages, leading to inconsistent treatment planning and information delivery.

To enhance patient care, we have established a multidisciplinary consultation where patients and their parents receive comprehensive information in a single visit. This includes detailed assessments of both auditory function, psychological well-being and auricular reconstruction options, provided by an integrated team of specialists. We believe this holistic approach ensures more complete and coordinated care, facilitating informed decision-making and optimizing treatment outcomes.

This structured model improves efficiency, enhances communication between specialists, and provides families with a clear and cohesive treatment plan. Our experience suggests that this approach leads to improved patient satisfaction and better overall care for individuals with microtia and their caretakers.

POSTER PRESENTATIONS

Adrien Naveau

Characterisation of human and porcine gingiva stiffness using rheology for gingival tissue bioengineering

ABSTRACT

Introduction

The research objective of this study was to evaluate the stiffness of the gingiva in humans and pigs under physiological conditions to provide guidance for gingival tissue bioengineering.

Goal

Hard palate oral mucosa samples were analysed histologically and by shear rheology in sufficient numbers (n=17 for humans and n=15 for pigs). Storage and loss shear moduli G' and G'' values obtained for both species were similar for lamina propria, epithelium, and whole mucosa.

Results

Mean G' values for human samples were 6.9 ± 2.3 kPa (epithelium), 2.9 ± 0.5 kPa (lamina propria) and 11 ± 7.1 kPa (whole mucosa), while porcine samples showed values of 5 ± 2 kPa, 4.6 ± 3.9 kPa and 7.6 ± 2.6 kPa respectively.

Conclusions and recommendations

The results provide valuable stiffness references and the possibility to work with pigs for future gingival tissue bioengineering research.

Discussion

The viscoelastic behaviours of human and porcine palatal oral mucosa were comparable. Pigs can serve as a relevant model for the study of human gingival stiffness.

Armando Crupi

Co-authors: Gabriele Barbero, Francesco Pera, Gianfranco Gassino

Prosthodontic rehabilitation in a patient with cocaine-abuse palatal perforation: a case report.

ABSTRACT

Pourpose: This clinical report aims to highlight the complications associated with cocaine use, particularly focusing on oronasal perforations, and demonstrate the efficacy of using a maxillary obturator for rehabilitating palatal defects to improve patients' quality of life.

Material and Methods: A 60-year-old male patient with a history of cocaine abuse presented with an oronasal perforation in the hard and soft palate after multiple surgical interventions. He reported issues with hypernasal speech and swallowing difficulties. A multidisciplinary approach was employed; first, a removable obturator was fabricated using impression techniques with care to minimize weight and maximize functionality.

Results: Post-delivery, the obturator successfully restored the patient's ability to speak and swallow normally, with significant improvements reported in aesthetic outcomes. Regular follow-ups demonstrated the prosthesis's stability, particularly after soft relining was utilized to accommodate changes in the oral cavity due to potential inflammation or tissue changes.

Conclusion: The findings suggest that prosthetic rehabilitation with an obturator is a viable and effective solution for managing palatal perforations resulting from cocaine use, significantly improving oral functions and quality of life. This approach highlights the need for comprehensive treatment plans that include both prosthetic management and encouragement toward substance abstinence, emphasizing the multifaceted public health implications of cocaine addiction and its complications.

Armando Crupi

Co-authors: Gabriele Barbero, Francesco Pera, Gianfranco Gassino.

Rehabilitation of a Partial Auriculectomy due to trauma using New 3D Technology.

ABSTRACT

Premise: Auricular defects occur secondary to congenital malformations, trauma, or surgical removal of neoplasms.
It is essential to restore prosthetically the patients creating the most comfortable and realistic prosthesis as possible and helping them to adapt and accept the rehabilitation.
The department of "Riabilitazione Orale Protesi Maxillo Facciale e Implantologia Dentaria" in the Dental School of Turin, is specialized in treatment of patients with maxillofacial defects.

