



BOOK OF ABSTRACTS

78th EDSA SUMMER MEETING 2026



Budapest
Hungary

Original Research Category Authors

Kristijan Donev et al.	Page 4
Luka Hrupački	Page 6
Rim Alhakim Kabani et al.	Page 8
Irmak Avcil et al.	Page 10
Elif Naz Candan et al.	Page 12
Faidra Chatzikallinikidou et al.	Page 14
Islam Gavrilov et al.	Page 16
Elizabete Korule-Ceriņa	Page 18
Amalia Syrioti et al.	Page 20

Case Report

Category Authors

Sofia Perepechko et al.	Page 22
Georgs Alberts Pimanovs et al.	Page 24
Elizabete Korule-Cerina	Page 26
Christos Kordatzis et al.	Page 28

SALIVARY DIAGNOSTICS IN SPORTS MEDICINE: CAN SALIVA REPLACE BLOOD FOR LACTATE MONITORING IN CYCLISTS?

AUTHORS: KRISTIЈAN DONEV, DDM; PROF. KIRO IVANOVSKI, PHD, DDM; ASST. BOJAN POPOSKI, PHD, DDM; ARBNESHA ASANI, BSC

Introduction: Blood lactate is a cornerstone marker of exercise intensity, but obtaining it requires an invasive capillary blood sample. Saliva is an accessible, non-invasive alternative, yet its diagnostic value depends on analytical specificity: salivary lactate concentrations are low and the oral cavity contains interfering substances, including exogenous D-lactate. An enzymatic assay coupling L-lactate oxidase and peroxidase (LOX-POD) is stereospecific for L-lactate, the physiologically relevant isomer. Whether salivary L-lactate measured this way faithfully reflects blood lactate across a graded workload – and whether it does so between individuals as well as within them – remains insufficiently established.

Aim: To evaluate whether salivary L-lactate, measured by an L-specific enzymatic (LOX-POD) method, tracks capillary blood lactate during progressive exercise, at both intra-individual and inter-individual levels.

Materials and Methods: In a prospective repeated-measures study, twenty active cyclists (19 men, 1 woman; aged 20–59 years) undertook a progressive protocol of four consecutive 10-minute intervals on a direct-drive smart trainer (Elite Suito T) running Zwift; after predefined quality criteria, including protocol deviations and incomplete tests, the final analytical cohort comprised 14 participants who completed all four intervals (56 paired samples). Mechanical power output was recorded by the trainer's integrated power meter (declared accuracy $\pm 2.5\%$) and heart rate by a chest strap (Garmin HRM200).

In each interval, capillary blood lactate was measured between minutes five and six with a validated handheld analyser (EKF Lactate Scout Sport), and stimulated whole saliva was collected between minutes six and ten by chewing chemically inert parafilm, avoiding gustatory stimulants that could interfere with the assay. Salivary L-lactate was quantified spectrophotometrically by the LOX-POD method, with limits of detection and quantification established in-house. Intra-individual association was assessed by repeated-measures correlation (rmcorr) and a linear mixed-effects model; generalisation to an unseen participant was tested by leave-one-subject-out (LOSO) cross-validation.

Results: Lactate rose progressively with power output and heart rate in both media, salivary L-lactate averaging approximately 10% of blood levels (median 9.9%). Intra-individually, salivary L-lactate correlated strongly with blood lactate (rmcorr $r = 0.87$; 95% CI 0.78–0.93; $p < 0.001$), and increased significantly with mechanical power output (rmcorr $r = 0.62$; $p < 0.001$) and heart rate (rmcorr $r = 0.65$; $p < 0.001$). The linear mixed-effects slope was 3.92 mmol/L of blood lactate per mmol/L of salivary lactate. LOSO cross-validation yielded moderate predictive validity for an unseen participant ($R^2 = 0.70$; RMSE 1.50 versus 2.73 mmol/L for a mean-only reference model). Approximately 30% of salivary readings fell below the practical limit of quantification.

Conclusions: Salivary L-lactate determined by an L-specific enzymatic (LOX-POD) method showed a strong intra-individual association with capillary blood lactate and increased consistently with exercise intensity. Inter-individual predictive validity was only moderate and cohort-dependent, and a single universal calibration did not generalise across individuals. Salivary L-lactate therefore holds promise as a non-invasive medium for tracking individual lactate dynamics, rather than as a replacement for absolute blood measurement. Validation in larger, stratified cohorts and assessment of test–retest reliability are warranted.

Keywords: saliva; lactic acid; exercise test; physical exertion; biomarkers; bicycling; athletes; sports medicine.

