4th World Congress on

Dentistry and Maxillofacial Surgery

February 06-07, 2023 | Paris, France

DAY-1
Keynote Forum

38 YEARS OF EXCELLENCE IN MEDICAL PUBLISHING

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29 YEARS IN ASSESSING THE IMPACT OF HEALTHCARE RESEARCH

4th World Congress on
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Leszek A Dobrzanski & Lech B Dobrzanski

ASKLEPIOS, Poland

Overview on the sustainable development of modern Dentistry for the prevention of Dental diseases, treatment with significant technological support and the safety of patients and dentists

Statement of the Problem: Caries, which affects 3.5-5 billion people and periodontal disease, with the inevitable tootlessness, have a wide impact on the development of systemic complications. The territorial extent of these diseases varies significantly between countries and strongly affects the Disability Adjusted Life Years (DALY) and Oral Health-related Quality of Life (OHRQoL). The program of egalitarianism in dental care is glorious, though utopian, as shown by the presented global statistics of expenditure on these purposes. Due to the populist approach, it is highly polemical to intend to strengthen dental prophylaxis instead of developing interventionist dentistry and its technological support. The prophylactic and therapeutic strategies undertaken as a result of the modification of the Deming circle through the idea of the principles of five are presented. The state of technological development of Dentistry 4.0 support is an element of the current stage of the industrial revolution of Industry 4.0, for which the extended holistic model was developed by the authors. Its application in Advanced Dental Engineering (ADE) points to a shift in the traditional relationship between the dentist and the dental engineer. New classes of implants and implant-scaffolds with a porous part integrated with the solid core were characterized, as well as engineering-biological materials using human living cells. The research on the importance of cone-beam computed tomography (CBCT) in the planning of prosthetic treatment as well as in the design and production of prosthetic restorations is described. A fully digital approach using computer-aided design and manufacturing (CAD/CAM) methods and additive manufacturing (AM) technologies, including selective laser sintering (SLS), are presented. Examples of dental treatment from the authors' own clinical practice are given. The systemic safety of patients and dentists in the world is presented. Instead of a passive strategy of using Personal Preventing Equipment (PPE), by introducing own strategy of active prevention of the spread of pathogenic microorganisms, including SARS-CoV-2. The ethical aspects of dentists' activities towards their own patients and the ethical obligations of the dental community towards society were discussed in detail.

Conclusion & Significance: The prospects for the development of modern dentistry are based on three pillars, ensuring a stable balance. Presented is the Dentistry Sustainable Development (DSD)> 2020 model, consisting of Global Dental Prevention (GDP), Advanced Interventionist Dentistry 4.0 (AID 4.0) and the Dentistry Safety System (DSS).

Figure 1: Model of the sustainable development of modern dentistry from 2020.

Recent Publications

1. Dobrzanski, L.A.; Dobrzanski, L.B. (2020) Dentistry 4.0 concept in the design and manufacturing of prosthetic dental restorations. Processes, 8: 525.
2. Dobrzanski, L.A. (Ed.) (2020) The Concept of Sustainable Development of Modern Dentistry. Processes, 8(12): 1605;
3. Dobrzanski, L.A. (Ed.) (2018) Biomaterials in Regenerative Medicine; IntechOpen: Rijeka, Croatia.
4. Dobrzański, L.B. & Achtelik-Franczak, Anna & Dobrzańska, Joanna & Dobrzanski, Leszek. (2020). Comparison of the Structure and Properties of the Solid Co-Cr-W-Mo-Si Alloys Used for Dental Restorations CNC Machined or Selective Laser-Sintered. Materials Performance and Characterization. 9.
5. Peres, M.A.; et al. (2019) Oral diseases: A global public health challenge. Lancet, 394:249–260.
6. Watt, R.G.; et al. (2019) Ending the neglect of global oral health: Time for radical action. Lancet, 394: 261–272.

Biography

Leszek A. Dobrzanski has been a full professor and Director of the ASKLEPIOS science center for five years at the design, research and production center of medical and Dental engineering ASKLEPIOS Ltd. in Gliwice, Poland. At the same time, he is a professor at the department of Biomedical engineering of the Koszalin university of technology in Kozalin, Poland. He worked in the years 1971-2017 at the Selesian university of technology in Gliwice as a full professor, vice-rector and dean of the faculty. He is the president of the World academy of materials and manufacturing engineering WAMME, Vice president of the engineering academy in Poland and a foreign member of the engineering academy of Ukraine and Slovakia, editor-in-chief of the journal of achievements in materials and manufacturing engineering JAMME and archives of materials science and engineering AMSE. He is a member of Editorial Boards, incl. at Taylor & Francis, MDPI, ASTM International and others.

The title of professor was awarded to him by the President of the Republic of Poland in 1995 and abroad in 2017 the title of honorary professor of the Lviv state university of technology in Ukraine and three honorary doctoral degrees in 1997 from the University of Ruse (Bulgaria), in 2007 from the State Universuty in Khmelnytsky (Ukraine) and in 2016 at the university of Miskolc (Hungary). His workds are cited atleast 16,000 in world journals according to Web of Science, Scopus and Google Scholar and a number of Citations: 5,189 (SC), 3,040 (WB), 16,000 (GS), h index: 52 (GS), 33 (SC), 26 (WS). He is the author of approx.. 3,000 scientific publications and books which includes, 60 books and monographs, 250 articles in the journals reffered in Web of Science core collections, over 100 lectures at international conferences worldwide. His research interests include materials, biomedical and dental engineering, surface engineering, organization and management, manufacturing engineering, nanotechnology and additive manufacturing and technological foresight.

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Adriana Mazzoni

De Julho University (UNINOVE), Brazil

Comparison of high-power diode laser and electrocautery for lingual frenectomy in Infants

This study evaluated the release of the lingual frenulum by means of frenectomy in newborns from zero to 90 days of age who were breastfeeding and had a diagnosis of ankyloglossia with surgical indication, by comparing the use of two thermal surgical instruments: electrocautery and laser high power diode. Sixty infants were randomly allocated into two groups, but three participants did not meet the inclusion criteria leaving fifty-seven participants in total (23 undergoing electrocautery and 34 undergoing high-power diode laser). Tongue movements were assessed based on a clinical assessment and using the Bristol Tongue Assessment Tool (BTAT) before and 15 days after the surgical procedures. The visual analog scale was applied to mothers on the same occasions to measure pain during breastfeeding. Both groups showed an increase in the BTAT score (favorable result) in the post-surgical evaluation, attesting to the effectiveness of the application of the current protocol. For some infants, the anterior third of the tongue was not always free to allow the movements necessary for lingual functions. It was essential that the surgeon had skill and in-depth knowledge of the equipment used to avoid accidents and complications in the region of important structures and all surgeries were performed by a single surgeon. Both techniques used in this study were safe and effective, causing little bleeding and few trans and postoperative complications. The group submitted to high-power diode laser showed less post-surgical bleeding compared to the group submitted to electrocautery and absence of inflammation at the edges of the surgical cut, but a higher number of recurrences and need for reintervention (58%) in relation to the use of electrocautery (26%) and the number of recurrences of the use of electrocautery was very high, despite being lower than the use of diode laser. In the group that used electrocautery, 7 participants had inflammation at the edges of the surgical wound in relation to the use of laser. The cases that presented recoaptation of the cut tissues and/or fibrotic scarring at the cut site were considered recurrent, both limiting the possibility of moving the anterior third of the tongue. There was no difference in the results regarding maternal pain for the two groups.

Recent Publications

1. Costa, D. et al. Frenectomia a laser: uma revisão de literatura. Diálogos em Saúde [Internet]. Jun 29 v.3, n.2, 2021.
2. Isac, C. Frenectomia – momento ideal da intervenção cirúrgica. Dissertação (Mestrado Integrado em Medicina Dentária), Instituto Universitário Egas Moniz, IUEM, 2018.
3. Khan U, MacPherson J, Bezuhly M, Hong P. Comparison of Frenotomy Techniques for the Treatment of Ankyloglossia in Children: A Systematic Review. Otolaryngol Head Neck Surg. 2020 Sep;163(3):428-443.

Biography

Adriana Mazzoni has been a specialist in Pediatric Dentistry for 33 years and has been working specifically with infants, breastfeeding and lingual frenectomy in babies for 27 years, this being a daily mission in her profession. When her daughter was born 27 years ago, she, who already worked with newborns, had difficulties in breastfeeding her and due to the little professional knowledge that existed at the time by medical and dental professionals, she delved deeply into studies in this area, to help mothers with breastfeeding difficulties. It decided to look for the best and most comfortable way to perform the lingual frenctomy and to present the best results, resulting in this first study, which was a blinded randomized clinical trial.

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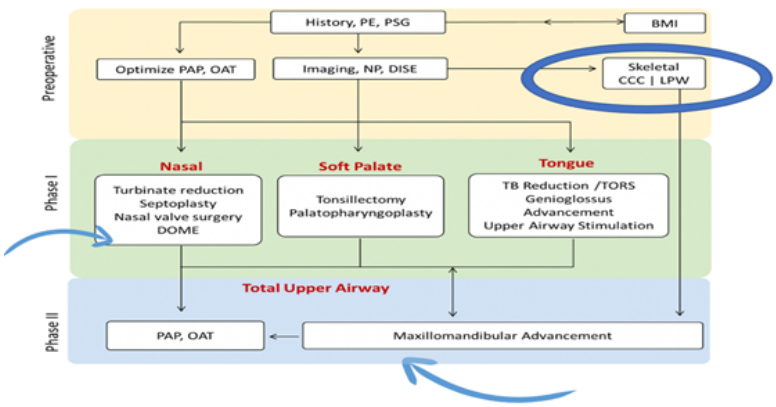
Allen Huang
University of Southern California, USA

Functionally driven esthetics: Maxillofacial considerations for sleep surgery

This study evaluated the release of the lingual frenulum by means of frenectomy in newborns from zero to 90 days of age who were breastfeeding and had a diagnosis of ankyloglossia with surgical indication, by comparing the use of two thermal surgical instruments: electrocautery and laser high power diode. Sixty infants were randomly allocated into two groups, but three participants did not meet the inclusion criteria leaving fifty-seven participants in total (23 undergoing electrocautery and 34 undergoing high-power diode laser). Tongue movements were assessed based on a clinical assessment and using the Bristol Tongue Assessment Tool (BTAT) before and 15 days after the surgical procedures. The visual analog scale was applied to mothers on the same occasions to measure pain during breastfeeding. Both groups showed an increase in the BTAT score (favorable result) in the post-surgical evaluation, attesting to the effectiveness of the application of the current protocol. For some infants, the anterior third of the tongue was not always free to allow the movements necessary for lingual functions. It was essential that the surgeon had skill and in-depth knowledge of the equipment used to avoid accidents and complications in the region of important structures and all surgeries were performed by a single surgeon. Both techniques used in this study were safe and effective, causing little bleeding and few trans and postoperative complications. The group submitted to high-power diode laser showed less post-surgical bleeding compared to the group submitted to electrocautery and absence of inflammation at the edges of the surgical cut, but a higher number of recurrences and need for reintervention (58%) in relation to the use of electrocautery (26%) and the number of recurrences of the use of electrocautery was very high, despite being lower than the use of diode laser. In the group that used electrocautery, 7 participants had inflammation at the edges of the surgical wound in relation to the use of laser. The cases that presented recoaptation of the cut tissues and/or fibrotic scarring at the cut site were considered recurrent, both limiting the possibility of moving the anterior third of the tongue. There was no difference in the results regarding maternal pain for the two groups.