Presentation of the clinical case: P.A.L is a 29 old female patient who suffered a serious accident at work. On this occasion a machine entangled her hair causing a complete removal of her scalp. On the other hand, partial reconstruction of the left ear was necessary.
Partial auriculectomy defects are difficult to rehabilitate with analogic methods for many reasons: the residual ear may be moved over. For that reason it is difficult to make an impression without distorting the residual ear. Moreover, the patient will have a little disease owing to impression material.

Digital evolution, such as facial scanners allowed us to realize an impression with great precision, and consequently excellent results. The procedure consists of taking a digital impression with a face scanner, the scan is processed on a PC and the modeling of a try-in prototype is performed. If this prototype satisfies the aesthetic test, it will be transformed into silicone and is colored with modern techniques in order to allow maximum realism.

Beata Sawczuk

Co-author: Teresa Sierpińska

ABSTRACT

Assessment of oxidative stress parameters in saliva patients suffering from head and neck cancer after provison of removable prostheses.

Background: Surgical treatment of head and neck cancer gives rise to a major loss in many tissues. At the same time, it generates changes in the prosthetic base. The oral cavity constitutes an environment where a great deal of biochemical processes take place. There are two antioxidant systems that prevent the toxic effects of reactive oxygen species: enzymatic and non-enzymatic. Free radicals are an important component of proper cellular metabolism. The effects of free radicals, as well as chronic oxidative stress, are the cause of many diseases, including those located in the oral cavity, among which the most important are inflammatory processes and cancer. For this reason, an important element of the body's defense is maintaining proper antioxidant activity.

Study aim: The study was aimed at assessing oxidative stress parameters in saliva of patients, who were using removable prostheses, after having being operated on for head and neck cancers.

Material and methods:

44 oncological patients operated on for head and neck cancer and 20 healthy edentulous patients as a control group. Removable acrylic dentures were prepared for both groups of patients. The research material for oxidative stress parameters was saliva: non-stimulated saliva (NWS) and stimulated saliva (SW) . Saliva was collected before prosthetic treatment and after 3 months of prosthetic treatment by the spitting method.

Assessment of selected oxidative stress parameters: enzymatic and non-enzymatic.

The enzymatic antioxidant system included: Superoxide dismutation, Catalase and Glutathione reductase, and the non-enzymatic system included: Glutathione, Uric acid and Thiol. Assessment of oxidative damage product: MDA , HNE, Nitrotyrosine , DNA/RNA damage. The following reagents were used to assess oxidative stress parameters: Nitrotyrosin Elisa Immunodiagnostic AG), OxiSelect HNE Adduct Competitive Elisa Kit (Cell Biolab), Protein Carbonyl Content Assay Kit (Sigma), Glutatione Assay Kit (Sigma), RayBio Lipid Peroxidation (MDA) Assay Kit (Ray Biotech), DNA/RNA Oxidative Damage Elisa Kit (Cayman Chemicals), Glutathione Reductase Kit (Sigma), Catalase Assay Kit (Sigma), Fluorometric Thiol Quantitation Kit (Sigma). Wilcoxon and Mann-Whitney tests were used to analyse the results. Significance level of $p \leq 0,05$ was adopted.

Results: The levels of Superoxide dismutase, catalase and gluthation reductase before treatment and after 3 months of prosthetic treatment in non-stimulated and stimulated saliva in both groups were assessed. Changes in levels were not statistically significant. A higher level of MDA was observed in the unstimulated saliva of oncological patients before prosthetic treatment. After 3 months of using the prostheses, there was an increase in the amount of MDA, but it was not statistically significant. We observed a higher level of DNA damage in oncology patients compared to controls. The use of dentures did not affect the results. A statistically significant increase in protein carbonyls was observed in the control group.

Conclusions: Based on this study, we showed that removable prostheses did not affect the level of enzymatic and non-enzymatic oxidative stress products. Our research proves that there is relationship between the level of antioxidants and the level of damage products in the study group.

Benjamim Pomes

A novel full digital workflow for soft maxillar obturators.

Co-authors: Borel O., Derman D., Lescaille G.

ABSTRACT

Proof-of-concept of a flexible obturator in fully digital workflow from design to manufacture

Oral cancer treatment often results in maxillary defects that require prosthetic rehabilitation to restore function and aesthetics. Palatal obturators, particularly flexible silicone obturators, are commonly used but difficult to design and fabricate in patients with post-radiation trismus or extensive defects.