COMPARISON OF QUANTITATIVE SALIVARY PARAMETERS IN CONVENTIONAL CIGARETTE SMOKERS, HEATED TOBACCO PRODUCT USERS, AND NON-SMOKERS

AUTHORS: LUKA HRUPAČKI

Introduction: Saliva plays a key role of oral homeostasis, contributing to lubrication, antimicrobial defense, remineralization, and pH regulation. Tobacco use may affect these protective functions. However, the effects of heated tobacco products (HTPs) on salivary parameters are still not well established, especially in comparison with conventional cigarette smokers and non-smokers

Aim: The aim of this study was to compare quantitative parameters of unstimulated and stimulated saliva among HTP users, conventional cigarette smokers, and non-smokers, with particular emphasis on salivary volume, pH, and response to an acid challenge.

Materials and Methods: Fifty participants were enrolled and divided into three groups: HTP users ($n = 20$), non-smokers ($n = 20$), and conventional cigarette smokers ($n = 10$). Unstimulated and stimulated saliva were collected by expectoration, with paraffin chewing used for stimulation. Salivary volume was calculated from sample mass using a saliva density of 1.005 g/mL. Salivary pH was measured before and after the addition of 0.5 mL of 0.1 M acetic acid, and ΔpH was calculated as pH before minus pH after the acid challenge. Group differences were analyzed using the Kruskal–Wallis test, followed, when appropriate, by Mann–Whitney U tests with Bonferroni correction. Tobacco users also completed a questionnaire on smoking habits, perceived oral changes, and awareness of oral-health risks.

Results: The main differences among the groups were observed in salivary pH. Baseline pH of unstimulated saliva was 6.81 in non-smokers, 6.64 in HTP users, and 6.12 in conventional cigarette smokers ($p = 0.0048$). After the acid challenge, mean unstimulated salivary pH was 6.07, 5.81, and 5.32, respectively ($p = 0.0288$). Baseline stimulated salivary pH was 7.20 in non-smokers, 7.05 in HTP users, and 6.59 in cigarette smokers ($p = 0.0135$). Post hoc analysis confirmed significant differences between non-smokers and conventional cigarette smokers for all three parameters after Bonferroni correction. HTP users generally had pH values between those of non-smokers and conventional cigarette smokers, but the pairwise differences involving HTP users were not statistically significant after Bonferroni correction. Mean stimulated salivary volume was highest in non-smokers (6.10 mL), followed by HTP users (5.60 mL), and lowest in cigarette smokers (4.65 mL), but the difference was not statistically significant ($p = 0.4241$). No significant differences were found in ΔpH of unstimulated or stimulated saliva. Half of conventional cigarette smokers reported oral-health changes, most commonly bad breath, whereas dry mouth was the most frequent complaint among HTP users.

Conclusions: Conventional cigarette smokers had the least favorable salivary profile, primarily because of their significantly lower salivary pH. HTP users generally showed intermediate values; however, the present findings do not support the conclusion that HTPs are harmless or represent a safer alternative to conventional cigarettes. Salivary pH showed the clearest between-group differences in this sample. Larger and more balanced studies are needed to further clarify the effects of newer tobacco products on oral homeostasis.

BIOLOGICAL DRILLING VERSUS CONVENTIONAL DRILLING DURING STATIC COMPUTER-ASSISTED IMPLANT SURGERY: AUTOGENOUS BONE HARVESTING AND PATIENT-REPORTED OUTCOMES

AUTHORS: RIM ALHAKIM KABANI, PROF. DR. BERTA GARCÍA MIRA

Introduction: Static computer-assisted implant surgery (sCAIS) has improved the accuracy and prosthetically driven placement of dental implants. Biological drilling, performed at low rotational speeds (50–200 rpm) without irrigation, is intended to preserve bone structure while facilitating the collection of autologous bone with potential regenerative applications. Combining biological drilling with sCAIS may provide the biological benefits of low-speed drilling while maintaining the accuracy of guided implant placement. However, clinical evidence evaluating these techniques in combination, particularly regarding bone harvesting and patient-reported outcomes, remains limited.

Aim: To compare the amount of autologous bone harvested during sCAIS using biological versus conventional drilling and to investigate the association between implant-site bone density and harvested bone weight. Secondary outcomes included patient and operator satisfaction with the drilling technique, oral health-related quality of life (OHRQoL), and patient-reported postoperative outcomes, including pain, swelling, and analgesic consumption.

Materials and Methods: A prospective, randomized pilot clinical trial was conducted in 12 patients undergoing sCAIS. Patients were randomly allocated to conventional drilling (800 rpm with irrigation, $n = 5$) or biological drilling (150 rpm without irrigation, $n = 7$). Autologous bone weight was measured in milligrams, while implant-site bone density was assessed in Hounsfield units (HU) based on preoperative cone-beam computed tomography (CBCT) imaging. Patient and operator satisfaction were assessed using an ad hoc questionnaire incorporating visual analogue scales (VAS), while OHRQoL was evaluated using the Oral Health Impact Profile-14 (OHIP-14). Postoperative pain and swelling were self-reported using VAS, and analgesic consumption was recorded. Comparative analyses were performed using parametric and non-parametric tests, with statistical significance set at $p < 0.05$.