Recent Publications

1. Salman, L.A., R. Shulman and J.B. Cohen, Obstructive Sleep Apnea, Hypertension and Cardiovascular Risk: Epidemiology, Pathophysiology and Management. Curr Cardiol Rep, 2020. 22(2): p. 6
2. .Li, K.K., et al., Long-Term Results of Maxillomandibular Advancement Surgery. Sleep Breath, 2000. 4(3): p. 137-140.
3. Camacho, M., et al., Large maxillomandibular advancements for obstructive sleep apnea: An operative technique evolved over 30 years. J Craniomaxillofac Surg, 2015. 43(7): p. 1113-8.

Biography

Allen Huang is a fellowship trained oral & maxillofacial surgeon who subspecializes in treating patients with obstructive sleep apnea. He obtained his dental degree at UC San Francisco and completed his maxillofacial surgery residency training at the University of Southern California. Following graduation, he completed a sleep surgery fellowship at Stanford University, where he served as a clinical instructor and fellow in the department of Otolaryngology / Head & Neck Surgery. He currently is an assistant professor of oral & maxillofacial surgery at LAC + USC medical center in Los Angeles, California. His clinical interest include functional nasal surgery, maxillofacial reconstruction for sleep apnea and trauma.

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Mustafa Gsiebat

Madrid Complutense University, Spain

Dual scan impression technique for immediate loading full mouthimplant rehabilitation (Full digital workflow)

Statement of the Problem: The immediate loading protocol has become increasingly popular due to the progressive growth in demand for a reduction in treatment times. The possibility of applying this protocol would be depending on certain important factors. Application of the digital workflow in the mentioned protocol guarantees the rapidity, precision and aesthetics. This case series aims to describe a fully digital workflow using a dual scan impression technique to fabricate immediate fixed complete dentures for zygomatic and standard implants. Methodology: All patients were looking for fixed full mouth rehabilitation. Clinical and radio-graphical analyses were undertaken. The treatment planning was discussed with every patient and informed consents were sought and obtained. The treatment commenced by digital impressions of the upper and the lower prostheses. The scan information constituted the first stereo-lithography (STL) file. Both prostheses were removed and another digital impression of soft issues was undertaken to create a second STL file. During the surgery, transmucosal abutments were placed on all implants, after suturing the positions of implants were recorded using the stereophotogrammetric technique and creating a third STL file, the soft tissues after suturing were rescanned creating a fourth STL file, all STL files were aligned to have the virtual final models. The pre-design after virtual modifications was aligned with the definitive models, the provisional prostheses were milled and placed after six hours from the surgery. Conclusion & Significance: The dual-scan technique presented in this report might be effective with immediate and definitive screw-retained fixed complete dentures (FCDs), with this technique the time is reduced, the cumulative errors of conventional impression technique and the stitching discrepancy of IOs can be avoided, the clinician and patients are highly satisfied.

Recent Publications

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2. Agliardi EL, Romeo D, Panigatti S, de Araújo Nobre M, Maló P. Immediate full-arch rehabilitation of the severely atrophic maxilla supported by zygomatic implants: a prospective clinical study with minimum follow-up of 6 years. Int J Oral Maxillofac Surg. 2017 Dec 1;46(12):1592–9.
3. Suarez MJ, Paisal I, Rodriguez-Alonso V, Lopez-Suarez C. Combined Stereophotogrammetry and Laser-Sintered, Computer-Aided Milling Framework for an Implant-Supported Mandibular Prosthesis: A Case History Report. Int J Prosthodont. 2018 Feb;31(1):60–2.

Biography

Gseibat graduated from the faculty of Dentistry of the University of Benghazi in Libya 2009. He received his specialty degree in prosthodontics from the University of Madrid Complutense in 2018, he received his specialty degree in Dental Implantology from University of Seville in 2020 and he received his MSC degree from University of Madrid Complutense in 2020. He lectured nationally and internationally on many Prosthodontic topics primarily. He has published scientific articles. He is currently in the clinical master of Prosthodontics and Occlusion of the University of Madrid Complutense as a collaborator and in a private practice limited to surgical reconstruction implant surgery and Prosthodontics in Benghazi, Libya 3 times per year.

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Scientific Tracks & Abstracts

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Sessions

Dentistry | Endodontics | Dental Health | Orthodontics | Oral and Maxillofacial surgery | Restorative Dentistry

Session Chair
Leszek A. Dobrzanski
ASKLEPIOS | Poland

Session Introduction

Title: **Socket preservation with the intentionally exposed non-resorbable d-PTFE membrane as an atraumatic alternative to GBR**

Roberto Luongo | Adj Clininstr NYU | Italy

Title: **Repair of aged composite with composite: Effect of different surface treatment (*In vitro* study)**

Thuraya lazkani | Damascus university | Syria

Title: **Cross talk between synthetic food colors (Azo dyes), Oral flora and Cardiovascular Disorders**

Arooba john | Government college university | Pakistan

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Socket preservation with intentionally exposed non-resorbable d-PTFE membrane as atraumatic alternative to GBR

Roberto Luongo
Adj clin instr NYU, Italy

After tooth extraction, a cascade of biological events occurs, typically resulting in significant local anatomic changes, including reduced height and reduced width of the residual ridge. In order to improve the aesthetic predictability of post-extractive implants, several studies and systematic reviews have been conducted to evaluate the efficacy of different socket-filling approaches involving different grafting materials, with or without barrier membranes. A recent systematic review concluded that high-density polytetrafluoroethylene (d-PTFE) membranes protect the grafting material and/or the initial healing clot from bacterial contamination, leading to successful regeneration without a significant risk of infection. The aim of this study is to show the quantitative histological examination of bone reconstructed with d-PTFE membrane, left intentionally exposed in postextraction sockets grafted with anorganic bone material and removed after 4 weeks versus extraction and guided bone regeneration (GBR), performed two months later. Conclusions: with the limitation of the present study, buccal plate reconstruction with an intentionally exposed non-resorbable membrane is an effective and easy procedure for regenerating a resorbed buccal bone plate, reducing the need for guided bone regeneration.

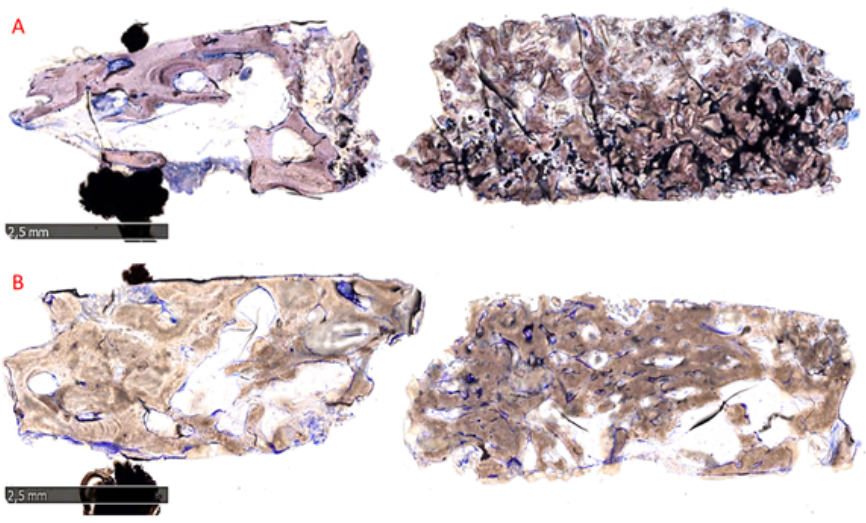

Figure 1: Overview of two representative samples: A) Socket preservation, B) GBR. A large amount of regenerated bone surrounds grafted blocks in the coronal portion of the biopsies (right side), while in the apical portion (left side), basal bone is observable in both groups. Total magnification 25x, Toluidine Blue and Pyronine Yellow staining.

Recent publications

1. Mecall RA, Rosenfeld AL. Influence of residual ridge resorption patterns on implant fixture placement and tooth position. 1. Int J Periodontics Restorative Dent 1991;11:8–23.

2. Darby I, Chen ST, Buser D. Ridge preservation techniques for implant therapy. Int J Oral Maxillofac Implants 2009; 2:260–71.

3. Carbonell JM, Sanz Martı´n I, Santos A, Pujol A, Sanz-Moliner JD, Nart J: High-density polytetrafluoroethylene membranes in guided bone and tissue regeneration procedures: a literature review. Int. J. Oral Maxillofac. Surg. 2014; 43:75–84.

Biography

Roberto Luongo graduated with honors in Dentistry at the univeristy of Bari in 1996. In 2002 received his certificate in Implant Dentistry of the two-year, full time advanced program at New York University College of Dentistry, Head D. Tarnow and Director N. Elian. In 2004 he participated to the annual course of Periodontology held by Dr. S. Parma Benfenati, in 2008 the annual fixed prosthesis of Dr. M. Fradeani, in 2020 the annual advanced course in in Mucogengival Surgery held by Prof. G. Zucchelli. From 2003 to 2010 he acted as the Adjunt Professor in implant dentistry at the University G. D'Annunzio of Chieti. Since 2000, he is a member of the American Academy of Osteointegration, since 2016 active member of the Italian Society of Implantology (SIO) become Italian Academy of Osteointegration (IAO) in 2017. From 2012 he is the director of the program in Implant Dentistry held at Istituto Stomatologico Mediterraneo in Bari.

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Repair of aged composite with composite: Effect of different surface treatment (*In vitro* study)

Thuraya Lazkani
Damascus University, Syria

Background and aim: Repair of composite restorations is a minimally invasive approach and it can reduce cost and time of dental treatment. This study aims to compare the effect of different surface treatments (phosphoric acid, hydrofluoric acid, silane with universal adhesive) on the Shear Bond Strength (SBS) of aged repaired composites.

Materials and methods: Seventy cubic composite blocks (5 mm x 6 mm) were fabricated at teflon matrix made for this study, then aged by keeping in distilled water at 37C for 24 hours then at 55C for 4 days. Specimens were roughened by diamond bur and divided into 7 groups (n=10) according to surface treatment:(phosphoric acid 37% + silane + universal adhesive, phosphoric acid 37% + universal adhesive, universal adhesive, hydrofluoric acid 9.8% + silane + universal adhesive, hydrofluoric acid 9.8% + universal adhesive, universal adhesive, one block composite no therminal treatment for the first time (positive control), no surface treatment (control)). The conditioned surfaces of all specimens were covered with repair composite Cylinders (4mm x 6mm) and aged as previously. The shear bond strengths were measured for all specimens using a universal test machine (test 114). Data were collected and statistically analyzed by SPSS version 13 and using One way ANOVA Test. P-value of 0.05 was taken as statistically significant level.

Results: The specimens repaired with phosphoric acid 37% + silane + universal adhesive showed the highest SBS value and were significant. There were no significant differences in SBS between phosphoric acid 37% + silane + universal adhesive and universal adhesive and positive control groups ($p > 0.05$). There was no significant difference at SBS values between negative control and hydrofluoric acid 9.8% + silane + universal adhesive, hydrofluoric acid 9.8% + universal adhesive groups with the lowest SBS value.