This case report presents an innovative fully digital workflow for the design and production of a self-retaining flexible palatal obturator. Using CBCT imaging and segmentation software, a 3D model of the defect was created and used to design the obturator using Computer-Aided Designed (CAD) software. The final hollow obturator was manufactured by 3D printing with IBT resin (Formlab®).

Clinical validation demonstrated comparable functional results between the digital obturator and the conventional obturator, with notable advantages in terms of weight reduction. However, the limitations of IBT resin underline the need for biocompatible materials for wider clinical application.

Keywords: Obturator; Maxillary Defect; Maxillectomy; Maxillo-Facial Prosthesis

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Madhumaitri Patra

Co-authors: Sandeep Gurav, Gurkaran Preet Singh

Immediate Implant Placement and Prosthetic Rehabilitation Using the "Jaw in a Day" Technique Following Resection of Cemento-Ossifying Fibroma: A Case Report

ABSTRACT

Background: The "Jaw in a Day" technique, which combines immediate prosthetic placement with comprehensive surgical planning, has gained traction as an effective method for rapidly restoring both oral function and aesthetics. This case report focuses on the application of this innovative approach following free fibula flap reconstruction, a procedure frequently used to manage complex mandibular defects.

Methods: A 46-year-old female patient with a diagnosed mandibular cemento-ossifying fibroma underwent segmental mandibulectomy, necessitating a free fibula flap for reconstruction. In the immediate aftermath of the reconstruction, the patient required prompt rehabilitation to restore both function and aesthetics. On the same day as the free fibula flap surgery, the "Jaw in a Day" technique was implemented. This involved the strategic placement of dental implants into the reconstructed fibula segment, followed by the immediate fitting of a provisional prosthesis. The procedure, conducted within a single day, relied on advanced imaging, meticulous preoperative digital planning, and the use of surgical guides to ensure optimal implant positioning and prosthetic alignment.

Results: Postoperative evaluation revealed excellent outcomes, characterized by stable osseointegration of the implants, effective functional integration of the prosthesis, and substantial improvements in both chewing efficiency and aesthetic results. The patient reported a remarkable enhancement in quality of life, noting improvements in speech and self-esteem.

Conclusion: The simultaneous placement of implants and fitting of prosthetics after free fibula flap reconstruction represents an effective strategy for immediate functional and aesthetic

rehabilitation. This case underscores the technique's efficacy in addressing complex mandibular defects and highlights the critical role of thorough preoperative planning and collaboration between surgical and prosthetic teams, ultimately leading to enhanced patient outcomes and satisfaction

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Byung Min Nahm

Co-authors: Rafael Delgado-Ruiz, Tanya Somohano-Marquez, Kenneth Kurtz, Georgios Romanos

Impact of a Bone Leveler on Prosthetic Abutment Fit in Subcrestal Implant Placement in Guided Implant Surgery

ABSTRACT

Introduction

This study addresses the lack of guidelines for bone levelers in guided subcrestal implants by comparing implant-abutment connection quality with and without bone leveler use.

Goal

A Type III trabecular bone STL file was 3D-printed, modified for an uneven ridge, and covered with polyvinyl siloxane. Using a surgical guide, two groups were tested: Group A (pilot, 3.5mm, 4.0mm drills) and Group B (same drills + bone leveler). Randomized implant sites were evaluated for abutment fit via operator assessment and radiographs, defining proper fit as no radiographic gaps. Any gaps were measured, and operator agreement was analyzed.

Results

Radiographs confirmed 88.89% proper seating with a bone leveler (vs. 18.18% without). Clinicians showed poor agreement and low reliability in tactile assessments compared to radiographic evaluation.

Conclusions and recommendations

Guided surgery protocols for subcrestal implants require a bone leveler to ensure proper prosthetic abutment fit.

Caroline Gorin

Co-authors: Nour Bousaidi, Aurélie Benoit, Asmaa Foda, Coralie Torrens, Jérôme Ligier, Baptiste Casel, Brigitte Baroukh, Catherine Chaussain, Thibaud Coradin.