Results: Biological drilling yielded significantly more autologous bone than conventional drilling (median [range]: 150 [110–810] mg vs. 0 [0–10] mg; $p = 0.004$). Implant-site bone density was significantly higher in the biological drilling group ($p = 0.039$). Within the biological drilling group, a positive association was observed between implant-site bone density and harvested bone weight (Spearman's $\rho = 0.429$), although this was not statistically significant ($p = 0.337$). Preoperative OHIP-14 scores were significantly associated with postoperative scores at 7 days ($r = 0.578$, $p = 0.049$). Postoperative patient-reported swelling was significantly greater in the biological drilling group at 2, 6, and 12 hours ($p = 0.025$, $p = 0.008$, and $p = 0.015$, respectively), but not at 24 hours ($p = 0.088$). No significant differences were observed in postoperative pain or analgesic consumption.

Conclusions: Within the limitations of this pilot study, biological drilling during sCAIS resulted in significantly greater autologous bone harvesting than conventional drilling. Biological drilling was associated with greater early postoperative swelling, although this difference was no longer significant at 24 hours, with no significant differences in postoperative pain or analgesic consumption. Baseline OHRQoL was significantly associated with OHRQoL at 7 days, suggesting that preoperative patient-reported status may influence postoperative quality-of-life outcomes. Further clinical trials are needed to confirm these preliminary findings.

Keywords: biological drilling; low-speed drilling; static computer-assisted implant surgery; autologous bone; guided implant surgery; dental implants

BURNOUT DYNAMICS AND PROFESSIONAL FULFILLMENT IN DENTISTRY: THE ROLE OF GENDER AND EXPERIENCE

AUTHORS: IRMAK AVCIL; ELIF NAZ CANDAN; HALIL YILMAZ ASSOC. PROF., PHD; BURAK OĞUZHAN KARAPINAR ASST. PROF., PHD

Introduction: In dentistry, high technical, cognitive, and patient-related demands, alongside clinical pressures, may contribute to chronic burnout and adversely affect long-term professional fulfillment.

Aim: This study aimed to analyze the multidimensional relationships between burnout and professional fulfillment among dentists and to examine how these factors vary according to sociodemographic variables such as gender and professional experience.

Materials and Methods: This cross-sectional, descriptive-analytical study included 95 actively practicing dentists (33.7% male, 66.3% female). Data were collected using the Professional Fulfillment Index (PFI) and Copenhagen Burnout Inventory (CBI). The Mann-Whitney U test was used to compare scale scores between groups, while Pearson's chi-square test was used to assess associations between categorical variables.

Results: Data analysis revealed that males had a significantly higher median professional exhaustion score than females (14.50 vs. 11.00, $p=0.006$). Conversely, females had a significantly higher median interpersonal disengagement score than males (10.00 vs. 7.50, $p=0.003$). No statistically significant differences were found between genders in terms of professional fulfillment, overall burnout, or Copenhagen burnout scores ($p>0.05$). Furthermore, no statistically significant relationships or differences were observed between professional experience groups (0–5 years and >5 years) in terms of scale scores or categorical burnout levels ($p>0.05$).

Conclusions: While professional exhaustion and interpersonal disengagement dimensions showed significant gender-related differences, professional experience was not significantly associated with these variables. These findings highlight the importance of targeted interventions that consider gender-related differences and support professional fulfillment among dentists.

Keywords: dentistry; burnout; interpersonal disengagement; professional fulfillment; professional exhaustion

ERGONOMIC RISKS IN FEMALE SPECIALIST DENTISTS AND THE IMPACT OF MUSCULOSKELETAL PAIN ON PROFESSIONAL AND DAILY LIFE: A PHENOMENOLOGICAL STUDY

AUTHORS: ELIF NAZ CANDAN; IRMAK AVCIL; HALIL YILMAZ ASSOC. PROF., PHD; BURAK OĞUZHAN KARAPINAR ASST. PROF., PHD

Introduction: Dental practice is considered a profession with high ergonomic risks due to prolonged static postures, repetitive movements, and physical strain. Work-related musculoskeletal disorders are frequently reported among dentists and may negatively affect occupational health and quality of life. However, qualitative studies exploring the ergonomic experiences of female specialist dentists remain limited.

Aim: This study aimed to investigate the ergonomic risks encountered by female specialist dentists, their experiences of work-related musculoskeletal pain, and the effects of these experiences on clinical practice, daily life, and sleep quality.

Materials and Methods: This qualitative study was conducted using a phenomenological design. Data were collected from 14 female specialist dentists through an online semi-structured open-ended questionnaire using purposive sampling. Data were inductively analyzed using Braun and Clarke's reflexive thematic analysis approach.