Conclusion: For aged composite repair silane application after phosphoric acid etching and then adhesive application could enhance bonding between old and new composite restoration. Application of hydrofluoric acid for old composite restorations is not recommended.

Keywords: Composite, Restoration repair, Surface treatment, Aged composite, Phosphoric acid, Hydrofluoric acid, Silane, Universal adhesive, Shear bond strength.

Recent publications

1. Bnaiyan, Anas & Altinawi, Mohamed & Lazkani, Thuraya & Alzoubi, Hasan. (2022). Evaluation Time and Efficacy of Root Canal Rotary Preparation in Primary Teeth: An In-Vitro Study. Cureus. 14. 10.7759/cureus.24558.
2. Tolibah YA, Kouchaji C, Lazkani T, Ahmad IA, Baghdadi ZD. Comparison of MTA versus Biodentine in Apexification Procedure for Nonvital Immature First Permanent Molars: A Randomized Clinical Trial. Children. 2022; 9(3):410.
3. Treatment of Apical Lesions in Immature Permanent Molars: Biodentine versus MTA -A Randomized Controlled Trial in Children

Biography

Thuraya Lazkani is an Associate professor and member of staff of restorative department, Dentistry College, Damascus University. She did her PhD in endodontic in Damascus university, Syria in 2009-2012; MSc in Medical Laser from High Institute of laser research, Damascus University, Syria in 2018; MSc in endodontic Damascus University, Syria in 2009; Diploma of Endodontic Dentistry in Damascus University, Syria in 2007; and diploma of pediatric Dentistry in Damascus University, Syria in 2003. She is a staff of Restorative Department at Damascus University and has her membership in General Dental Practitioners' Association and in Syrian Endodontic Society.

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Cross talk between synthetic food colors (Azo dyes), Oral flora and Cardiovascular Disorders

Arooba John
Government college university, Pakistan

Synthetic food colors are important ingredients in the food industry. Majority synthetic food colorants are azo dyes and obviously acidic in nature. They are present in sweets, carbonated drinks, meat products and candies to attract the consumers. This study is an attempt to explain the adverse effects of azo dyes and their association with oral cavities and cardiovascular disorders. All of synthetic dyes (azo dyes) have staining effects on dentin. Poor dental care accelerates the bacterial accumulation on the dental crown (Gram-negative bacteria *P. gingivalis*, *T. denticola* and *T. forsythia* and Gram-positive bacteria *Strep. Gordonii*), causing the washing of enamel, forming dental plaque. All the bacterial phyla contribute to different and major oral disorders, such as periodontal disease, which is caused by releasing different chemicals and toxins causing the gum disease by weakening the gum tissues. *Streptococcus mutans* in the mouth thrives on sugar and produces acids, which eat the enamel and accelerate the bacterial pathogens (*P. ginigivalis* and *F. nacleatum*) to release different chemicals (FadA and Fap2). These chemicals bind to protein on the cell by producing an inflammatory response through different. Bacterial pathogens get attached with the surface releasing different chemicals that binds with the protein of cells, which helps the bacteria to migrate from cell-cell junction, making the vessels more permeable. Different toxins such as exotoxins and endotoxins entered in the bloodstream line, which get attached to the walls of vessels through which it travels to carotid artery and build up the plaque which after lead to major arteries such as coronary artery. The dental plaque is the same plaque which builds up in the major arteries, also different synthetic food colors which were used in food contains amino acids and salts concentration (especially sodium chloride), accumulation of plaque in arteries causes IHD, CAD, hypertension, atherosclerosis and hypernatremia. Line-host defenses, such as gingival Epithelial Cells (ECs), Hemi- desmosomes and desmosomes, which helps the bacterium migration from the cell–cell junction. This makes the junctions slightly open up and makes the whole vessel permeable, through which the bacterium enters into the blood stream line. This leads to different major arteries such as the carotid artery and causes the accumulation of plaque in major cardiac arteries which causes different cardiovascular disorders. The bacterial species present in gums cause cardiovascular diseases such as ischemic heart disease, coronary artery disease, heart attacks, strokes and arrhythmias which can lead to death.

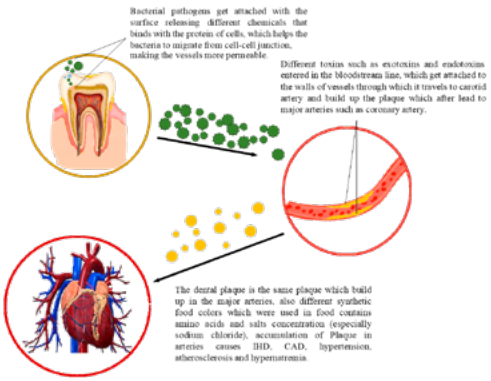

Figure 1: Formation of biofilms which lead to build-up plaque in blood vessels and arteries causes 276 different cardiovascular disorders.

Recent publications

1. Hou, K.; Wu, Z.-X.; Chen, X.-Y.; Wang, J.-Q.; Zhang, D.; Xiao, C.; Zhu, D.; Koya, J.B.; Wei, L.; Li, J.; et al. Microbiota in health and diseases. Signal Transduct. Target. Ther. 2022, 7, 135.

2. Lenartova, M.; Tesinska, B.; Janatova, T.; Hrebicek, O.; Mysak, J.; Janata, J.; Najmanova, L. The Oral Microbiome in Periodontal Health. Front. Cell Infect. Microbiol. 2021, 11, 629723.

3. Fitzsimonds, Z.R.; Liu, C.; Stocke, K.S.; Yakoumatos, L.; Shumway, B.; Miller, D.P.; Artyomov, M.N.; Bagaitkar, J.; Lamont, R.J. Regulation of olfactomedin 4 by Porphyromonas gingivalis in a community context. ISME J. 2021, 15, 2627–2642.

Biography

Arooba John completed her/his MSc Botany, Applied microbiology from government college and university, Lahore, Pakistan. His/her current filed placement is microbiology, cellular biology and, genotoxicity, which have been utilized from the past few decades to overcome or prevent the most inexorable diseases. She/he is interested in studying the effect of pathogenic oral microbiome in major human diseases. Oral microbiome is crucial to health as it can cause both oral and systematic disease. This study is the result of enthusiasm, efforts and passion which she/he has for sciences. And it's her/his aim to make a better environment in which every person can enjoy a better or healthier lifestyle. Association between oral flora and cardiovascular disorders are considered to be as a major contribution in scientific community. She/he believed that, this approach is turned out to be a remarkable contribution in world.

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Sessions

Periodontics | Dental Surgery | Dental Anatomy | Dental Implants | Cosmetics Dentistry

Session Chair
Adriana Mazzoni
Nove de Julho University (UNINOVE) | Brazil

Session Introduction

Title: **Metals used in Orthodontics and their side effects**
Bersan Karadede | Ozel Ortodonti Agız ve Dis Saglıgı Polikinigi | Turkey

Title: **3D Approach to individuals with different face types**
Beyza Karadede Unal | Izmir Katip Celebi University | Turkey

Title: **Relationship among lower arch dimensions in crowding and noncrowding groups**
Mimoza Selmani | AAB College | Kosovo

Title: **Comparison of the impact of two types of removable partial dentures on the periodontal health of the remaining teeth – A prospective clinical study**
Manushaqe Selmani Bukleta | AMEC College Rezonanca | Kosovo

Title: **Versatility of advanced integrated prosthetic digital workflow for the immediate Full-Arch Restoration - Sobczak Concept**
Barbara Sobczak | Sobczak Dental Clinics | Dubai

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Metals used in Orthodontics and their side effects

Berşan Karadede
Ozel Ortodonti Agız ve Diş Sagligi Polikinigi, Turkey

The side effects of metals used in the human body have been known for a long time. Metals can cause toxic or allergic reactions. These types of allergies are related to the immune system. This may occur with local or general allergic findings. This is a very important problem that is not overemphasized in contemporary orthodontics, but will require more attention and attention in the future. In this presentation, it is aimed to review and evaluate this situation in detail.

In order for these results to occur, it is necessary to release metal ions to the environment with the corrosion of the relevant metal or alloy. Allergy is the immune system's reaction to chemicals. Depending on the metal or alloy used, different levels of allergy may occur. In this case, it is mentioned that genetic factors may also be effective. In addition, carcinogenic, mutagenic and cytotoxic effects of metals or alloys have been reported. Reactions that occur as a result of allergies can occur as early or late type. In clinical studies, significant changes were detected in the ion levels of metals in tissue fluids after the use of metals / alloys used in orthodontics. Therefore, metals or alloys should not be considered biologically inert. However, once the body's contact with the metal is cut off, the tissues heal.

As a result, before starting orthodontic treatment, when taking anamnesis from individuals who will receive orthodontic treatment with fixed mechanics, it should be questioned very well whether they have metal allergy or allergy to any substance or food. In doubtful cases, an allergy test should be performed. The allergic condition that occurs during the treatment should be evaluated meticulously and the necessary action should be taken quickly.

Recent publications

1. Karadede Berşan; “Prospective Investigation of NLRC4 Inflammasome Pathway Gene Expression Levels in Patients Using Orthodontic Fixed Mechanics”, Supervisor: Veli İ, Berdeli AH, İzmir Katip Çelebi University, Institute of Health Sciences, Department of Orthodontics, 2021, İzmir, Türkiye.
2. Baran İ, Nalçacı R. Dişhekimliğinde kullanılan materyaller ve alerjik reaksiyonlar. Atatürk Üniv. DişHek. Fak. Derg. Suppl.: 2, 2007: 26-32.
3. Spalj S, Zrinski MM, Spalj VT. In-vitro assesment of oxidative stress generated by orthodontic archwires. Am J Orthod Dentofacial Orthop 2012; 141:583-9.

Biography

Berşan Karadede graduated from the faculty of Dentistry in 2016 with her thesis named “Maxillofacial Surgery Techniques and Complications”. In 2021, she received her PhD in orthodontics by conducting a multidisciplinary thesis named “Prospective Investigation of NLRC4 Inflammasome pathway gene expression levels in patients Using Orthodontic Fixed Mechanics”. She started her second doctorate in the field of "Health Law" in 2021. She made clinical observations in Germany in 2017, 2021 and 2022 and in Spain in 2022. She has been an invited speaker, organizer and participant in many scientific organizations. She has many international and national publications, book chapter authorship and refereeing. She received a Certificate of Honor in 2009, 2010 and 2016. She gave lectures at Izmir Katip Celebi University between 2019-2021. She has been involved in many social and cultural projects and she has 5 prizes from them.

