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President of the Congress: Hrvoje Jurić

Editor of the book of abstracts: Kristina Goršeta

Organizational board:
Tomislav Škrinjarić, Danko Bakarčić, Željko Verzak

Scientific board:
Kristina Goršeta, Domagoj Glavina, Hrvoje Jurić, Christian Splieth

Invited lectures

BARRIERS AND SOLUTIONS IN THE TRANSFER OF SCIENCE INTO CLINICAL PRACTICE

Prof. Hrvoje Jurić*
Department of Paediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia; University Hospital Centre Zagreb, Croatia

The transfer of knowledge and scientific discoveries from the laboratory to clinical practice presents a significant challenge. There may be justified as well as unjustified delays, which ultimately result in failure, most notably to the detriment of potential patients. Therefore, clinicians today are expected to be highly willing to learn and adopt new scientific findings, which will ultimately lead to the rapid transfer of knowledge into clinical practice. The pathways and potential barriers to this process will be discussed at the planned roundtable.

BRIDGING SCIENCE AND PRACTICE: CREATING AND IMPLEMENTING EVIDENCE-BASED GUIDELINES

Prof. Christian Splieth*
Poliklinik für Kinderzahnheilkunde, University of Greifswald

In the old days, dentistry was like art and often driven by experience. This led to various contradicting approaches, treatment options and opinions. In the times of evidence-based medicine and dentistry, research tries to provide best guidelines for certain clinical situations. Thus, global views and treatments should narrow towards the best evidence options. The presentation discusses the pathway to evidence-based guidelines in cariology and paediatric dentistry as well as the problems to implement them into standard clinical practice.

AUTOTRANSPLANTATION AND OTHER OPTIONS FOR THE EARLY LOSS OF PERMANENT TEETH IN CHILDREN AND ADOLESCENTS

Prof. Christian Splieth*
Poliklinik für Kinderzahnheilkunde, University of Greifswald

In spite of all preventive efforts, caries is still a relevant problem in children and adolescents which lead to for the early loss of permanent teeth, especially first permanent molars. In addition, central incisors are lost due to dental trauma. In contrast to adults, growth and development in adolescents still allows therapy options which are not feasible in grown-ups. Besides orthodontic treatment, auto transplantations offer relatively easy, quick, adaptable, highly successful and often minimal interventions to compensate tooth loss in molars and incisors. The presentation with highlight the option of auto transplantation and other more conventional treatment measures to counteract the early of loss of permanent teeth in children and adolescents.

CHALLENGES OF TEAMWORK IN PEDIATRIC DENTISTRY

Prof. Hrvoje Jurić*
Department of Paediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia; University Hospital Centre Zagreb, Croatia

Preventive procedures in any branch of medicine represent an imperative and should form the foundation of all therapeutic interventions performed daily. This is particularly emphasized in dentistry, where it is known that up to 90% of pathological conditions—primarily diseases of the hard dental tissues—can be prevented.

In daily clinical work with patients, especially children, we are increasingly aware of the high expectations that patients and parents place on dental professionals. After addressing the fundamental concern of anyone visiting our clinic, namely relief from acute pain if that is the reason for the visit, we encounter a new level of expectations: flawless aesthetics of our restorations. When a patient or parent states that nothing less than a perfect aesthetic result will satisfy them, we enter a domain often constrained by various modifying factors.

Significant attention must be paid to patient cooperation, which can either facilitate or complicate treatment. Communication with both the parent and child must be at the highest possible level, ensuring the conditions necessary for performing even the most complex dental procedures. Therefore, acquiring knowledge in behavior management and control of paediatric patients, combined with the implementation of minimally invasive treatment, represents a major challenge for any clinician and offers potentially new solutions to common problems, to which the dental assistant can also make a significant contribution. This lecture aims to shed light on the current role and potential contributions of the entire dental team in achieving these goals.

MEDICATIONS YOU MUST KNOW IF YOU PRACTICE PEDIATRIC DENTISTRY

Prof. Ivana Čuković-Bagić*
Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine; Dental Clinic, Clinical Hospital Centre Zagreb, Zagreb, Croatia

Various conditions in the oral cavity may involve both hard and soft tissues. To help patients, particularly in acute painful situations, it is often necessary not only to perform dental procedures but also to prescribe appropriate medication. This lecture will present the most common conditions encountered in the pediatric and adolescent population, as well as the main categories of drugs used, with specific dosages for children and adolescents.

Six categories of medications will be covered: analgesics, systemic antibiotics, antimicrobial agents, antifungal drugs for candidiasis, antiviral medications, and topical corticosteroids. Knowing how to select and understand the effects of these drugs is an essential prerequisite for achieving optimal treatment outcomes and relieving the painful condition that brought the patient to the clinic.