Results: The findings focused on three main areas, professional working conditions, health and quality of life, and coping strategies. High patient workload, prolonged working hours, static working postures, repetitive movements, forward bending, and insufficient dental assistant support were identified as major ergonomic risk factors. Musculoskeletal complaints were mainly concentrated in the neck, shoulders, back, and lower back regions. Some participants reported severe musculoskeletal problems, including chronic low back pain and lumbar disc herniation. Pain experiences were found to negatively affect sleep quality, social life, and clinical practice.

Conclusions: Ergonomic risks and work-related musculoskeletal complaints were identified among female specialist dentists. Ergonomic interventions, preventive occupational health strategies, and institutional support mechanisms are important for protecting occupational health and reducing musculoskeletal problems.

Keywords: female specialist dentists; ergonomics; work-related musculoskeletal disorders; qualitative research; reflexive thematic analysis

ORTHODONTIC MANAGEMENT OF AMELOGENESIS IMPERFECTA USING FIXED APPLIANCES AND STAGED RESTORATIVE APPROACHES: A MINI REVIEW

AUTHORS: FAIDRA CHATZIKALLINIKIDOU, AMALIA SYRIOTI, FILIPPOS FYTROS, NIKOLAOS SPANTIDAKIS, VASILEIOS ZISIS

Introduction: Amelogenesis imperfecta (AI) is a rare genetic disorder, which affects the quality of the enamel structure and it is often associated with functional and aesthetic considerations which require complex dental management.

Aim: To review the current literature on orthodontic management of patients with amelogenesis imperfecta, focusing specifically on fixed appliance treatment in combination with staged restorative approaches, clinical challenges, multidisciplinary management strategies and reported outcomes.

Methods: A structured literature review was conducted on PubMed, Scopus and ScienceDirect, for studies published between 2016 and 2026. Eligible studies included patients with AI who underwent orthodontic assessment and treatment containing fixed appliances and subsequent restorative rehabilitation. Case reports, case series and observational studies were included. Data regarding study characteristics, orthodontic techniques, treatment protocols and clinical outcomes were extracted and qualitatively synthesised.

Results: The initial search identified 640 records. After the application of database filters, duplicate removals and eligibility screening, 11 studies were included, comprising 10 case reports and one retrospective descriptive study. Among these, 2 selected case reports demonstrate the use of fixed orthodontic appliances combined with staged restorative management. Fixed appliance therapy included conventional edgewise brackets with sequential NiTi and stainless-steel archwires, as well as adjunctive appliances such as rapid palatal expanders and functional devices for arch development.

The most common clinical challenges reported were reduced enamel bonding strength, repeated bracket failure and the need for modified bonding techniques. Multidisciplinary treatment involving orthodontics and prosthodontics enabled improved occlusion, optimized space distribution and conservative restorative rehabilitation. Overall, treatment resulted in improved function, aesthetics and patient quality of life, with stable outcomes reported in both cases.

Conclusion: Despite the limited available evidence due to the predominance of case reports, current evidence supports the use of orthodontic treatment as an effective component of comprehensive amelogenesis imperfecta management when provided within a combined with modified bonding strategies and staged restorative treatment. A multidisciplinary approach remains essential to achieve predictable functional and esthetic outcomes.

Keywords: Amelogenesis imperfecta, orthodontic treatment, orthodontic appliances, orthodontics, restorative dentistry, multidisciplinary treatment

THE ORAL MICROBIOME AS THE CONDUCTOR OF A SYMPHONY (OR CACOPHONY) OF SYSTEMIC DISEASES: FROM CARIES TO ALZHEIMER'S

AUTHORS: ISLAM GAVRILOV, R. GAZIZULLIN, A. MANSUROVA

Introduction: According to studies by South Korean scientists who collected data from 262,349 people aged 50 and over and divided the participants into two groups: the first included those diagnosed with chronic periodontitis, and the second included people without this disease. The study results showed that people suffering from chronic periodontitis had a 6% higher likelihood of developing dementia compared to those who did not have this disease. This relationship persisted even after accounting for risk factors: level of physical activity, smoking, and alcohol consumption.

Aim: The main goal of research on this topic is to test the hypothesis that chronic periodontitis in patients aged 50–70 is associated with an increased risk of cognitive impairment and to substantiate the role of the oral microbiome as the conductor of a systemic “cacophony” of pathological processes leading from local dental pathology to early signs of neurodegeneration. In addition to the main study, we aim to examine the associations between dysbiosis of the oral microbiome and the development of systemic diseases (ranging from caries and periodontitis to cardiovascular diseases, diabetes, and neurodegenerative pathologies) based on a literature review and population survey data.