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3D Approach to individuals with different face types

Beyza Karadede Unal
Izmi Katip Celebi University, Turkey

Statement of the Problem: In the millennium age, stereophotogrammetry of the face, mouth scanning and cone-beam computed tomography (CBCT) of the teeth and the image of the teeth, jaw and face can be examined in 3D. This has enabled us to understand the incomprehensible and measure the unmeasurable. The purpose of this study is to examine malpositions in terms of skeletal, dental, soft tissue and respiratory aspects and to indicate their differences with other anomalies at necessary points. Methodology & Theoretical Orientation: This study evaluated Class 1, 2 and 3 malpositions in three dimensions with CBCT, stereophotogrammetry and mouth scanning. Findings: Class 1 anomalies may show values close to Class 2 and Class 3 anomalies. It has been reported that class 2 individuals have higher mesiodistal and buccolingual tooth dimensions than class 1 and 3. Morphologically, it is observed that there is a connection between the mandible and maxilla volumes in skeletal class 2 malposition. When skeletal anomalies were compared both maxilla and mandible volumes are greater in Class 2 and 3 short face type than long face type. In studies evaluating the mesiodistal dimensions of the teeth, statistically significant differences were found in patients with Class III malocclusion. Soft tissue growth and development of patients with Class 1, Class 2 and Class 3 malposition show significant differences compared to other skeletal anomalies. Conclusion & Significance: It has also been reported that there is a significant relationship between the sagittal position of the jaws and face types and the position of the hyoid bone and the pharyngeal airway. Mastering the morphological features of Class 1, 2 and 3 anomalies is very important to create an accurate treatment plan and prediction. 3D technology enables us to do this.

Recent publications

1. Karadede B, Dellaloğlu D. ‘‘Farklı Malokluzyonlara Sahip Bireylerin Mesiodistal Diş Boyutlarının Dijital Analizi.’’ MasterThesis, August 2018.
2. Karadede B. “Farklı Iskeletsel Yüz Tiplerine Sahip Bireylerin Maksilla ve Mandibula Hacimlerinin Konik Işınlı Bilgisayarlı Tomografi Yöntemi Ile Incenmesi.” DoctoralThesis, August 06, 2018.
3. Karadede Mİ, Coşkun R. ‘’ Baş Pozisyonunun Yüz Yumuşak Dokuları Üzerine Etkisinin Stereofotogrametri ile Değerlendirilmesi.’’ MasterThesis, Juny 2018.

Biography

Beyza Karadede Unal has two PhD about Orthodontics and Histology-Embryology. In 2016, she continued part of her academic and clinical education in the Maxillafacial department at St. George's University Hospital and Kingston Hospital. During this period, she increased her experience in dentofacial deformities and orthognathic surgery. She transfers her clinical experience and knowledge gained during her academic career in her domestic and international experiences to her students. She supervised 3 PhD students and 6 specialist training students and still refers 3 PhD students. Dr. Dr. Karadede Unal, who has many peer-reviewed publications, has original, rational, systematic, objective, open to criticism and consistent working principles. Karadede Unal's works include 18 national, international refereed articles, 44 oral and poster presentations, chapter authorship in 1 international book, chapter authorship in 4 national books, editorship in 1 national book, speaker in 13 meetings, participant in more than 50 congresses and course programs.

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Relationship among lower arch dimensions in crowding and non-crowding groups

Mimoza Selmani
AAB College, Kosovo

Crowding of teeth is considered as the most common type of malocclusion. The evidence regarding mandibular arch dimensions in human populations is important to clinicians in orthodontics. The relationship between arch dimensions and crowding has become subject of interest to many investigators which has lead to many conflicting and contradictory views. The purpose of the present study was to examine the relationship between arch length, arch width and arch perimeter in crowded and non-crowded arches, as well as to made comparison of the right and left sides between them and to find out the contributing factor in lower arch crowding. Methods and subjects: The study groups consisted of 60 subjects aged 16 to 21 years. First group consisted of 30 pairs of dental study models with class I normal occlusion. The second group consisted of 30 pairs of study models with class I crowding. Measurements of arch length and width were made as defined by Lavelle and Foster, using Korkhaus callipers. Arch perimeter was measured by Lundstrom method's using manual calliper with sharp points. Differences between these measurements were made by Mann-Whitney U test (Z/U). According to our study the arch length and arch perimeter were not associated factors in contribution to lower arch crowding. In association of contributed factors on the lower arch crowding, we could mention the width of the arch, because the differences between the two groups was significantly different. The findings of our study may be important for orthodontic treatment planning of lower arch crowding correction, as it may have several possibly helpful points to overcome difficulties in orthodontics treatment.

Recent publications

1. Bernabé E, del Castillo CE, Flores-Mir C. (2005) Intra-arch occlusal indicators of crowding in the permanent dentition. Am J Orthod Dentofac Orthop, 128:220-225.

2. Agenter MK, Harris EF, Blair RN. (2009) Influence of tooth crown size on malocclusion. Am J Orthod DentofacOrthop 136:795-804.

3. Shah AA, Eleock C, Brook AH. (2003) Incisor crown shape and crowding. Am J Orthod Dentofac Orthop, 123:562-567..

Biography

Mimoza Selmani is assistant professor at AAB College, faculty of Dntistry, Department of Orthodontics, Kosovo. She is also a specialist of Orthodontics in Dental Clinic Mdent-Family Dentistry, Prishtina, Kosovo. She completed her doctoral studies at the University "Cv. Ciril i Metodij", Skopje, Macedonia in 2015. Her professional and academic experience is based on the improvement and prevention of orthodontic anomalies. Early detection and orthodontic treatments have been the basis of various scientific studies. Her basic professional and scientific models have been used in educational institutions, where she lectures on this topic.

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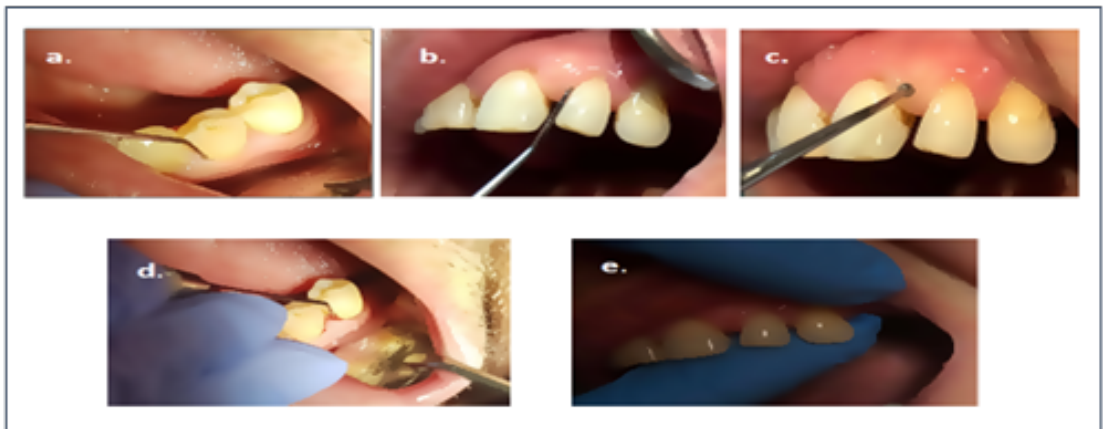
Comparison of the impact of two types of removable partial dentures on the periodontal health of the remaining teeth – A prospective clinical study

Manushaqe Selmani Bukleta
AMEC College Rezonanca, Kosova

Removable partial dentures (RPD) are the most commonly used removable prosthodontic appliances for partial edentulism. The proper design of RPD can significantly reduce the incidence of such problems. Metal framework dentures have certain advantages over acrylic-based dentures, for instance, providing a stable denture base and maintenance of oral hygiene. The objective of this study was to evaluate and compare the impact of two removable partial dentures (ARPD and MRPD) on periodontal tissues of the remaining teeth in the first 12 months of denture use. This prospective clinical study included 40 patients, of which 20 received ARPDs, 20 received MRPDs, 9 in the maxilla and 11 in the mandible each. The patients were 45–65 years old; 24 were female and 16 were male. Patients' demographic details, clinical indicators of periodontal complications and biochemical measurement of Hs-CRP and ALP were considered. One-way ANCOVA and Friedman were used to measure the differences in clinical periodontal parameters between the two types of dentures. The significant findings were: PLAQ scores for abutment teeth were higher in MRPD wearers (mean=12.15) than ARPD wearers (mean=10.45), whereas ARPD users had significantly higher mean BOP values (mean=1.5) than MRPD users (mean=0.00); mobility of abutment teeth showed no significant differences; timeline comparisons showed a significant increase in the percentage of non-abutment teeth mobility in ARPD users (p=0.028) compared to MRPD users over the same follow-up period (p=0.102). For a short-term period of 1 year, periodontal and mobility parameters have no significant impact on the abutment and non-abutment teeth of ARPD and MRPD users. Moreover, biochemical markers (CRP and ALP) for periodontal inflammation exhibited no significant difference in both types of dentures. This is the first prospective clinical study comparing ARPD and MRPD treatment in terms of their impact on oral health indicators.



Recent publications

1. Vermeulen AH, Keltjens HM, van't Hof MA, Kayser AF (1996) Ten year evaluation of removable partial dentures: survival rates based on retreatment, not wearing and replacement. J Prosthet Dent. 76:267–72.

2. Creugers NHJ, de Baat C. (2009) Removable partial dentures. Oral functions and types. Source: Ned Tijdschr Tandheelkd. 116:587–590.

3. Fueki K, Ohkubo C, Yatabe M, Arakawa I, Arita M, Ino S, et al. (2014) Clinical application of removable partial dentures using thermoplastic resin—Part I: Definition and indication of non-metal clasp dentures. J Prosthodont Res. 58:3–10.

Biography

Manushaqe Selmani Bukleta is assistant professor at college Rezonanca, faculty of Dentistry, Pristina, Kosovo. She is also a prosthodontic specialist in Dental Clinic Mdent-Family Dentistry, Prishtina, Kosovo. She completed her doctoral studies at the university of Ljubljana, Slovenia in 2021. Her professional and academic experience is based on the improvement and prevention of removable partial denture complications. Early detection of complications in remaining teeth have been the basis of various scientific studies. Her basic professional and scientific models have been used in educational institutions, where she lectures on this topic

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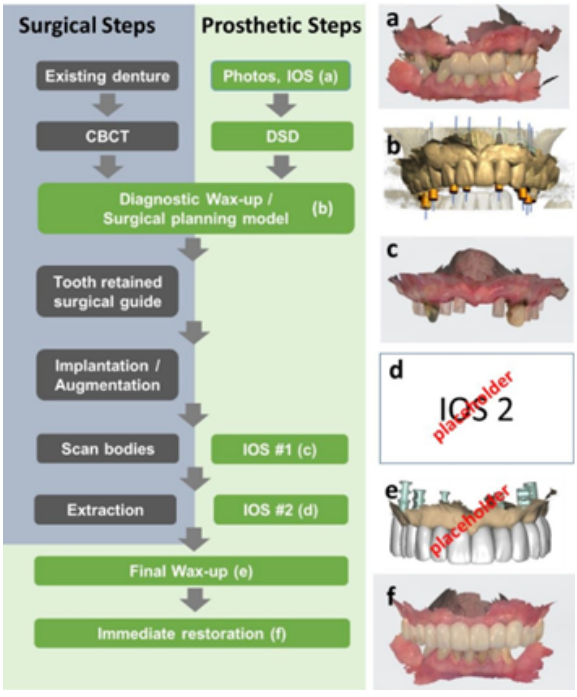
Versatility of advanced integrated prosthetic digital workflow for the immediate Full-arch restoration - Sobczak concept

Barbara Sobczak
Sobczak Dental Clinics Warsaw, Dubai

This lecture illustrates the application of a novel digital workflow for the immediate full-arch restoration with a white bridge over various indications and conditions. Pre- and intra-surgical direct digital impressions for the surgical and chairside prosthetic planning models were combined. This combination allowed to precisely adapt the prosthetic framework to the patients' macro aesthetics and local soft tissue anatomy and to identify and selectively apply regenerative procedures. This resulted in a precise, efficient and robust delivery of chairside manufactured immediate restorations. Implant-fixed complete dentures (IFCDs) are well established for the immediate rehabilitation of edentulous patients. Selecting an adequate treatment scheme is one of the most important factors for the long-term clinical success of IFCDs. This selection requires considering a wide range of objective clinical parameters, including anatomic, medical, technical, mechanical and biological characteristics. In addition, subjective patient-perceived outcomes, including preferences and satisfaction, have recently gained equal importance for evaluating final treatment outcomes.