PROCEDURES FOR THE PREVENTION OF COMPLICATIONS AFTER TRAUMATIC DENTAL INJURIES

Prof. Domagoj Glavina*
Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine; Dental Clinic, Clinical Hospital Centre Zagreb, Zagreb, Croatia

Traumatic injuries of primary teeth can result in damage to the developing permanent tooth buds. The most common complications range from mild forms, such as hypoplastic defects of the permanent crown, to severe forms, including crown and root dilacerations. Preventive procedures include guiding occlusal development to reduce deep bite and incisal step as risk factors.

Tooth avulsion represents the most severe form of traumatic dental injury affecting the tooth and supporting structures. Emergency management involves rapid replantation

and minimizing the extraoral time of the traumatized tooth outside the alveolus. Complications, such as loss of vitality and root resorption, occur at a very high rate. Prevention can be achieved by using both improvised and specialized storage media to preserve the tissue.

The classical approach to managing resorptive processes involves the application of calcium hydroxide ($Ca(OH)_2$) paste. In addition to calcium hydroxide, several strategies exist for the prevention and treatment of resorptive processes, including the use of silicate cements such as MTA and Biodentine, as well as the potential application of blood-derived products such as platelet-rich fibrin (PRF).

ORAL HUMAN PAPILLOMAVIRUS INFECTION

Prof. Nataša Ivančić Jokić*
Department of Paediatric Dentistry, Faculty of Dental medicine University of Rijeka; Clinical Hospital Center Rijeka, Croatia

Human papillomavirus (HPV) infection is the most common sexually transmitted disease worldwide, and the majority of sexually active individuals are exposed to HPV at some point. The incidence of HPV infection is correlated with the onset of sexual activity and is highest among individuals up to 25 years of age. However, certain mucosal types of HPV have been detected in infants and children in both oral and genital mucosa, suggesting non-sexual modes of transmission.

Possible mechanisms of non-sexual transmission include vertical transmission (from mother to child during birth) and horizontal transmission within families. Studies show a strong association between the mother's oral HPV status and the likelihood of persistent HPV infection in the child.

Vaccination against HPV is the most effective primary prevention measure, reducing the risk of developing cancer as well as other disease manifestations. Dental professionals, including dentists, dental hygienists, and other members of the dental team, can play an important role in patient education, prevention, and promotion of vaccination. Given the frequency of dental visits, the dental setting may provide a favorable environment for discussing this topic. Additionally, maintaining good oral health can help mitigate risk and reduce the likelihood of infection.

MOLAR–INCISOR HYPOMINERALIZATION: MOST COMMON CLINICAL PROBLEMS, PREVENTION, AND TREATMENT

Prof. Kristina Goršeta*
Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine; Dental Clinic, Clinical Hospital Centre Zagreb, Zagreb, Croatia

Molar–incisor hypomineralization (MIH) is a developmental disorder characterized by enamel defects on molars and incisors, leading to aesthetic, functional, and psychological challenges for affected individuals. Clinically, MIH may present as white opacities, brown discolorations, or atypical enamel wear, increasing the risk of caries and hypersensitivity.

The etiology of MIH remains multifactorial, with potential links to environmental factors, systemic conditions, and genetic predispositions. Effective preventive strategies focus on early diagnosis, public awareness, and optimal prenatal and postnatal care.

Treatment options range from restorative techniques, such as sealants and fillings, to advanced interventions, including crowns for severe cases. A multidisciplinary approach is essential for effective management of MIH, ensuring that both immediate dental needs and long-term oral health outcomes of patients are addressed.

APPLICATION OF SEDATION TECHNIQUES IN HOSPITALIZED PEDIATRIC PATIENTS

Prof. Tomislav Škrinjarić*
Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine; Dental Clinic, Clinical Hospital Centre Zagreb, Zagreb, Croatia

For some hospitalized pediatric patients, oral complications may weaken them to the point that they can tolerate only minimal therapy, delay planned treatment, or even interrupt oncological treatment entirely. Oral complications can also lead to serious systemic infections. Medically necessary oral care before, during, and after oncological treatment can prevent or reduce the frequency and severity of oral complications, improving both patient survival and quality of life.

Given the importance of providing painless dental treatment for children, the need for sedation in pediatric dentistry has increased. Pediatric dentists should be aware that sedation exists on a continuum. The difference between conscious and deep sedation lies in the level of required monitoring and the responsibility of the dentist. Three standard sedation techniques are used in dentistry (inhalation, oral, and intravenous), which can be applied to the majority of patients. The chosen technique must be carefully applied to ensure the most appropriate form of anxiety relief for each patient.

