European Dental Students' Association

BOOK OF ABSTRACTS

73RD EDSA SPRING MEETING 2024 RESEARCH COMPETITION

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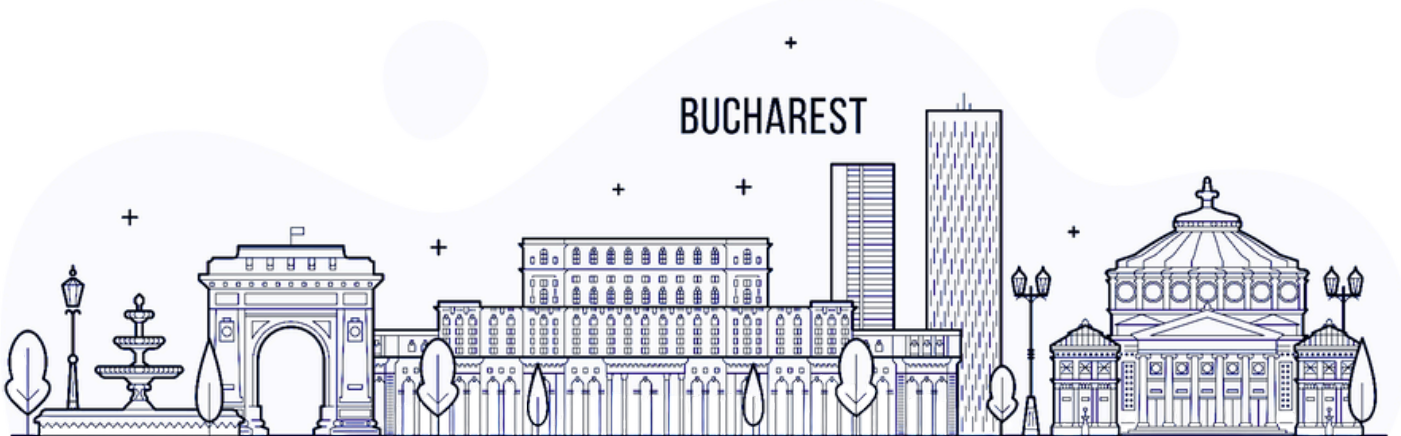


APPLICATION OF TISSUE ADHESIVE VS SILK SUTURE FOR PRIMARY CLOSURE OF SURGICAL FLAPS AFTER LOWER THIRD MOLAR EXTRACTION: A SPLIT MOUTH STUDY

Congrats!

1ST PLACE WINNER

Authors: Daniela Guglielmino DDS, Francesco Erovigni Tutor DDS, Beatrice Longhi DDS, Mario Alovisi Associate Professor PhD DDS

Background: despite being the common choice for wound closure following third molar extraction, sutures come with issues such as needle-induced trauma, increased bleeding, swelling, discomfort, and the risk of scar tissue, infection and necrosis. This study explores the potential of replacing 3/0 Silk Sutures with a N-hexyl cyanoacrylate tissue adhesive.

Methods: a clinical split-mouth study was conducted on 25 adult patients who required extraction of both mandibular third molars. Wound closure was randomly assigned, one side was closed using an N-hexyl cyanoacrylate tissue adhesive (Ifabond® Glue) and the other with 3/0 silk sutures. Patients were asked to monitor postoperative pain level, bleeding, and painkiller intake through a questionnaire. Follow-up assessments at 1 week and 10 months were carried out.

Results: no side effects were reported after the use of either wound closing method. Post-surgery alveolar infections were absent, there was one case of temporary facial paraesthesia (side effect linked to the surgical procedure). Regarding second molar periodontal status, Ifabond® Glue showed effective wound closure. No significant differences between test and control sites were observed neither in post-operative bleeding, pain perception nor in painkiller intake.

Conclusions: Ifabond® Glue shows similar behaviour to traditional sutures for wound closure, showing no postoperative complications or patients' discomfort. Therefore, this methodology could be considered an alternative to traditional sutures. These findings are preliminary, and a larger sample size and further testing are needed to validate these observations.