Recent publications

1. Pera P, Menini M, Pesce P, Bevilacqua M, Pera F, Tealdo T. Immediate Versus Delayed Loading of Dental Implants Supporting Fixed Full-Arch Maxillary Prostheses: A 10-year Follow-up Report. Int J Prosthodont. 2019 Jan/Feb;32(1):27-31. doi: 10.11607/ijp.5804. PMID: 30677109.

2. Caramês, J.M.M.; Marques, D.N.d.S.; Caramês, G.B.; Francisco, H.C.O.; Vieira, F.A. Implant Survival in Immediately Loaded Full-Arch Rehabilitations Following an Anatomical Classification System—A Retrospective Study in 1200 Edentulous Jaws. J. Clin. Med. 2021,10, 5167. https://doi.org/10.3390/jcm10215167

3. Schwarz F, Schär A, Nelson K, Fretwurst T, Flügge T, Ramanauskaite A, Trimpou G, Sailer I, Karasan D, Fehmer V, Guerra F, Messias A, Nicolau P, Chochlidakis K, Tsigarida A, Kernen F, Taylor T, Vazouras K, Herklotz I, Sader R. Recommendations for Implant-Supported Full-Arch Rehabilitations in Edentulous Patients: The Oral Reconstruction Foundation Consensus Report. Int J Prosthodont. 2021 Suppl;34:s8-s20. doi: 10.11607/ijp.consensusreport. PMID: 33571323.

Biography

Barbara Sobczak did her Master of Science in Oral Implantology, graduated with honors from Goethe University in Frankfurt am Main, Germany. She is the founder of Dr. Sobczak Dental Clinic in the Dubai Mall, Dubai, UAE; Dr Sobczak Klinika Radosc, Warsaw, Poland; Dr Sobczak Klinika Babice, Warsaw, Polan and Dr Sobczak Chiarity Foundation. She acts as the Key speaker and opinion leader for Straumann in the field of implantology in Europe and in the field of implantology in the Middle East. She is an independent lecturer in the field of dental implantology worldwide functions as a medical consultant for Straumann in Poland and as a Medical consultant on behalf of Straumann Group, Swizerland. She runs courses for dentists in the field of advanced implantology through the center of excellence for education Straumann. She is an ITI Fellow, awarded by a committee in Switzerland for achievements in the field of implantology, member of scientific projects regarding dental materials in implantology for temporary full arch reconstructions, member of the judge's committee for the Smile Award 2022 edition, member of International Team for Implantology (ITI). She also functions as an Author of publications in implantology with Jagiellonian University in Krakow, Poland and Basel, Swizerland. She is the founder and director of ITI Study Club of Mazovia and Polonika and is a Laureate of the global Straumann Group competition Smile Award 2021.

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Session Chair
Adriana Mazzoni
Nove de Julho University (UNINOVE) | Brazil

Session Introduction

Title: **Methods of anterior torque control during retraction: A systematic review**
Anna Ewa Kuc | Medical University in Wrocław | Poland

Title: ***In vivo* biocompatibility of Bioactive glass (BG) based sealer in embryonic Zebrafish (Danio rerio) model**
Antarikshya Das | KIIT University | India

Title: **Incidence of gingival black triangles following treatment with fixed orthodontic appliance**
Zhwan Jamal Rashid | University of Sulaimani | Iraq

Title: **Chronotherapy and chronomodulated drug delivery in Dentistry**
Supriya Mishra | Government dental college | India

Title: **Correlation of radiomorphometric indices of the mandible and mandibular angle fractures**
Aida Karagah | Qazvin University of Medical Sciences | Iran

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Methods of anterior torque control during retraction: A systematic review

Anna Ewa Kuc, Jacek Kotuła, Marek Nahajowski, Maciej Warnecki, Joanna Lis, Ellie Amm, Beata Kawala and Michał Sarul
Medical University in Wrocław, Poland

Background: There are various methods of controlling the inclination of the incisors during retraction, but there is no evidence as to the advantages of some methods over others. Research conducted by our team related to the review of the available literature identified several methods with varied effectiveness of torque control during anterior teeth retraction.

Methods: In the study of the available literature that was qualified to our study we included the patients with complete permanent dentition with the examined the maxillary incisor torque after and before retraction with straight-wire appliance and different modes of torque control where statistically significant differences in torque values of the upper incisors after orthodontic treatment were observed. The literature of our research were subjected to risk of bias and quality analyses with the ROBINS-I protocol and the modified Newcastle–Ottawa QAS, respectively

Results: Despite numerous articles published in reputable scientific journals (580 subjects) only 13 articles could be selected because only they met our criteria. All authors recognized that incisors were retroclined during retraction by 2.46° (mean difference), which was statistically significant. Statistical analysis confirmed that the differences in torque between the study group and the control group were statistically significant in most of research. We assessed our research for heterogeneity of articles in relation to their impact on the significance of the analysis performed.

Conclusion: As a result of the analysis conducted by our team we recognized that both properly performed corticotomy and en-masse retraction using orthodontic microimplants seem to be the most effective and scientifically validated methods of torque control. Just after the publication of our research an article "En-Mass Retraction of Maxillary Anterior Teeth with Severe Proclination and Root Resorption—A Case Report" appeared which also discussed the advanced retraction of incisors with the use of Tads and evaluate the difference in their inclination.

Recent publications

1. Kuc AE, Kotuła J, Nahajowski M, Warnecki M, Lis J, Amm E, Kawala B, Sarul M. Methods of Anterior Torque Control during Retraction: A Systematic Review. Diagnostics. 2022; 12(7):1611.

2. Kotuła J, Kuc AE, Lis J, Kawala B, Sarul M. New Sagittal and Vertical Cephalometric Analysis Methods: A Systematic Review. Diagnostics. 2022; 12(7):1723.

Biography

Anna Ewa Kuc is a specialist in prosthetics with Master's in Science of Orthodontics. She is scientifically connected with Wroclaw Medical University. She graduated from medical studies in 2004 year. She obtained the title of a specialist in prosthetics in 2013 and completed the 3-year postgraduate studies in orthodontics at the University of Austria in Krems, obtaining the title of Master of Science in Orthodontics in 2021. She participated in many specialist courses and trainings in the field of occlusion and orthodontics as well as treatment biomechanics with world-class lecturers. She is doing a specialization in orthodontics at the Specialist Dental Clinic of the Medical University of Bialystok 2021-2024. She is scientifically connected with Wroclaw Medical University. The combination of extensive knowledge in both areas of orthodontics and prosthetics as well as many years of experience has opened the possibility for comprehensive treatment of patients and full orthodontic and prosthetic diagnosis of occlusion and malocclusion as well as often overlooked problems in the temporomandibular joints, i.e. crackling, jumping or pain, which many complain about patients and which

result from forced occlusion inconsistent with the central relation in TMJ She constantly participates in numerous orthodontic and prosthetic courses and trainings in Poland and abroad and use the latest world literature, raising her qualifications both in terms of content and in the field of high-quality patient service. She is also a member of the Polish Orthodontic Society and a lecturer on international conferences.

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In vivo biocompatibility of Bioactive Glass (BG) based sealer in embryonic Zebrafish (Danio rerio) model

Antarikshya Das
KIIT University, India

Statement of the Problem: In dentistry, bioceramics have become incredibly popular as dental materials with a wide range of clinical uses, including root-end fillings, sealers, perforation repair, etc. Toxicology testing is essential due to the vast and growing need for biocompatible materials in dentistry. Animal models have gradually taken the place of the more commonly used tests for establishing the toxicity profile, such as cell culture, usage tests etc. as they have illustrated a better understanding of the toxicity of dental materials prior to their use in humans. The requirement to extract diverse and well- articulated data for further comprehension and correlation with human models renders the quest for new models to evaluate biocompatibility of interest. Zebrafish (Danio rerio) have recently come to light as a viable solution for these concerns. In fact, zebrafish embryos and mammalian embryos share fundamentally comparable embryonic development characteristics, making zebrafish a model for vertebrate de velopment.

Aim: The purpose this study is to analyze the biocompatibility of bioactive glass based sealer, NISHIKA Canal Sealer BG using a novel embryonic zebrafish *in vivo* model.

Methodology: Commercially available Bioactive glass (BG)-based sealer, Nishika Canal Sealer BG (CS-BG; Nippon Shika Yakuhin Co., Ltd., Yamaguchi, Japan) was assessed for its biocompatibility. Biocompatibility analysis was performed in embryonic zebrafish with the help of standard toxicity assays measuring essential parameters like survivability and hatching. Mechanistic and comparative analysis of toxicity was performed by oxidative stress analysis by measuring ROS induction and Apoptosis in Zebrafish exposed to this sealer at different concentrations.

Conclusion: This study provides a new vision and standard in dental material sciences for assessing the biocompatibility of potential novel and commercially available dental materials.

Recent publications

1. Trope, M., Bunes, a L.F. and Debelian, G. (2015) Root filling materials and techniques: bioceramics a new hope? Endod. Top 32, 86−96.
2. Debelian, G. and Trope, M. (2016) The use of premixed bioceramic materials in endodontics. G. Ital. Endod 30, 70−80.
3. Makkar, H., Verma, S. K., Panda, P. K., Pramanik, N., Jha, E. and Suar, M. (2018) Molecular insight to size and dose dependent cellular toxicity exhibited by green synthesized Bioceramic nanohybrid with Macrophages for dental application. Toxicol. Res. (Camb). Advance artice (In press).

Biography

Antarikshya Prabir Das from the very undergraduate days of her career has been inclined and passionate towards research and under her belt she has been awarded. She was awarded the Dr. Rafiuddin Ahmed award and a Gold medalist in B.D.S in 2018. Also she was awarded the Dental Talent of the Year (West Zone) award at PHD Chamber of Commerce and Industry, New Delhi, India by the International Exemplary Research and Performance awards (iERP) 26th Feb, 2018; Indian Society of Periodontology merit award for highest marks in Periodontology, by Listerine Sep 2017 to list a few. She was recently awarded best scientific presentation at 12th IFEA

World Endodontic Online Congress 2021 in August 2021. Currently she is pursuing her career in the field of Conservative dentistry and Endodontics. Her major thrust area of work is on the Dental materials used in Conservative Dentistry and Endodontics mainly nanoparticles (NPs) and their interaction and biocompatibility with the human tissue. At such a tender age of her career she has also contributed as an author to few National and International Journals. She aims to continue her journey in this path to improve the oral health and wellbeing of the society.