ABSTRACT

Cranio-maxillofacial bone defects resulting from trauma, tumor resection, or congenital malformations present a significant challenge in reconstructive surgery. Although autologous bone grafts remain the clinical gold standard, their use is associated with considerable drawbacks, including donor site morbidity, limited availability, unpredictable resorption, and the necessity for highly invasive procedures. These limitations emphasize the need for alternative strategies that are both effective and less burdensome. Therefore, developing innovative, patient-specific approaches is crucial to achieve optimal functional and aesthetic outcomes over time. Polyetheretherketone (PEEK) has gained attention as a promising biomaterial for maxillofacial reconstruction due to its favorable mechanical properties, including an elastic

modulus similar to mandibular bone, radio transparency for precise post-surgical imaging, mechanical strength, and chemical stability. However, its bio-inertness requires functionalization to enable effective osseointegration. In this study, we developed a biofunctionalized-PEEK scaffold to repair cranio-maxillofacial bone defects. The scaffold designs incorporated microgrooves or microchannels to promote angiogenesis and osteogenesis by guiding bone ingrowth. A hydroxyapatite (HA) coating was developed and characterized using Energy Dispersive X-ray Spectroscopy (EDX) and Scanning Electron Microscopy (SEM). Mechanical testing confirmed the scaffold's ability to withstand the biomechanical demands of the maxillofacial region. In vitro studies of cell-material interactions demonstrated that the HA-coated surface supported cell adhesion and development. The 3D construct was further evaluated in vivo using two rat models: a calvarial defect model without mechanical loading and a mandibular defect model with higher functional demands. Both models exhibited robust bone integration, with clear evidence of bone ingrowth facilitated by the scaffold's microengineered features. This biofunctionalized PEEK scaffold has shown promising results in preclinical models, highlighting its potential to overcome the current limitations in cranio-maxillofacial reconstruction. Nevertheless, further studies, in particular using animal models closer to humans, are required to confirm their efficacy. This approach could provide a patient-specific bone substitute for cranio-maxillofacial defect offering a relevant and less invasive alternative to autografts.

Doke Buurman

Co-authors: Willemsen ACH, Speksnijder CM, Baijens LWJ, Hoeben A, Hoebers FJP, Kessler P, Schols AMWJ.

Tooth extractions prior to chemoradiation or bioradiation are associated with weight loss during treatment for locally advanced oropharyngeal cancer

ABSTRACT

Purpose: Prior to radiotherapy combined with chemotherapy (CRT) or biotherapy (BRT) for oropharyngeal squamous cell carcinoma (OPSCC), teeth with poor prognosis that pose a risk for post-RT osteoradionecrosis (ORN) are removed. The effect of tooth loss on body weight loss and tube feeding (TF) dependency during CRT/BRT is unknown. This study aimed to evaluate the effect of incomplete dentition, tooth extractions prior to CRT/BRT, and the subsequent loss of functional units on: (1) weight loss during CRT/BRT and (2) the need for TF during CRT/BRT for OPSCC.

Doke Buurman

Co-authors: Speksnijder CM, Granzier ME, Timmer VCML, Hoebers FJP, Kessler P.

The extent of unnecessary tooth loss due to extractions prior to radiotherapy based on radiation field and dose in patients with head and neck cancer.

Abstract

Background and purpose: Prior to radiotherapy (RT), teeth with poor prognosis that pose a risk for post-RT osteoradionecrosis (ORN) are removed. To allow enough time for adequate wound healing prior to RT, decisions are made based on the estimated radiation dose. This study aimed

to gain insight into (1) the overall number of teeth extracted and (2) the patient and tumor characteristics associated with the number of redundantly extracted teeth.
Materials and methods: Patients with head and neck cancer (HNC), treated with RT between 2015 and 2019, were included in this cross-sectional study. For each extracted tooth the radiation dose was calculated retrospectively. The cut-off point for valid extraction was set at ≥40Gy in accordance with the national protocol. Potential factors for doses ≥40Gy were identified, including age, sex, tumor location, tumor (T) and nodal stage (N), overall tumor stage and number of teeth extracted.
Results: A total of 1759 teeth were removed from 358 patients. Of these 1759 teeth, 1274 (74%) appeared to have been removed redundantly, based on the mean dose (D_{mean}) of <40Gy. Using the maximum dose (D_{max}) of <40Gy, 1080 teeth (61%) appeared to have been removed redundantly. Tumor location and N-classification emerged as the most important associative variables in the multivariable regression analysis.
Conclusion: To our knowledge this is the first study to provide insight into the amount of teeth redundantly extracted prior to RT and represents a step forward in de-escalating the damage to the masticatory system prior to RT.