Key words: suture, Ifabond® Glue, inferior third molars, mandibular third molars, third molar extraction.

First place in Category of Original Research

AVOIDING THE WASHOUT OF BIOCERAMIC SEALERS IN MICROSURGICAL ENDODONTICS USING FIBRIN GLUE: AN IN VITRO STUDY

Congrats!

2ND PLACE WINNER

Author: Roberto De Leonardis, DDS.

Co-author: Nicola Maria Grande, DDS, PhD, MsC; Luca Marigo, Assoc. Prof., DDS, PhD, MsC; Raffaella Castagnola; DDS, PhD, MsC.

Introduction: Well-Root PT®, a bioceramic putty, the gold standard for retrograde obturation, exhibited a significant greater susceptibility to washout during the removal of the hemostatic material from the surgical crypt compared to SuperEBA, as shown in our previopus study. This tendency may impact retrograde sealing, potentially compromising the success rate of endodontic surgery. To prevent washout and preserve the biological advantages that bioceramics have over older sealers, we developed a protection for retro-obturation using Tisseel®, fibrin glue, a biocompatible and reabsorbable material.

Purpose: The purpose of our study is to compare the washout susceptibility of retrograde obturation made by Well-Root PT with and without Tisseel protection.

Materials & Methods: We collected twenty-four extracted teeth and divided them in: Group A (n=12) - Retrograde obturation made of Well-Root Pt; Group B (n=12) - Retro-obturation made of Well-Root PT protected by Tisseel. Alveoli in pig mandibles were selected using CBCT for microsurgery. Surgical crypt and apicectomies were made using rotary instruments. Ultrasonic retrotips were used to perform the retro-preparations. Once the retrograde obturation was completed, ferric sulfate was removed with high speed instruments under abundant irrigation for twenty seconds. The washout was evaluated by measuring the distance between the filling left in the retro-cavity and the resection surface using 3ShapeD700 scanner.

Results: Samples treated with Tisseel showed significantly minor washout than the ones without the protection

Discussion: Avoiding washout poses a significant challenge in contemporary endodontic surgical treatment. Tisseel, owing to its biocompatibility, is suitable for this role. Particularly, its hardness and rapid reabsorbability proved ideal for protecting retrograde obturation while at the same time ensuring the osteoinduction provided by the release of calcium hydroxide from bioceramic sealers.

Conclusion: Tisseel showed to be a suitable protection for the retrograde obturation in order to avoid washout.

Keywaords: Washout; Well-Root PT; Tisseel.

Second place in Category of Original Research

TREATMENT OF PERI-IMPLANTITIS IN A PATIENT WITH TRIGEMINAL NEURALGIA

Congrats!

1ST PLACE WINNER

Author: Dimitrios Raptopoulos - European University Cyprus dental student
Co-author: Michael Raptopoulos - DDS, MS, Specialist Periodontist, Scientific collaborator Aristotle University of Thessaloniki

Introduction: Trigeminal neuralgia (TN) is a debilitating condition causing intense facial pain, while peri-implantitis is an inflammatory complication affecting dental implants. This case report presents a conservative approach to treat peri-implantitis in a patient with controlled TN and ongoing antidepressant use.

Purpose: This study aims to showcase a successful balance between conservative peri-implantitis management and preserving controlled TN in the patient.

Materials and Methods: A patient with controlled TN and existing implants presented with peri-implantitis. We employed a conservative surgical approach to avoid triggering TN recurrence. Scalloped incisions were used, followed by full-thickness flap elevation. Secondary flap removal and implantoplasty were performed around each implant using high-speed tools. Bone was reshaped (osteoplasty) instead of removed (ostectomy). Flaps were thinned and repositioned using sutures. Post-operative care included chlorhexidine solution, antibiotics, and pain medication tailored to the patient's needs.