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Incidence of gingival black triangles following treatment with fixed orthodontic appliance

Zhwan Jamal Rashid
University of Sulaimani, Iraq

Statement of the Problem: Recently, adults' desire of seeking orthodontic treatment has changed; they seek perfection in smile esthetic and function. This makes orthodontic treatment planning a challenging procedure for orthodontists and periodontists. Therefore, it is important to have well studied treatment plans for each periodontal problem that is present before or arise during orthodontic treatment like Gingival Black Triangle (GBT).

Aim: This systematic review aimed to investigate the relation between Orthodontic Treatment (OT) and the incidence of the Gingival Black Triangle (GBT) after completing treatment with a fixed orthodontic appliance, as well as the associated risk factors and the level of alveolar bone. Methodology & Theoretical Orientation: Electronic and hand searches were conducted in three electronic databases for relevant articles published up to March 2022. Retrieved articles went through a two-step screening procedure and the Risk of Bias (RoB) was assessed by the Joanna Briggs Institute checklists. The incidence of GBT after OT was set as the primary outcome, while the secondary outcomes were the risk factors associated with GBT and alveolar bone loss following OT. Out of 421 papers, 5 were selected for the final analysis. The RoBs of three studies were moderate and the remaining two were low. The incidence of GBT following OT ranged from 38% to 58%. In addition, three studies reported that alveolar bone loss was reduced significantly following OT and associated with GBT, while one study found the opposite. Regarding the risk factors associated with GBT, the reported results attributed GBT to several factors including age, tooth-related factors, treatment duration and soft tissue factors.

Conclusion & Significance: The analysis indicates an increased incidence of GBT following OT; however, a firm conclusion cannot be drawn. Additionally, it was not possible to reach a consensus on risk factors associated with GBT due to the heterogeneity of the data. Therefore, further randomized clinical trials are highly recommended to draw a firm conclusion.

Recent publications

1. Rashid, Z.J.; Gul, S.S.; Shaikh, M.S.; Abdulkareem, A.A.; Zafar, M.S. Incidence of gingival black triangles following treatment with fixed orthodontic appliance: A systematic review. Healthcare 2022,10, 1373.
2. Mohammed SA, Ali TM, Rashid ZJ. Evaluation of skeletal jaw relation by different cephalometric angles for sample of kurdish young adults in sulaimani city-A Cephalometric study. Sulaimani Dent J. 2022;9(1):21-30
3. Rashid ZJ, Chawshli OF. Is bracket position determination from digital techniques accurate 100%? A comparative ex-vitro study. European Journal of Molecular & Clinical Medicine. 2021 Jan 10;7(01):2020.

Biography

Zhwan Jamal Rashid Hama is a lecturer at the University of Sulaimani/ college of dentistry in the department of Pedodontics, Orthodontics and Preventive Dentistry. She graduated with BDS in Dentistry in 2003 from the University of Sulaimani, college of dentistry. Following graduation, She completed Dental Vocational Training from 2003-2005 with different dental teaching centers. She was closely involved in treating patients over this period and obtained MSc and PhD degree in Orthodontics at same college in 2007 and 2021, respectively. She is involved in the teaching process as a lecturer in the orthodontics at the College of dentistry in Sulaimani

University since 2008 and practiced her work in private clinic since 2007. She taught all aspects of undergraduate and postgraduate orthodontics through the clinical supervision of students on the clinic, lectures, tutorials, clinical skill practical and seminars from 2008 and 2021 respectively to this day. She works as assistant of head of postgraduate study office for PhD students affairs since 2021. Additionally, she had authored several publications in peer reviewed Journals including original research, case reports and reviews. Moreover, she has authored a book for the 5th year undergraduate students entitled Clinical Manual for Orthodontics.

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Correlation of radiomorphometric indices of the mandible and mandibular angle fractures

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[1]Qazvin University of Medical Sciences, Iran
[2]Shahid Beheshti University of Medical Sciences, Iran
[3]Catholic University of Sacred Heart, Italy

This study assessed the correlation of radiomorphometric indices of the mandible and Mandibular Angle Fractures (MAFs) in an Iranian population. This retrospective study was conducted on 3D Cone-Beam Computed Tomography (CBCT) scans of 118 patients between 18 to 60 years. The images were divided into two groups with MAFs and other types of mandibular fractures (non-MAF). The gonial angle, ramus height, condylar neck width, minimum ramus width and mandibular length were all measured using MARCO PACS software. Age, gender and presence and eruption status of third molar at the fracture side were all recorded. The correlation between these parameters and MAF was analyzed using R software (alpha=0.05). Of all patients, 41samples had MAF. The two groups were not significantly different regarding the mean age and gender (P>0.05). The mean size of gonial angle and ramus height in the MAF group were significantly larger and smaller than the corresponding values in the non-MAF group, respectively (P<0.001). The median minimum ramus width in the MAF group was significantly smaller than that in the non-MAF group (P=0.001). Patients with a large gonial angle had 6.6 times higher odds of MAF compared with other fracture types (P=0.046). Condylar neck width, mandibular length and erupted third molars had no significant correlation with type of fracture. Presence of impacted third molar increased the odds of MAF by 5.55 times.

Patients with a large gonial angle, short ramus height, minimum ramus width and impacted third molar are more susceptible to MAF. Surgeons can use these indices to predict the risk of MAF in trauma patients with such facial characteristics and make a diagnosis by simpler radiographic modalities such as panoramic radiography.

Recent publications

1. Aida Karagah, Reza Tabrizi etal (2022) Effect of Sinus Floor Augmentation with Platelet-Rich Fibrin Versus Allogeneic Bone Graft on Stability of One-Stage Dental Implants: A Split-Mouth Randomized Clinical Trial. Int J Environ Res Public Health. 2022 Aug 4;19(15):9569

2. Reza Tabrizi. Karagah etal (2017) Does platelet-rich fibrin increase the stability of implants in the posterior of the maxilla? A split-mouth randomized clinical trial. Int J Oral Maxillofac Surg. 2018 May;47(5):672-675.

3. Reza Tabrizi. Karagah etal (2015). Does platelet-rich plasma enhance healing in the idiopathic bone cavity? A single-blind randomized clinical trial. Int J Oral Maxillofac Surg. 2015 Sep;44(9):1175-80.

Biography

Aida Karagah has completed her maxillofacial specialty in 2017 from Shiraz University, Iran. She is an assistant professor of Qazvin University of medical sciences, Iran. She has over 12 publications that have been cited over 328 times and her publication H-index is 9. She has been serving as a review committee member of reputed journals as well.

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Sessions

Dental Surgery | Dental Nursing | Dental Treatments | Dental Imaging and Dental instruments | Oral cancer | Oral Surgery

Session Introduction

Title: **Effect of Azithromycin as an adjunct to non-surgical periodontal treatment in subjects with Stage III periodontitis: A randomized controlled clinical trial**

Mariely Navarrete Riffo | Andres Bello University | Chile

Title: **Smile Harmony in Different Face Types**

Mehmet Irfan Karadede | Izmir Katip Celebi University | Turkey

Title: **Pre-Extractive inter-radicular implant bed preparation versus conventional post extractive inter-radicular implant bed preparation in mandibular molars randomized clinical trial**

Mohamed Abdel Wahid Alshoaibi | Airo University | Egypt

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Effect of Azithromycin as an adjunct to non-surgical periodontal treatment in subjects with Stage III periodontitis: A randomized controlled clinical trial

Mariely Navarrete Riffo
Andres Bello University, Chile

Introduction: Recently, it has been suggested that azithromycin (AZM) may be a useful adjunct to non-surgical periodontal therapy (NSPT). However, current scientific evidence is still not conclusive as to its efficacy as an adjunct of NSPT. This study aimed to evaluate the effect of the systemic administration of AZM as an adjunct to NSPT on the clinical and microbiological variables of patients with periodontitis.Methodology: Eighteen volunteers received NSPT combined with placebo or AZM (500 mg/day) for 3 days (n=9/group). They were monitored clinically for probing pocket depth (PPD), clinical attachment level (CAL), O'Leary index (OI), bleeding on probing (BoP) at baseline and during the first, third and sixth month and microbiologically, at baseline and at 3 and 6 months after therapy, by conventional polymerase chain reaction tests. Results: Fourteen patients completed the study (n=7/group). Differences statistically significant were observed among both groups. The experimental group presented: A PPD mean ($p = 0.04$) significantly lower and PPD reduction ($p = 0.02$), at 6-months post NSPT. Regarding changes (Δ), at the third month post NSPT, there was a significant increase in the number of shallow sites (p 0.001) and a decrease the intermediate sites (p 0.001). In addition, a significant decrease in the mean number of deep sites ($p = 0.04$) was detected at 6 months post treatment. There was also a significant decrease in BoP at 1 ($p = 0.01$), 3 ($p < 0.001$) and 6 ($p = 0.01$) months and OI was significantly lower at 3- and 6-months ($p < 0.001$), post treatment. Regarding the presence of periodontal pathogens, no significant differences were observed intra and inter groups. Conclusion: AZM as an adjuvant to NSPT provides additional beneficial effects for PPD and BoP compared to NSPT alone.

Recent publications

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2. Pretzl B, Salzer S, Ehmke B, et al. Administration of systemic antibiotics during non-surgical periodontal therapy-a consensus report. Clin Oral Investig 2019;23(7):3073-85.
3. Lang NP, Tonetti MS. Periodontal risk assessment (PRA) for patients in supportive periodontal therapy (SPT). Oral Health Prev Dent 2003;1(1):7-16.

Biography

DDS, University of Valparaíso. Diploma in College Teaching Management andrés Bello University. Master in Dental Sciences in Periodontology, University of Chile. Specialist in Periodontology certified by the National Autonomous Corporation for the Certification of Dental Specialties (CONACEO). Associate Professor andrés Bello University. Head of department of Periodontology andrés Bello University, Viña del Mar. Director of the Specialization in Periodontology andrés Bello University, Viña del Mar (2016-2019). Vice-president of the Society of Periodontology of Chile, subsidiary Valparaiso. Researcher and national and international speaker.

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Smile harmony in different face types

Mehmet Irfan Karadede
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A smile has the same meaning universally compared to gestures or facial expressions. A good education is essential for a good first impression, which is essential in social and professional environment. There is a complex relationship between aesthetic smile and facial beauty. The effect of face type on smile aesthetic is another aspect of this complex relationship. The aim of this presentation is to review the dental literature and the criteria adopted in the literature to analyze examinations according to various types of face and to evaluate smiles in different face types. In this context, ideal service evaluations for each face type are reviewed. It has been reported that there is a relationship between the mandible and maxilla volumes in different facial types. If different face types can affect the mandible and maxilla volume, why shouldn't it also affect the perception of smile aesthetics? Smile characteristics differ between different types of malocclusions; the smile may be influenced by skeletal pattern, the tilt of the teeth, or the type of face. The mesofacial face is considered to be the more attractive face compared to the dolicofacial and brachyfacial faces. Since the smile may affect the aesthetic perception of the face type, the face type should not be considered separately from the smile. It has been observed that in dolico and mesofacial male and female genders lip lines' showing only the upper incisors, while 2 mm gingival appearance has preferred in brachyfacial subjects. The width of the buccal corridor space affects smile attractiveness in different face types. The mid-buccal corridor is the aesthetic feature preferred by all evaluator groups for short, normal and long face types. As a result, the patient's face type should not be ignored in order to obtain an improved aesthetic smile

Recent publications

1. Karadede B. "Farklı Iskeletsel Yüz Tiplerine Sahip Bireylerin Maksilla ve Mandibula Hacimlerinin Konik Işınlı Bilgisayarlı Tomografi Yöntemi Ile Incenmesi." DoctoralThesis, August 06, 2018.
2. Cheng HC, Cheng PC. Factors affecting smile esthetics in adults with different types of anterior overjet malocclusion. Korean J Orthod. 2017 Jan;47(1):31-38.
3. Batwa W. The Influence of the Smile on the Perceived Facial Type Esthetics. Biomed Res Int. 2018 Jul 9;2018:3562916.