Materials and methods:

1. Analysis of domestic and foreign sources (PubMed, e-library, etc.) on the role of key pathogens in the oral microbiome.
2. Conducting a survey of the target group (n=50, people aged 50 and over who have diseases associated with impaired oral microbiome and/or cognitive functions) to assess the prevalence of oral dysbiosis and its subjective symptoms.

3. Identifying cause-and-effect relationships (or correlations) between oral diseases and systemic diseases based on data synthesis.
4. Developing preventive recommendations: frequency of examinations, hygiene, risk screening.
5. Assessment of the impact of microbiome balance on cognitive functions (based on literature and survey data).

Results: During the study of this topic, the cause-and-effect mechanisms of the impact of oral microbiome dysbiosis on the development and progression of systemic diseases were established by conducting a survey of the target population and drawing on materials from domestic and foreign sources. Based on this, new strategies for predictive diagnostics, prevention, and comprehensive therapy were developed, such as regular professional dental check-ups (every 3-4 months if diseases and/or risk factors are present), controlled daily home oral hygiene, and professional oral hygiene (once every six months).

Conclusions: In conclusion, the oral microbiome acts as a conductor capable of both tuning the “symphony” of systemic health and triggering the “cacophony” of severe chronic diseases. Indeed, oral diseases can be the cause of pathological processes in other parts of the body, including causing a decline in cognitive function. This is proven by the sociological survey conducted, as well as by domestic and foreign scientific sources.

PATIENT PERSPECTIVES ON TEMPORARY SKELETAL ANCHORAGE IN ORTHODONTICS: A NARRATIVE LITERATURE REVIEW

AUTHORS: ELIZABETE KORULE-CERIŢA

Introduction: Temporary skeletal anchorage devices (TSADs) have become an important component of contemporary orthodontic treatment by providing stable anchorage independent of patient compliance. While their biomechanical effectiveness has been extensively documented, treatment success also depends on patient-centered factors, including pain perception, anxiety, treatment acceptance, and overall satisfaction. Understanding these outcomes is essential for improving patient experience and supporting evidence-based clinical decision-making.

Aim: To evaluate current evidence regarding patient perspectives on temporary skeletal anchorage devices, with particular emphasis on pain perception, patient-reported outcome measures (PROMs), treatment acceptance, and overall satisfaction.

Materials and Methods: A narrative literature review was conducted using a structured search strategy based on the PICOS framework (Population, Intervention, Comparison, Outcomes, and Study Design). Electronic databases, including PubMed, ScienceDirect, Web of Science, and Google Scholar, were searched for studies published between 2005 and 2025. Eligible publications included randomized controlled trials, prospective and retrospective clinical studies, cross-sectional studies, systematic reviews, and meta-analyses investigating patient-centered outcomes following TSAD placement. Studies unrelated to patient experience or lacking patient-reported outcomes were excluded. Data were synthesized qualitatively according to predefined PICOS criteria.

Results: The reviewed evidence consistently indicates that TSAD placement is associated with mild-to-moderate postoperative pain and discomfort of short duration. Pain intensity generally peaks during the first 24–48 hours after insertion and gradually resolves within one week. Patient experiences vary according to the type of skeletal anchorage device and insertion site, with interradicular mini-implants demonstrating the most favorable patient tolerance. Overall treatment acceptance is high, and most patients report willingness to undergo the procedure again if clinically indicated. Several studies also demonstrate that comprehensive preoperative information reduces anxiety and contributes to improved treatment satisfaction.

Conclusions: Current evidence suggests that temporary skeletal anchorage devices are well accepted by orthodontic patients despite transient postoperative discomfort. Patient-reported outcomes consistently demonstrate high treatment satisfaction, particularly when adequate preoperative information and counseling are provided. Incorporating patient perspectives into orthodontic treatment planning may further enhance patient experience and improve the quality of care involving skeletal anchorage.

Keywords: Temporary skeletal anchorage devices; patient-reported outcomes; pain perception; orthodontics

MEDITERRANEAN DIET ADHERENCE AND PERIODONTAL HEALTH: A REVIEW OF CLINICAL, INFLAMMATORY, AND MICROBIOLOGICAL EVIDENCE

AUTHORS: AMALIA SYRIOTI, FILIPPOS FYTROS, FAIDRA
CHATZIKALLINIKIDOU, PANAGIOTA DIMITROPOULOU, VASILEIOS ZISIS

Background: The Mediterranean diet (MD) is a nutritionally balanced dietary pattern characterized by high consumption of fruits, vegetables, legumes, nuts, whole grains, fish, and olive oil, more specifically extra-virgin olive oil as the primary fat source, along with limited intake of red meat and refined sugars. Increasing evidence suggests that the MD's anti-inflammatory and antioxidant properties extend beyond systemic health that might lead to reduced risk and severity of periodontitis.