Results: The surgical intervention successfully treated peri-implantitis, maintaining implant stability and functionality without causing TN recurrence. The patient reported no pain compared to the pre-existing trigeminal neuralgia pain.

Discussion: Given the patient's age, preferences, and complex medical history involving TN, a conservative approach was crucial. Complete implant removal and consrervative treatment options were not desired or achievable. Precision was vital to avoid triggering TN recurrence. We successfully preserved implant functionality while adhering to the patient's preference for minimal intervention.
Conclusion: This case demonstrates the effectiveness of a meticulous and conservative strategy in achieving both functional restoration and patient satisfaction while navigating the complexities of managing peri-implantitis in a patient with controlled TN.

Keywords: Peri-implantitis, trigeminal neuralgia, implantoplasty, osteoplasty

First place in Category of Case reports

ORAL CANDIDIASIS IN HIV POSITIVE PATIENTS : CASE REPORT

Congrats!

2ND PLACE WINNERS

Authors: Rogunov Ilia Vladimirovich, Jeiran Babayani
Scientific advisor: Ph.D., Associate Professor Oleynik AF

Introduction: Immunodeficiency, metabolic, dietary, mechanical and iatrogenic factors are some common predisposing factors that can cause certain oral diseases such as candidiasis which has the highest prevalence and the earliest manifestation of immunocompromised state in HIV patients. Although it is rarely a fatal disease, delayed recognition and treatment as well as undiagnosed underlying HIV can lead to systemic candidiasis and progression to AIDS.

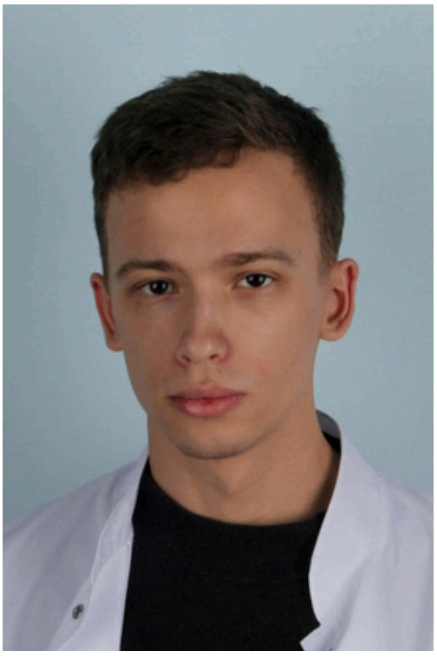
Aim: We aimed to describe clinical courses, differential features, and management of oral candidiasis in HIV in order to increase awareness among dentists.

Case report: A 65-years-old female admitted to hospital with suspicious meningoencephalitis. Oral exam was notable for extensive removable white plaques on the inflamed base of the dry tongue and throat, severely swollen and erythematous gingiva, painful fissured lips causing discomfort while talking, chewing and swallowing. The extraoral examination revealed dryness and pallor of the skin, palpable submandibular lymph nodes along with remarkable weight loss. Lab tests were indicative for pancytopenia, positive HIV with profound immunodeficiency, and high HIV viral load . Diagnosis of oropharyngeal candidiasis, angular cheilitis, acute ulcerative gingivitis and atrophic glossitis on the background of HIV/AIDS was made.

Management: Oropharyngeal candidiasis has been successfully treated with oral intake of Fluconazole 150 mg for 13 days followed by 400 mg/day IV for 10 days with full improvement in oral cavity confirmed by negative culture for candid.

Conclusion: Oral health assessment has a beneficial role in HIV diagnosis.Fluconazole is effective treatment against candidiasis if prescribed timely in appropriate regimen with no prior resistance known. Dentists should pay attention to features listed above and recommend further HIV testing. Clinical assessment of oral health must be an integral part of diagnostic sequence.