Biography

Mehmet İrfan Karadede DDS PhD of Orthodontics, PhD of Histology and Embriology; Dentist at Dicle University in 1986, Doctor of Orthodontics (PhD) in 1992, Assistant Professor in 1993, Associate Professor in 1996, Doctor of Histology and Embryology Science (PhD) in 2004, Professor in 2009. Dr. Dr. Karadede; Animal Experiments, Histological studies, Development and Growth, Orthodontic Tooth Movement, TMJ, Occlusion, Cephalometry, Cleft Lip and Palate, Orthognathic (maxillofacial orthopedics) treatments, CT / CBCT, Stereophotogrammetry, Forensic Dentistry and He has a scientific focus on genetics. He has many postgraduate thesis advisors, national projects, editorship and chapter authorship in international and national books and many works published in international and national scientific journals and congress papers. He has refereed international and national journals and national projects in different fields and has many international and national citations to his articles. He also served as the chairman of the Dentistry Deans Council (DDK); He was a member of the DDK education and research sub-committee, which wrote the Dentistry National Core Education Program-2016 (DUÇEP-2016) and DUÇEP-2021. He is also a member of TUKMOS-Orthodontics (Medical Specialization Board Curriculum Formation and Standards Determination System).

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Pre-Extractive inter-radicular implant bed preparation versus conventional post extractive inter-radicular implant bed preparation in mandibular molars randomized clinical trial

Mohamed Abdel Wahid
Cairo university, Egypt

Statement of the problem: Placing implants in an ideal position without compromising their primary stability represents a critical issue. The interradicular septum of the extraction socket must be engaged as the initial osteotomy is guided into the medial section of the alveolus.. The drill may continuously slip, leading to inaccurate site preparation and consequently to a deficient implant insertion. The implant is often placed directly into the extraction socket of the tooth to replace. The Purpose of this study: Was to assess the implant stability and amount of crestal bone loss in immediate implant placement in mandibular molars by using pre-extractive inter-radicular implant bed preparation versus conventional post-extractive inter-radicular implant bed preparation. Materials and Methods: Twenty patients (5 males, 15 females), suffering from badly decayed vital or non-vital posterior mandibular molar teeth were selected and randomly divided into 2 groups, 10 per group; the first group received Pre-extractive interradicular implant bed preparation while the second group received Conventional post-extractive interradicular implant bed preparation. All surgeries were performed by the same surgeon. Findings: there was significant difference on Osstell Reading in immediate implant placement between both groups. There was statistical difference in the mean value of Changes of (Buccal and Mesial Bone Margins) and (Mesial and Distal Bone Margins) of the Second Measurement that was between 6 months and 1 year after implant placement between both groups. Conclusions: Implants that placed by pre- extractive inter-radicular implant bed preparation had a high primary stability than that placed by post-extractive inter-radicular implant bed preparation. Recommendations: Using the modified pre-extractive inter-radicular implant bed preparation which could provide satisfactory primary implant stability with ideal implant positioning and enhanced implant success.

Recent publications

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2. Atieh MA, Payne AGT, Duncan WJ, de Silva RK, Cullinan MP. Immediate placement or immediate restoration/loading of single implants for molar tooth replacement: a systematic review and meta-analysis. Int J Oral Maxillofac Implants. 2010;25(2):401-415.

3. Atieh MA, Alsabeeha NHM, Duncan WJ. Immediate single implant restorations in mandibular molar extraction sockets: A controlled clinical trial. Clin Oral Implants Res. 2013;24(5):484-496. doi:10.1111/j.1600-0501.2011.02415.

Biography

Delivering quality healthcare services is a passion and a motivator that seek to be part of and involved in daily. An aspiration to participate in communities which aim to provide empathetic care and service that is essential to those that rely on public health. Improving health status is my job through prevention of illness and promotion of healthy, lifestyles and to consistently improve the healthcare delivery system by focusing on access, efficiency, quality and sustainability. Goal-driven healthcare administration professional well-versed in recruiting, training and managing employees to provide exceptional resident services. highly organized and hardworking with excellent planning and program management skills. Healthcare administrator with proven ability to deliver exemplary level of healthcare service delivery to patients. Coordinate admission and discharge of patients. Plan and implement strategies for developing improved health care management. Proven problem solver and excellent communicator. Strong organizational skills, superb understanding of data collection and performance metrics. Recognized for staff development leading to high performing teams.

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Clinical application of individualized 3D-Printed templates in the treatment of Condylar Osteochondroma

Wen Ma
Kunming Medical University, China

Background: Osteochondroma (OC) is one of the most common benign tumors of the long bones, but it rarely occurs in the maxillofacial skeleton. However, mandibular condylar OC often leads to severe facial deformity in affected patients, including facial asymmetry, deviation of the chin and malocclusion. This study aimed to explore the clinical application of individualized 3D-printed templates to accurately and effectively treat condylar OC. Methods: A total of 8 patients with mandibular condylar OC were treated from July 2015 to August 2021. The enrolled patients (5 women and 3 men) had a median age of 27 years (range: 21–32 years). All patients exhibited symptoms of facial asymmetry and occlusal disorders preoperatively. The digital software used to virtually design the process consisted of three-dimensional reconstruction, 3D-cephalometry analysis, virtual surgery, individualized templates and postoperative facial soft-tissue prediction. A set of 3D-printed templates (DOS and DOT) were used in all cases to stabilize the occlusion and guide the osteotomy. Then, pre- and post-operative complications, mouth opening, clinical signs and the accuracy of the CT imaging analysis were all evaluated. All the measurement data were presented as means ± SD; Bonferroni and Tamhane T2 multiple comparison tests were used to examine the differences between the groups. Results: All patients healed uneventfully. None of the patients exhibited facial nerve injury at follow-up. In comparing the condylar segments with T0p and T1, the average deviation of the condylar segments was 0.5796 mm, indicating that the post-operative reconstructed condyles showed a high degree of similarity to the reconstruction results of the virtual surgical plan. Conclusions: Individualized 3D-printed templates simplified surgical procedures and improved surgical accuracy, proving to be an effective method for the treatment of patients with slight asymmetric deformities secondary to condylar OC.

Recent publications

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2. Wang L#, Ma W#, Fu S, Zhang C, Cui Q, Peng C, Li M*; Design and manufacture of dental-supported surgical guide for genioplasty. Journal of Dental Sciences. 2021;16(1):417-423.
3. W. Ma; L.D. Wang; Y. Liang□M. Li*□Application of a digital guide in the removal of foreign body from the maxillofacial region. British Journal of Oral and Maxillofacial Surgery. 2019;57(7):708-709.

Biography

Ma Wen is an oral and maxillofacial surgeon from KunMing medical university in China and the research areas include application of biomedical materials, digital technology in stomatology. The treatment is the combination of digital methods and medical ways which contains removal foreign body, TMJ ankyloses and orthognathic surgery. From these years, the digital technology is improving in oral and maxillofacial surgery which help surgeons shorten operation time and improve surgical accuracy. We hope that our work can help other doctors in the future.

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Genetic approach to orthodontic external root resorption

Damla Cardak
Izmır Katip Celebi University, Turkey

External apical root resorption (EARR) is one of the most frequent iatrogenic effects of orthodontic treatment, resulting in loss of the dental structure of the root apex that mainly affects the maxillary incisors. EARR was first reported by Ottolenghi in 1914 as a complication of orthodontic treatment. The first comprehensive study on EARR was made by Ketcham in 1927. Harris et al. reported the hypothesis of genetic influence on EARR using the sib-pair model with high heritability about 70% in 1977.

Al-Qawasmi et al who investigated the relationship between the polymorphism in interleukin IL-1 (IL-1A and IL-1B) genes and external apical root resorption, stated that the force applied by orthodontic treatment alone or the appliance type was not responsible for root resorption.

Another candidate gene for orthodontic forces-induced root resorption is tissue non-specific alkaline phosphatase (TNSALP), which encodes a protein that has an important function in the cement formation and root mineralization process.

Following studies in this area also show that it is essential to develop a robust and well- structured genetic predisposition database that can be used in orthodontic practice to ensure that 'high-risk' individuals are identified based on their genetic information before initiating orthodontic treatment.

Recent publications

1. Hartsfield JK Jr, Everett ET, AL-Qawasmi RA. Genetic factors in external apical root resorption and orthodontic treatment. Crit Rev Oral Biol Med 2004;15:115–122.
2. Ottolenghi R. The physiological and pathological resorption of tooth roots. Dent. Items Int. 1914;36:332–355.
3. Ketcham AH. A preliminary report of an investigation of apical root resorption of permanent teeth. Int J Orthod Oral Surg Radiograph 1927;13:97-127.

Biography

She graduated from Vefa High School in 2008. She completed her undergraduate education at Istanbul university faculty of Dentistry in 2015. Later, she increased her clinical experience in general dentistry. She started associate degree education in Anadolu University Open education faculty management of Healthcare organizations and finished in 2022. In 2021, she started her doctorate education at Izmir Katip Celebi University, Institute of Health Sciences, Department of Orthodontics.

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Who manages tooth movement in orthodontics? mechanics versus histology?

Ozkan Buyuk
Izmır Katip Celebi University, Turkey

Tooth movements occur systematically, thanks to the regular responses of the tissues, in order to maintain the balance against biological and mechanical stimuli. The most important factor affecting the amount of tooth movement is remodeling in the alveolar bone. Different methods to move teeth faster have been tried for years.

The teeth are moved with brackets and wires in the bracket slot. In the mesiodistal movement of the tooth, a friction occurs between the bracket and the wire, as happens in all mechanics in nature. 40-50% of approximate force applied for tooth movement is used to overcome the friction resistance. It is not applicable to apply too much force to the teeth in order to overcome the friction force. Very heavy forces cause undesirable movements or immobility of the teeth, pain and loss of anchorage.

Although a limited number of cells in the affected area are activated as a result of cellular activation provided by mechanical appliances, it has been suggested that all or most of the cells in the area are activated by chemical and physical applications. In this respect, studies on the benefits of locally applied agents in orthodontic treatment have been increased.

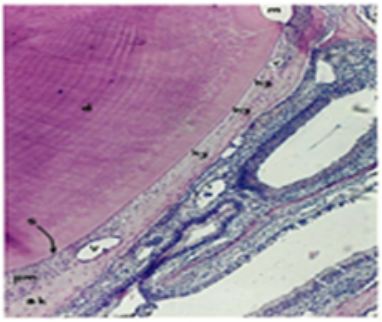

Figure 1: In Karadede's study examining experimental orthodontic tooth movement in rats using low-dose aspirin, the hyalinization area in the pressure region of the upper medial region of the periodontal membrane (Harris Hematoxylin-Eosin x 30).