A MODERN APPROACH TO COMPREHENSIVE DENTAL CARE FOR THE PEDIATRIC PATIENT – SECOND EDITION

Prof. Danko Bakarčić*
Department of Paediatric Dentistry, Faculty of Dental medicine University of Rijeka; Clinical Hospital Center Rijeka, Croatia

I delivered a lecture on this topic at the same congress 10 years ago, and considering the rapid advances in the field and science, the question "what's new?" often arises in pediatric dental care. It is time for an updated "refresh" of the information. This lecture is designed to present novelties or confirm established practices in pediatric dentistry by addressing several of the most frequently asked questions.

REGENERATIVE ENDODONTIC PROCEDURES IN PEDIATRIC DENTISTRY – RADIOGRAPHIC ANALYSIS

Dr. Petra Bučević Sojčić*
Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia

In recent years, regenerative endodontic treatments (RETs) have been proposed as an alternative to apexification techniques. RETs rely on the ability of residual pulp, apical, and periodontal stem cells to differentiate. Stimulated bleeding from the periapex allows these cells to colonize the available pulp space, forming highly vascularized connective tissue in which newly formed odontoblasts, osteoblasts, and/or cementoblasts differentiate. These cells induce hard tissue deposition, promoting apex development and root maturation (root growth and dentin wall thickening).

Key differences from conventional endodontic therapy include: copious irrigation of the root canal without mechanical instrumentation, use of a double-antibiotic paste, induced periapical bleeding into the root canal, and covering the blood clot with a bioactive material, usually MTA or Biodentine, in the cervical third of the root canal. Radiographic follow-up is conducted at 1-, 3-, 6-, and 12-months post-procedure. RETs demonstrate very high success rates in treating immature permanent non-vital teeth, especially in cases of complications following dental trauma, making them an effective and sustainable treatment option.

DENTAL ANXIETY IN CHILDREN

Walter Dukić[1*], Lucija Koturić Čabraja[2]
[1] *School of Dental Medicine, University of Zagreb, Croatia*
[2] *Private Dental Practice dr. Lapaš-Barišić, Zagreb, Croatia*

Aim. Dental anxiety and fear in children undergoing dental treatment not only led to treatment failure but also to the transfer of dental anxiety into later adulthood, which results in a vicious cycle and avoidance of dental procedures. This all leads to reduced oral health care as well as a public health problem. The purpose of this study is to analyse the prevalence of dental anxiety in children, with emphasis in Croatia and compare this data with other countries as well as global data. It's important to clarify the individual factors and variables that influence the increased level of dental anxiety in children. Materials and Methods. Analysis of published papers from the past 10 years that used various tests to assess dental anxiety in children. Conclusions. Dental fear and anxiety is a common problem in children, and shows a high prevalence globally, around 25%-30%. We can conclude that the crucial factors that influence dental anxiety are the child's age, gender, previous caries experiences, cultural factors, and the influence of parents on children. The results showed that a high dmft index and children who do not visit the dentist regularly are associated with dental anxiety, therefore clinicians should pay special attention to this age group in terms of quality dental prevention and family education. When interpreting the results, caution is needed due to the inconsistency and heterogeneity between the models, therefore additional research is needed continuously to analyse the individual factors that can lead to a decrease in the prevalence of dental anxiety in children.

Keywords: Children; Dental anxiety; Prevalence; Systematic review; Dental fear.

Poster presentations

1. MINIMALLY INVASIVE AESTHETIC MANAGEMENT OF MIH-RELATED POST-ERUPTIVE ENAMEL BREAKDOWN OF A MAXILLARY CENTRAL INCISOR IN AN 8-YEAR-OLD: A CASE REPORT

Jakov Stojanović[1]*, Petra Bučević Sojčić[2], Hrvoje Jurić[2,3]
[1] *Private Dental Practice, Zagreb, Croatia*
[2] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[3] *University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Zagreb, Croatia*

Objectives: To carry out a minimally invasive aesthetic protocol for anterior teeth affected by Molar Incisor Hypomineralisation (MIH) with post-eruptive enamel breakdown and dentine exposure in an 8-year-old, balancing tissue preservation and pulpal safety. Subjects and procedures: An 8-year-old girl presented with a MIH affected maxillary central incisor (tooth 11), exhibiting demarcated brown opacities and post-eruptive enamel breakdown with dentin exposure. Considering the immature incisor, resin infiltration (ICON) was deemed relatively aggressive due to repeated acid etching and deep resin penetration, with potential pulpal irritation. A minimally invasive approach was selected. The affected enamel was lightly abraded with a rubber polisher; 37% orthophosphoric acid was applied three times for 60 seconds each. A slurry prepared from zinc-phosphate cement (Harvard cement) mixed with the same acid was applied with a polishing cup for microabrasion and to mask discolorations. The surface was thoroughly rinsed, re-etched to remove any residues, and an adhesive was applied. A direct composite build-up was placed on the tooth 11 without removal of sound tooth structure, then finished, polished, and adjusted in occlusion. Results: Immediate improvement in anterior aesthetics and sealing of exposed dentine were achieved. At delivery, the patient reported no symptoms, and both parent and child expressed high satisfaction with the appearance. No adverse events were observed during the appointment. Conclusion: In MIH-affected incisors with post-eruptive enamel breakdown, sequential phosphoric acid microabrasion using a zinc-phosphate slurry followed by adhesive composite build-ups, can provide rapid, conservative, and child-friendly aesthetic rehabilitation while preserving tooth vitality.
Keywords: Molar Hypomineralisation; Incisor; Enamel Microabrasion; Composite Resins