Key words:



Second place in Category of Case reports

AN INITIAL HUMAN-COMPUTER INTERACTION (HCI) RESEARCH ON VALIDATING THE USER EXPERIENCE OF MIXED REALITY TRAINING SIMULATIONS IN DENTAL EDUCATION

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ABSTRACT:

The landscape of dental education has undergone significant transformation owing to rapid technological advancements, particularly in the realm of digital dentistry. One notable innovation is the integration of mixed reality (MR) dental training simulators, allowing students to engage in simulated cases before actual patient treatments. This research scrutinizes the Human-Computer Interaction (HCI) dynamics within the user experience (UX) framework involving dental students, clinical educators, and MR dental training simulators. A comparative analysis with conventional training methods such as fantom heads and virtual reality (VR) is also conducted. Employing a blend of qualitative and quantitative methodologies within an inductive research framework, the study evaluates the Technology Acceptance Model (TAM) and incorporates design principles from Don Norman's seminal work (1989). A cohort of 16 students and five dental instructors participated in the investigation. Participants underscored the utility of extended reality (ER) dental trainers for refining manual dexterity skills. However, they identified areas for enhancement in MR dental trainers, particularly in replicating realistic drill sensations and optimizing system design to augment user experience. Nevertheless, MR trainers were lauded for advancements in overall design, auditory feedback, and interface compared to their traditional counterparts. While MR training showed promise, traditional methods like fantom heads and simulated teeth remained favored for preparing students for patient care. Suggestions for improvement predominantly focused on refining interface design and enhancing software-hardware integration.

In summary, the integration of MR dental training represents a significant advancement in dental education, offering immersive learning experiences. Nevertheless, further refinement is warranted to address user feedback and optimize the system for seamless integration into dental curricula.

Keywords: HCI, UX, mixed reality, dental education, dental trainer

ORAL HEALTH IN HIV POSITIVE PATIENTS

Author: Jeiran Babayani

Scientific advisor – Ph.D., Associate Professor Oleynik AF

Introduction: Antiretroviral therapy has significantly improved the life expectancy and quality of life of people living with HIV/AIDS by reducing the incidence of opportunistic oral infections, among other things. But in addition to immunodeficiency, additional common issues among HIV-positive patients include metabolic, behavioral, dietary, and iatrogenic variables that can potentially impact dental health.

Aim: The aim of our study was to determine the spectrum and frequency of oral diseases in patients with HIV infection during the ART era and their possible risk factors.

Method and material: 192 patients who met the inclusion criteria participated in this cross-sectional study conducted at AIDS Centre (Kazan) : 1) age >18 years; 2) confirmed HIV status. Patients underwent a comprehensive intra- and extraoral dental examination, as well as a questionnaire to identify potential risk factors. The frequency and nature of oral diseases were assessed as an outcome.

Results: The median age of patients (63% men) were 43.0 [40.0;47.3] years. Unemployed smokers with CD4+<200 were at higher risk of gingivitis. Periodontitis was 3.2 times more often found among smokers of >20 cigarettes per day and people with irregular dental examination. Candidiasis was naturally associated with the absence of ART (OR=2.3 95%CI 1.0–5.7), low CD4+ and high viral load (OR=11.6 95%CI 4.9-29.6). 93.7% of them had caries and it was common in patients who experienced used drugs in the past with governmental insurance.

Conclusion: The high frequency of oral disorders among relatively young patients on antiretroviral medication indicates a complex etiology of oral diseases. HIV experts should actively encourage early ART start, and preventative dental treatment for those living with HIV.

THE EFFECT OF VITAMIN D ON THE OSSEOINTEGRATION OF DENTAL IMPLANTS: A LITERATURE REVIEW

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Academic advisors: Tomislav Ćabov, Prof. PhD, DMD - University of Rijeka, Faculty of Dental Medicine, Department of Oral Surgery, Rijeka, Croatia, Zoran Kovač, Prof. PhD, DMD - University of Rijeka, Faculty of Dental Medicine, Department of Prosthodontics, Rijeka, Croatia

Introduction: Dental implants currently serve as the best solution for replacing lost teeth. Successful osseointegration is one of key criteria for long-term dental implant therapy. There are many factors that influence osseointegration and healing after implant insertion. The most neglected of these is the level of vitamin D in the blood, which plays a major role in mineral homeostasis. The latest research estimates that more than a billion people in the world have a vitamin D deficiency, which can affect the success of implant therapy.