(m) enamel
(d) dentin
(s) cementum
(v) blood vessel
(ak) alveolar bone
(hy) hyalinization
(pm) periodontal membrane

Recent publications

1. Davidovitch Z., Krishnan V., Role of basic biological sciences in clinical orthodontics AJO 2009; 135:222-31. https://doi.org/10.1016/j.ajodo.2007.03.028

2. Tanne K, Matsubara S, Hotei Y, Sakuda M, Yoshida M. Frictional forces and surface tophography of a new ceramic bracket. Am J Orthod Dentofacial Orthop 1994;106(3):273-278. https://doi.org/10.1016/s0889-5406(94)70047-8

3. Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics. Fourth Edition, Missouri, Elsevier Health Sciences. 2007; 359-394. ISBN: 9780323093002.

Biography

Ozkan Buyuk graduated from Faculty of Dentistry, Gazi University in 2006. In his undergraduate education, he also studied at Cardiff

University within Erasmus Student Exchange Program. After graduation, he started his postgraduate education at Gazi University, Institute of Health Sciences, Oral Pathology Program. In 2013, he did internship and studies on molecular biology at the Department of Pathology, Faculty of Medicine, Cologne University. Between 2014-2019, he worked as a lecturer at Nisantasi University Dental Prosthesis Technology Program. He also got enrolled in undergraduate education in Anadolu University Open Education, Healthcare Management Program in 2017. In 2019, he started his doctorate education at Izmir Katip Celebi University, Institute of Health Sciences, Department of Orthodontics. In 2020, he was appointed to the Oral and Dental Health Program of Izmir Katip Celebi University Vocational School of Health Services. He continues his clinical and academic studies in orthodontics and lectures at associate degree level.

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Facial Biometrics : Important guides in diagnosis and planning in upper anterior Dental Oral Rehabilitation

Willi Andrei
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Background/ Objectives and Goals: The goal of present study is to determine the individual shape and dimensions for the permanent upper central incisors, for the oral rehabilitation patients, based on the facial and biometrics measurements.

Methods: A group of 20 young dentate volunteers were photographed and captured their faces and their permanent upper central incisors. Using virtual measurements, the following dimensions were determinate for each participant: the inter-pupillar distance (IPd), inter-zigomatic distance (IZd), the horizontal dimension of the facial contour on the occlusion plane (Hd), the vertical dimension of the facial contour on the medial-sagital plane (Vd) and the fascial contour and the central permanent upper incisor contour. Based on the measurements and face contour, the overlap of photographs was made using digital Software.

Expected Results/ Conclusion/ Contribution: The average measurements obtained are:(Ipd= 62 mm) for the inter-pupillar distance, (Izd=135 mm) for the inter-zigomatic distance, (Hd=114 mm) for the horizontal dimension and (Vd=110 mm) for the vertical dimension. On the other hand, by virtual overlap of the two contours (the facial contour and the permanent upper central incisor's contour) and their afferent surfaces, a similarity between the face shape and the shape of the permanent upper central incisor was highlighted with up to 90% mach. The oral rehabilitation treatment can be done individually and integrated for each patient, in harmony with facial biometrics.

Keywords: oral rehabilitation, facial biometrics, permanent upper central incisor, face shape

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Raman spectroscopy, *In vivo* application for bone evaluation on dental surgery and periodontology. Possible alternative to histology

Eduard Gatin
University of Bucharest, Faculty of Physics, Romania

Our days, there is a large number of surgical techniques involving the implantation of various types of bone graft and /or bone substitutes in order to achieve periodontal regeneration. Despite positive observations in animal models and successful outcomes reported for many of the available regenerative techniques and materials in patients, including histologic evidence, robust information on the degree to which reported clinical improvements reflect true periodontal regeneration remains just limited. It is requested a method adapted for a quik evaluation of the bone and precise in the mean time.

For the bone tissue, at micro level octacalcium phosphate (OCP, Ca8 (HPO4)2(PO4)4·5H2O,) is considered very important because it is regarded as an *in vivo* precursor of HA. Trying to find traces for phase transition of OCP to HA, the presence of HA nano rods and plate-like HA particles can be utilized as signs of bone good quality evidenced by SEM investigation (Fig. 1 b). The normalized peak intensity values, are related to each compounds concentration.

A group of ten patients was involved to our study. Investigation was performed by RAMAN technique, first *in vivo* and then *in vitro* for the harvested bone samples.

There were evaluated / compared the following peaks, for *in vivo* and then *in vitro* for the harvested bone samples (Fig 1 a):

- 430 – 450 cm-1 (v2, PO43-);
- 955 – 960 cm-1 (HPO4 2-, immature bone);
- 960 – 965 cm-1 (mineral bone, mature bone);
- 1023 cm-1 (P2 O7 4- ; PPi, inorganic pyrophosphate)

Raman method adapted for"*in vivo*" bone quality evaluation, is much less invasive then the well-known CT (computer tomography) or CBCT (con beam computer tomography) already used and more accurate. For this purpose, the Raman probe was modified with a "special cap" in order to assure regular sterilization for *in vivo* use.

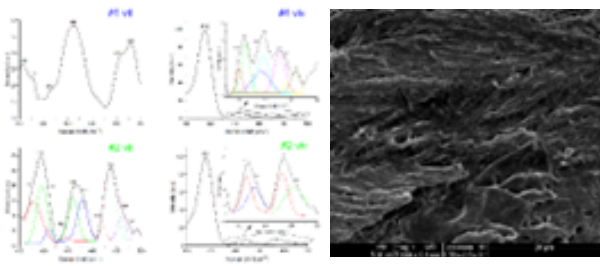

Figure.1. (a) Raman spectra for patients (#1, #2) *in vitro* and *in vivo*; (b) SEM micrograph patient #1.

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Evaluation of the effects of human dental pulp stem cells on the biological phenotype of hypertrophic keloid fibroblasts

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Objective: Despite numerous existing treatments for keloids, the responses in the clinic have been disappointing, due to either low efficacy or side effects. Numerous studies dealing with preclinical and clinical trials have been published about effective therapies for fibrotic diseases using mesenchymal stem cells; however, no research has yet been reported to scientifically investigate the effect of human dental pulp stem cells (HDPSCs) on the treatment of keloids. The objective is to provide an experimental basis for the application of stem cells in the treatment of keloids. Methods: Human normal fibroblasts (HNFs) and human keloid fibroblasts (HKFs) were cultured alone and in combination with HDPSCs using a transwell cell-contact-independent cell culture system. The effects of HDPSCs on HKFs were tested using a CCK-8 assay, live/dead staining assay, quantitative polymerase chain reaction, Western blot and immunofluorescence microscopy. Results: HDPSCs did not inhibit the proliferation nor the apoptosis of HKFs and HNFs. HDPSCs did, however, inhibit their migration. Furthermore, HDPSCs significantly decreased the expression of profibrotic genes (CTGF, TGF-β1 and TGF- β2) in HKFs and KNFs ($p < 0.05$), except for CTGF in HNFs. Moreover, HDPSCs suppressed the extracellular matrix (ECM) synthesis in HKFs, as indicated by the decreased expression of collagen I as well as the low levels of hydroxyproline in the cell culture supernatant ($p < 0.05$). Conclusions: The co-culture of HDPSCs inhibits the migration of HKFs and the expression of pro-fibrotic genes, while promoting the expression of anti-fibrotic genes. HDPSCs' co-culture also inhibits the synthesis of the extracellular matrix by HKFs, whereas it does not affect the proliferation and apoptosis of HKFs. Therefore, it can be concluded that HDPSCs can themselves be used as a tool for restraining/hindering the initiation or progression of fibrotic tissue.

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Advanced ceramics in Implant Dentistry: InPerio® Implant System

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The interest in ceramic implants has been renewed as an important and wide research goal. Nowadays, certain advanced ceramic materials make it possible to combine the versatility of titanium-based implantology and the biological benefits of traditional ceramic-based implants. These disruptive materials expand the boundaries of conventional ceramics in terms of mechanical properties, material engineering, surface topography, biological integration, aesthetics, microbial adhesion and long-term success of dental implants. The goal of this lecture is to provide an overview of the technical progressions in advanced ceramics for dental implantology and the preclinical and clinical evaluation of new ceramic dental implants designed to provide modern implantology. Specifically, new ceria-stabilised zirconia and alumina (Ce-TZP/Al) shows superior fracture toughness than other ceramic materials and exhibits semi-plastic deformation (ceramic ductility), a key factor in modern implant design. Based on the features of this new advanced ceramic, the InPerio® Implant System overcomes the gap between the versatility of cutting-edge titanium implants and the biological advantages of ceramics. Clinically speaking, InPerio® is suitable for immediate loading protocols and direct screwing to the implant with primary stability, even in extremely compromised cases. Prosthetically, InPerio® has a multiunit connection that allows the use of straight or dynamic screws and rotatory or anti-rotational systems for multiple and single restorations (respectively) and allows for a complete digital work-flow.

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Regulation of orthodontic Tooth movement by stem cells

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During orthodontic tooth movement (OTM), the tooth relocates to a new periodontal position formed by alveolar bone and periodontal ligament remodeling. Instrumental to this process and to the maintenance of homeostasis in periodontal tissues are an unique group of multipotent stem cells residing in the periodontal ligament, called periodontal ligament stem cells (PDLSCs). PDLSCs can respond to mechanical (orthodontic force), environmental (hypoxia) and biological (paracrine signals) stimuli present during OTM and orchestrate it both directly (osteogenic differentiation and osteogenesis, collagen regeneration in the extracellular matrix of the periodontal ligament) and indirectly (paracrine signaling with other cell types to promote angiogenesis, osteoclastogenesis or recruiting of circulating cells to the periodontal ligament). The understanding of the mechanisms through which PDLSCs govern OTM, as well as the stimuli which cause this response and the different signals and messengers involved could give rise to development of future therapies leveraging modulation of endogenous PDLSCs activity to control OTM, adding Orthodontics to the growing number of disciplines which benefit from the application of stem cell therapies, for many the next revolution in Medicine.

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Development and initial validation of the Oral health activities questionnaire

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Statement of the problem: The purpose of this study was to introduce a new Oral Health Activities Questionnaire (OHAQ, hereinafter) that examines different activities and behaviours related to the oral hygiene regimen of each analysed subject.

Methodology & Theoretical Orientation: A sample of 658 students was analysed to determine the OHAQ scale's basic metric characteristics. To determine the construct validity of the OHAQ, descriptive statistics and correlation analysis, as well as differences testing, were applied to groups of subjects on the basis of self-reported oral status measures.

Findings: The dimensions of oral health activities were determined and the scales for their measurement were constructed. Females and males differed in the OHAQ questionnaire measures. Significant but low inter-correlations were found among the measures. In the female and male subsample, four different oral health (OH, hereinafter) types of subjects were identified, exhibiting different characteristic behaviours regarding oral health. OHAQ scales showed good discriminant validity, revealing the differences related to specific self-reported oral status measures (e.g., frequency of toothache and the number of filled teeth).

Conclusion & Significance: The OHAQ represents a satisfactory measurement instrument for determining the level of OH activities and for doing quick and reliable classifications of the participating subjects according to their OH activities and behaviours. The process of further validation and advancements of the OHAQ scales and measures should be continued through a clinical examination of subjects.

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