Aim: This review synthesizes current evidence on the association between adherence to the MD and periodontal health outcomes.

Methods: A structured electronic search of PubMed was conducted without publication date restrictions. A total of 22 studies published between 2019 and 2025 were included. These comprised cross-sectional studies, cohort studies, randomized controlled trials, systematic reviews, and experimental animal models evaluating the relationship between MD adherence and periodontal parameters. Extracted data included study design, population characteristics, dietary assessment tools, clinical periodontal indices, inflammatory biomarkers, and microbial profiles.

Results: The majority of studies indicated that higher adherence to the Mediterranean diet is associated with improved periodontal outcomes, including reductions in probing pocket depth (PPD), clinical attachment loss (CAL), and bleeding on probing (BOP). Interventional studies demonstrated significant decreases in systemic inflammatory markers such as IL-1 β , TNF- α , and C-reactive protein (CRP), along with reductions in periodontopathogenic bacterial load. Experimental findings further highlighted the protective effects of MD components, particularly oleic acid and polyphenols, in modulating macrophage activity, inhibiting osteoclastogenesis, and enhancing IL-10 expression through epigenetic mechanisms. However, heterogeneity in dietary assessment methods, study populations, and follow-up durations limited comparability, and not all findings reached statistical significance.

Conclusions: Current evidence supports a beneficial association between adherence to the Mediterranean diet and improved periodontal health, likely mediated through anti-inflammatory, antioxidant, and microbiome-modulating effects. Nevertheless, further well-designed longitudinal and interventional studies are required to establish causality and to optimize dietary recommendations for the prevention and management of periodontal disease.

Keywords: Mediterranean diet; periodontal disease; periodontitis; inflammation; oral microbiome; dietary patterns; antioxidants; clinical attachment loss; probing pocket depth; oral health

LOCALIZED IGG4-ASSOCIATED LYMPHOPLASMACYTIC INFILTRATION IN A LATERAL RADICULAR CYST: A CASE REPORT

AUTHORS: SOFIA PEREPECHKO, VARVARA LABIS, DMD, PHD

Introduction: IgG4 is the least abundant antibody of the serum. It has unique features, such as Fab-arm exchange, limited Fcγ-binding, reduced complement system activation, and distinct glycosylation patterns which lead to its predominantly anti-inflammatory function. However, IgG4 may also contribute to the pathogenesis of IgG4-related disease (IgG4-RD).

Case description: A 59-year-old male presented with the chief complaint of pain on biting in the region of tooth 3.7. Medical history includes hypertension with poor adherence to antihypertensive therapy, a 20-year smoking history (10 cigarettes/day), and occupational stress. Extraoral examination showed facial symmetry, and no obvious abnormalities in the lymph nodes of the head and neck, palpation of the masseter muscles revealed bilateral tenderness. Intraoral examination showed poor oral hygiene (OHI-S = 3.0) with a mass of dental plaque, subgingival and supragingival calculus. Gingivae were generally edematous and bled on probing. Tooth mobility varied from I-III. Attrition facets reaching dentin, associated with bruxism, were observed on the occlusal and incisal surfaces of all teeth. Tooth 3.7 was tender on vertical percussion, exhibited grade III mobility, and showed no response in the cold test. CBCT revealed generalized bone loss involving the coronal third of the root (15–30%). A well-defined radiolucent lesion was observed at the previously endodontically treated tooth 3.7, affecting both mesial and distal roots, adjacent to the mandibular canal.

Tooth 3.7 was extracted, the curetted lesion was fixed in 10% formalin and subsequently submitted for histological and immunohistochemical evaluation to clarify the immunopathogenesis. Histologically, the lesion consisted of two layers: an inner lining of stratified squamous non-keratinized epithelium and an outer fibrous connective tissue layer. The epithelium was hyperplastic and hypertrophic. The fibrous capsule exhibited a focal lymphoplasmacytic infiltrate, with occasional Russell bodies. Immunohistochemical staining with antibodies against CD138, IgG, IgG4, and PCK demonstrated CD138 and IgG expression in scattered cells of the infiltrate, and IgG4 expression in cells within the fibrous tissue. The IgG4+/CD138+ and IgG4+/IgG+ plasma cell ratios were approximately 30%. PCK expression was observed in the epithelial cells. Marked reactive inverted epithelial hyperplasia was noted, with no evidence of malignancy. Based on the 2018 AAP/EFP classification of periodontal diseases, along with CBCT, histological and immunohistochemical findings, the final diagnosis was established as: Stage III, Grade B generalized periodontitis with a vertical bone defect in the region of tooth 3.7, associated with occlusal trauma, complicated by a lateral radicular cyst with lymphoplasmacytic infiltration and elevated IgG4+ plasma cells.