Purpose: The aim of this research article was to systematically review the available evidence to evaluate the efficacy of vitamin D supplementation or vitamin D depletion on the osseointegration of implants.

Materials and Methods: Data of this review were derived from recent research available on PubMed, Scopus, and Google Scholar. Inclusion criteria were the level of serum vitamin D, and the relation between vitamin D and dental implant osseointegration or failure. Articles published in languages other than Croatian and English were excluded.

Results: Vitamin D supplementation has shown good potential in improving the status of peri- implant tissues in patients with diabetes mellitus, osteoporosis, chronic kidney or liver disease, and inflammatory bowel disease but the same can't be said for healthy patients with dental implants.

Discussion: Dosage, duration, and type of vitamin D supplementation depend on the patients age, medical history, and vitamin D serum level, and should be assigned individually in agreement with their family physician or specialist if one is treating them.

Conclusion: Vitamin D is not a panacea but considering its rare side effects and relatively large therapeutic range, the use of vitamin D supplements can be an important, cheap, and safe adjuvant during implant therapy of high-risk patients.

Key Words: Vitamin D, Osseointegration, Dental Implants

LIPID STATUS IN PATIENTS SUFFERING FROM PERIODONTITIS STAGE III AND IV

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Introduction: Periodontitis is a chronic, microbes-associated inflammatory disease of tooth-supporting tissues characterized by dysbiotic biofilm accumulation and an aberrant host immune response. It has been previously associated with systemic diseases, including cardiovascular. A strong correlation between periodontal disease and cardiovascular diseases was shown, as well as the presence of common risk factors, together with dyslipidemia.

Purpose: To examine the possible association of parameters of lipid status with the clinical presentation of periodontitis stage III and IV.

Material and methods: A total of 20 patients were divided into two groups: patients with periodontitis stage III and IV (group 1, N=10) and a control group of periodontally healthy subjects (Group 2, N=10). Clinical periodontal parameters were recorded: pocket probing depth (PPD), gingival margin level (GML), clinical attachment level (CAL), bleeding on probing (BOP) and plaque index (PI). Serum levels of triglycerides (TG), high-density lipoprotein (HDL) and low-density lipoprotein (LDL), and total cholesterol (TCH) were assessed.

Results: TCH was significantly higher in group 1 in comparison to group 2 (p=0.041). Also, in group 1, PPD and CAL were strongly correlated with TCH (ρ=0.567 and ρ=0.508 respectively), while CAL and GML also had a strong correlation with TG (ρ=0.567 and ρ=-0,612, respectively).

Discussion: The results of this study are in accordance with available in terms that dyslipidemia is associated with both moderate and advanced periodontitis, acting as a mediator between periodontitis and obesity and elevated values of glycosylated hemoglobin.

Conclusion: It appears that the severity of periodontitis and dyslipidemia might be associated.

Key words: periodontitis, lipid status, dyslipidemia

EVALUATION OF STUDENT OPINIONS ON PROBLEM CASE EXAMPLES PREPARED WITH THE ROLE-MODEL SIMULATION TECHNIQUE IN DENTAL EDUCATION

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Academic advisors: Prof. Ozgur Onder Kuscu, Prof. Halime Yegane Guven

Istanbul Kent University,Faculty of Dentistry

Introduction: The Dental Student Research Group (DSRG) at Istanbul Kent University Faculty of Dentistry was established in the 2019-2020 academic year to support research activities. Despite a pause due to the Covid-19 pandemic, the group resumed activities in 2022-2023, hosting the "1st Student Research Congress" on May 5, 2023, and will host the 2nd congress on April 26, 2024. Students have full autonomy in selecting research topics and partners, facilitated by a coordinating professor. Membership is voluntary and unrelated to academic performance. During the fist student congress, an engaging and educational theatrical session was devised, featuring six problem cases including basic and clinical sciences. These cases were scripted in advance, with students volunteering their theatrical talents to portray dentist and patient roles. Rehearsed performances, sometimes laced with humor, were accompanied by backdrop displays of case information.