Kenneth Kurz

Endoskeletons Supporting Facial Prosthetics

Patients requiring maxillofacial prosthetic treatment present with either congenital or acquired defect treatment needs. Facial disfigurement is traumatic for both the patient and their family and friends. Unfortunately, some patients are not candidates for surgical reconstruction, and require prosthetic rehabilitation Details of treatment approaches involving endoskeletons (substructures) to support facial prosthetic rehabilitations will be elucidated.

Maria Binte Rahmat

Hybrid Workflow for Orbital Prosthesis Fabrication – A Case Report

ABSTRACT

This case report describes an improved orbital prosthesis workflow that incorporates CAD/CAM to elevate the aesthetics of the conventional workflow. CBCT was used to fabricate a printed model as it captures digital data when the patient has his normal eye open with a natural gaze, crucial for natural-looking prostheses. This is more comfortable that a facial moulage and provides a more accurate mirror of the non-defect side as reference during lab stages for prosthodontist and lab technician. Conventionally, lines to indicate planes were drawn on the patient and transferred onto the moulage as arbitrary indication of ocular prosthesis position in the wax trial prosthesis. With the CBCT model and photographs as reference, clinical duration is reduced as much fewer adjustments are necessary.

A 69-year-old male was diagnosed with right orbital malignant melanoma. Clinically, the patient's right upper and lower eyelids appear over protruding mass, stretched and edematous. Orbital exenteration and excision of eyelids to provide a 'open cavity' lined with healthy keratinized soft tissue. A limited field of view CBCT was taken. Using a CAD software, the normal eye was mirrored to ensure that the gaze orientation of the prosthetic eye matches the normal

eye. The CBCT and the mirrored eye were 3D printed in resin and the printed orbital portion made for a mould to convert the prosthesis into wax. The printed prosthesis guide was used to embed the orbital segment within the wax-up. Refining the wax-up, try-in, shade matching, staining and packing of the silicone prosthesis followed conventional methods.

Rachel Brooke

ABSTRACT

“Raising the bar” with an Obturator Overdenture for a Professional Opera Singer

Patients with congenital defects can experience a high degree of morbidity due to extensive scarring from multiple surgeries and lack of supporting structures in the cleft site(s). Lifelong prosthodontic care for this population is imperative to enhance esthetics, replace missing teeth and minimize the number and extent of invasive procedures. A 60-year-old male professional opera singer with a residual cleft palate presented to Montefiore Medical Center with a chief complaint of a non-retentive overlay obturator. His anterior abutment teeth (#’s 6 and 11) were mobile, compromising the fit of his prosthesis. As a professional opera singer, he relied heavily on prosthetic obturation of his oronasal defect for optimal phonation and resonance. Clinical evaluation revealed that both maxillary canines were non-restorable. The treatment pursued was a 2-implant supported, bar obturator overdenture. The abutment-level, cast Cr-Co bar was designed with buccal and lingual grooves, Hader attachments and distal Micro-ERA’s to provide increased retention of his overlay prosthesis. The cast Cr-Co framework supported by posterior tooth borne copings, engaged the buccal/lingual grooves of the bar, contained the housings for the bar attachments and loops for acrylic retention. The rehabilitation of this adult cleft patient posed many challenges due to the presence of an oronasal fistula, a deficient maxilla lacking lip support and anterior dentition, a class III relationship, lack of keratinized tissue, a V-shaped palatal arch and a large interocclusal distance. For a professional singer with a complex oral condition, treatment with an obturator overdenture returned the precise production of his vocal sounds.

Salina van Egteren