Discussion: The IgG4+/IgG+ and IgG4+/CD138+ plasma cell ratios were approximately 30%, which is consistent with the range of IgG4 expression recently reported in radicular cysts of permanent teeth (Polanco et al., 2021). This value remains below the 40% diagnostic threshold for IgG4-RD, as defined by the revised comprehensive diagnostic criteria (2020). No systemic manifestations were documented.

Conclusion: This case describes a lateral radicular cyst with localized IgG4+ plasma cell infiltrate and no systemic manifestations.

Keywords: radicular cyst, immunoglobulin G, immunoglobulin G4-related disease, immunohistochemistry, case report

IATROGENIC DISPLACEMENT OF AN IMPACTED MAXILLARY THIRD MOLAR INTO THE INFRATEMPORAL FOSSA IN A 15-YEAR-OLD PATIENT: A RARE COMPLICATION OF ORTHODONTICALLY INDICATED EXTRACTION

AUTHORS: GEORGS ALBERTS PIMANOVS, DR. ĢIRTS ŠALMS, DR. LANA MIČKO

Introduction: The removal of impacted maxillary third molars is a common procedure. However, displacement of a tooth into the infratemporal fossa (ITF) is a rare and potentially serious complication. Although guidelines generally advise against prophylactic extraction of asymptomatic third molars, organizations such as the American Association of Oral and Maxillofacial Surgeons (AAOMS) acknowledge that removal is justified when a third molar prevents the eruption of the second molar. We present a case of a 15-year-old patient whose maxillary left third molar (tooth 28) was inadvertently displaced into the ITF during orthodontically indicated extraction to relieve obstruction of the adjacent second molar. To our knowledge, this specific combination of orthodontic indication and infratemporal displacement has not previously been reported in an adolescent patient.

Case description: A 15-year-old patient with no significant medical history was referred by an orthodontist for removal of the maxillary third molars as part of planned orthodontic treatment. Panoramic radiography demonstrated retention and dystopia of teeth 18, 17, 27 and 28, and extraction of teeth 18 and 28 was recommended as they were obstructing eruption of the adjacent second molars. During extraction of tooth 28 under local anesthesia, after elevation of a mucoperiosteal flap and osteotomy, the tooth was displaced distally beneath the flap. Subsequent radiographic assessment, including CBCT, localized the displaced tooth within the infratemporal fossa. The surgical site was temporarily closed, and definitive retrieval was planned for the following day. Tooth 28 was successfully retrieved under general anesthesia through re-exposure of the surgical site. The wound was irrigated, hemostasis was achieved, and the wound was closed with Vicryl Rapid 4/0 sutures.

The procedure was completed without further complications. Postoperatively, amoxicillin/clavulanic acid was continued for 7 days, with analgesic therapy as required.

DISCUSSION: Infratemporal displacement of a maxillary third molar is exceptionally rare, particularly in adolescents. In this case, extraction was justified by second-molar eruption obstruction rather than routine prophylaxis. Limited surgical access and posteriorly directed forces may contribute to displacement. CBCT is valuable for accurate localization and treatment planning. Although retrieval timing remains debated, next-day removal was successful in this case. This complication should be kept in mind when removing deeply positioned maxillary third molars in young patients.

Conclusions: Even when third molar extraction is clearly indicated, rare complications may still occur. Careful assessment of tooth position, adequate exposure, and controlled instrumentation may help reduce the risk of displacement. If infratemporal displacement occurs, three-dimensional imaging is useful for localization and planning the retrieval approach. In this case, planned removal under general anesthesia on the following day was completed successfully without further complications.

LONG-TERM OUTCOMES OF UNTREATED DENTAL TRAUMA: A CASE REPORT

AUTHOR: ELIZABETE KORULE-CERIŢA

Introduction: Traumatic dental injuries may result in delayed complications that develop years or even decades after the initial trauma. These include pulp canal obliteration, pulp necrosis, external root resorption, and eventual tooth loss. Invasive cervical resorption (ICR) is an uncommon form of external root resorption that often remains asymptomatic until advanced stages, making early diagnosis challenging. This report presents a rare case of extensive ICR diagnosed more than 30 years after an untreated traumatic dental injury.

Case description: In 1992, a patient sustained facial trauma during a basketball game involving the lower lip and maxillary central incisors. The injury caused palatal displacement of the incisors and occlusal changes. The patient manually repositioned the teeth without seeking dental treatment; only the lower lip laceration was sutured. In 1997, a history of dental trauma was documented, and complete pulp canal obliteration of the maxillary left central incisor prevented root canal negotiation. The tooth was restored without endodontic treatment, and the patient did not attend regular clinical or radiographic follow-up. Approximately six years before referral, discoloration and structural changes of the tooth became apparent. In 2023, generalized periodontitis with horizontal and vertical alveolar bone loss was diagnosed, accompanied by increasing mobility of the maxillary central incisors. Further clinical and radiographic assessment in 2025 confirmed extensive invasive cervical resorption of the maxillary left central incisor. Owing to the advanced resorptive defect and poor restorative prognosis, the tooth was considered non-restorable, and extraction was recommended.