Purpose: In this research our aim is to evaluate of students' opinions about efficiency of this rol-model simulation techniuqe in dental education.

Methodology: Subsequently, a questionnaire comprising 20 items was administered to 59 students, utilizing a Likert scale for evaluation.

Results: Reliability and internal consistency were assessed using Cronbach's alpha (0.975413427), with statistical significance set at $p < 0.05$. Student feedback was very positive and majorty of answers (89.4%) ranged between 'agree' and 'strongly agree'. 6.75% of answers were "I am not sure" and only 4% of the answers were between 'disagree' and 'strongly disagree'. Ethical approval for the questionnaire was secured from the Ethics Committee of Istanbul Kent University.

Discussion: Results indicated a preference for interactive learning methods and highlighted the positive impact on personal and academic development. With a this innovative approach garnered widespread student interest and was deemed more memorable for conveying information. Key topics covered included laboratory tests, prescriptions, drug indications and contraindications, and medical referrals for dental patients. Through this integrated teaching method, students not only absorbed fundamental and clinical knowledge but also honed self-confidence and communication skills with patients.

Conclusion: This study aims to promote interactive dental education through realistic role-play simulations, fostering integration of basic and clinical sciences. The positive student feedback will inform future curriculum updates, emphasizing the importance of innovative teaching methods in dental education.

Keywords: Dental education, role-model simulation, students' evaluation

DRAWINGS AS A VALID QUALITATIVE METHOD FOR DEPICTING A CHILD'S PERCEPTION OF DISTRESS IN PEDIATRIC DENTISTRY

Università degli studi di Brescia

Author: Cattadori Martina

Academic advisor: Prof. Ingrid Tonni

Introduction: Understanding the emotional perception of the child is essential for establishing an active collaboration. Using drawings, it is possible to obtain implicit information about the patient's emotional state.

Purpose: To evaluate whether the drawings reflect the child's perception of the dental experience.

Materials and Methods: 157 children, aged 6 to 11, were interviewed and divided into two groups based on their dental history. Each child received a questionnaire regarding their experience, describing the dentist with three adjectives and assessing their fear using the Frankl scale (self-evaluated by an emoji). Subsequently, they were provided with markers and a blank sheet to freely express their thoughts about the dentist through drawings. The drawings were analyzed for content, subject position, colors, and line quality, with each assigned a score from 0 to 1. They have been totaled and compared to the self-assigned Frankl score.

Results: 31 children reported no prior dental experience. 64% expressed significant distress answering the questions and it was confirmed by their drawings. 32% stated their inability to express due to lack of experience, yet their drawings indicated discomfort with small and monochromatic depictions. Of the 126 children with dental experience, 63% reported going willingly (16% of whom still displayed discomfort in their drawings). Among the remaining 46, in 32 cases the child was evaluated as moderate or severe distressed.

Discussion: As already evaluated by Mathur et al. in 2017, stress markers shown in drawings can be related to Frankl behavior scale. As 74% of the drawings displayed only a minimal difference between the self-assigned score and the analyzed data, we can assume that the drawing consciously reflects the child's behavior. The remaining 26%, however, exhibited more signs of distress than reported.
Conclusion: Drawings can be allies in assessing discomfort in pediatric dentistry as they can reflect children's emotions, being a valuable aid in treatment planning.

Key-words: Children's drawing, Frankl behavior scale, Pediatric dentistry, Dental anxiety