Discussion: This case demonstrates the potential for traumatic dental injuries to remain clinically silent for decades before presenting with severe complications. Complete pulp canal obliteration complicated diagnosis and treatment, while the absence of long-term clinical and radiographic follow-up delayed detection of invasive cervical resorption. The coexistence of periodontal disease may have further compromised the prognosis. This case emphasizes the importance of lifelong surveillance of traumatized teeth, even in the absence of symptoms.

Conclusions: Untreated traumatic dental injuries may lead to significant long-term complications, including invasive cervical resorption several decades after the initial event. Regular clinical and radiographic follow-up is essential for early detection of delayed sequelae and may improve treatment outcomes by enabling intervention before extensive structural destruction occurs.

Keywords: Dental trauma; Invasive cervical resorption; Pulp canal obliteration; Long-term sequelae

USING AN OSSEOINTEGRATED IMPLANT AS ORTHODONTIC ANCHORAGE TO UPRIGHT A MESIALLY TIPPED MAXILLARY SECOND MOLAR PRIOR TO IMPLANT REHABILITATION: A CASE REPORT

**AUTHORS: CHRISTOS KORDATZIS, ANDREAS SKYLLOURIOTIS DDS,
CAGS, MSD**

Introduction: Loss of posterior teeth may be followed by mesial tipping of the adjacent molar, reducing restorative space and compromising prosthetically driven implant positioning. In partially edentulous patients, an osseointegrated implant may provide skeletal anchorage for limited pre-prosthetic orthodontic tooth movement while subsequently serving as a definitive prosthetic abutment. This case report describes a multidisciplinary approach in which an implant placed in the maxillary second premolar region was used as orthodontic anchorage for localized uprighting of a mesially tipped maxillary second molar, thereby creating space for subsequent implant rehabilitation.

Case description: A 19-year-old woman presented with a missing maxillary second premolar (#15) and first molar (#16), together with significant mesial tipping of the maxillary second molar (#17). The available mesiodistal space was insufficient to accommodate two implants. As #17 was periodontally sound and minimally restored, preservation was preferred. The patient also wished to avoid full-arch orthodontic retreatment following discussion of the available treatment alternatives. A Biomet 3i 3.25 × 10 mm implant was initially placed in the #15 region and allowed to osseointegrate for four months. Following confirmation of implant stability, a screw-retained provisional restoration incorporating an orthodontic bracket was fitted. Sectional fixed orthodontics using approximately 100 cN of force were then used to upright #17. After 17 months of orthodontic treatment, the molar inclination decreased from approximately 29° to 12°, representing approximately 17° of uprighting, with a corresponding increase in mesiodistal space. A second Biomet 3i 3.25 × 8.5 mm implant was subsequently placed in the #16 region, and both implants were definitively restored.

The anchorage implant remained clinically and radiographically stable throughout orthodontic loading. At follow-up, the molar position and posterior occlusal contacts remained stable, both implant-supported restorations were functional, and no adverse events were observed.

Discussion: This case demonstrates the potential dual orthodontic-prosthetic role of a definitive osseointegrated implant in selected partially edentulous patients. Using the #15 implant as skeletal anchorage enabled localized uprighting of #17 and development of the adjacent #16 implant site without extraction of a maintainable natural tooth or the use of full-arch orthodontic appliances. The approach also avoided the need for an additional temporary skeletal anchorage device, as an implant already required for the definitive prosthetic treatment was incorporated into the orthodontic mechanics. Limitations of this approach may include the prolonged treatment duration, dependence on implant osseointegration and positioning and reduced biomechanical flexibility compared to a temporary anchorage device.

Conclusions: A definitive osseointegrated implant can serve a dual role as both skeletal anchorage for localized pre-prosthetic tooth movement and a component of the subsequent prosthetic rehabilitation. In this case, implant-assisted uprighting of #17 created sufficient space for placement of an adjacent #16 implant. This staged approach may represent a useful treatment option for appropriately selected, skeletally mature, partially edentulous patients requiring limited pre-prosthetic orthodontic movement.

Keywords: osseointegrated implant; orthodontic anchorage; molar uprighting; pre-prosthetic orthodontics; multidisciplinary treatment; implant rehabilitation.



78th EDSA SUMMER MEETING 2026

23 – 28.08.2026



edsaweb.org



[edsaweb](https://www.facebook.com/edsaweb)



[edsaweb](https://www.instagram.com/edsaweb)



[edsaweb](https://twitter.com/edsaweb)



[edsa-dental](https://www.linkedin.com/company/edsa-dental)