2. EFFECT OF LOW-PH FLUIDS ON THE DEGRADATION OF GLASS IONOMER CEMENTS

Marijeta Brezetić[1], Sven Gojsović[2], Kristina Gorseta[3,4]
[1] *Private Dental Clinic, Karlovac, Croatia*
[2] *Department of Fixed Prosthodontics, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[3] *Department of Pediatric Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[4] *University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Zagreb, Croatia*

Objectives. The aim of this study was to evaluate the potential of two low-pH aqueous media to induce degradation of glass-ionomer cement (GIC) specimens prepared with different surface protection and thermo-curing protocols. Materials and Methods. A total of 72 specimens of encapsulated Ketac Universal Aplicap (shade A2) were prepared using four protocols: chemical curing, thermo-curing, protective varnish application, and combined varnish with thermo-curing. Each specimen was immersed daily for 2 hours in either an energy drink (Hell) or 10% lactic acid for a period of 10 days, and stored in artificial saliva between exposures. Mass was measured at baseline and after 10 days of immersion. Data were analyzed using one-way ANOVA with Tukey post-hoc testing at a significance level of $p < 0.05$. Results. Both low-pH media caused progressive mass loss over time. Lactic acid demonstrated the highest degradative potential, followed by the energy drink ($p<0.05$). Specimens protected with varnish showed significantly higher resistance to degradation, especially when combined with thermo-curing. Chemically cured, unprotected specimens exhibited the highest susceptibility to acidic dissolution. Conclusion. Low-pH fluids increase the degradation of GICs over time, with lactic acid showing the highest erosive effect. Surface protection and thermo-curing significantly enhance the material´s resistance to acid challenge. Clinically, the use of surface protection and appropriate dietary counselling may help extend the longevity of GIC restorations.
No external funding.
Keywords: Glass Ionomer Cements; Acidic Erosion; Lactic Acid; Thermo-Curing; Protective Coating

3. INTERDISCIPLINARY TREATMENT OF PERIODONTITS AND TRAUMATIC OCCLUSION IN A PATIENT WITH DOWN SYNDROME

Lucija Kuštra[1,2*], Marko Jakovac[3], Domagoj Vražić[4], Kristina Goršeta[5,6]
[1] *Resident of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, and University Hospital Centre Zagreb, Croatia*
[2] *Postgraduate doctoral study program, University of Zagreb School of Dental Medicine, Croatia*
[3] *Department of Fixed Prosthetics, University of Zagreb School of Dental Medicine, Croatia*
[4] *Department of Periodontology, University of Zagreb School of Dental Medicine, Croatia*
[5] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Croatia;*
[6] *University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Croatia*

Introduction: Down syndrome (trisomy 21) is a chromosomal anomaly that manifests itself with intellectual disabilities, characteristic phenotypic features and numerous systemic and oral manifestations. Common oral anomalies include hypodontia, microdontia, macroglossia, mouth breathing, delayed tooth eruption, bruxism and an increased susceptibility to periodontal disease.
Case report: An interdisciplinary approach to the treatment of a 27-year-old female patient with Down syndrome diagnosed with periodontitis and bruxism causing traumatic occlusion is presented. Due to frequent nocturnal oral bleeding and mobility of the upper right primary canine, an orthopantomogram was performed in July 2024 and the problematic tooth was extracted. Over the following months, bruxism increased, resulting in increased mobility of the upper right incisors. Class III occlusion further aggravated the traumatic load on the anterior teeth. The periodontal pocket between the central and lateral incisors was 8 mm deep and a targeted X-ray showed an inflammatory process in the area of the central incisor. After endodontic treatment of the upper right central incisor, periodontitis therapy was initiated in February 2025, which is carried out every three months. In September 2025, a new orthopantomogram and prosthetic rehabilitation plan were created. In one visit, under local anesthesia, teeth 14, 21 and 22 were minimally ground, teeth 11 and 12 were extracted, and a digital impression was taken with an intraoral scanner and the bite was registered. A temporary PMMA bridge from 14 to 22 with custom occlusion was fabricated and cemented to avoid upper and lower frontal contact.
Conclusion: An interdisciplinary approach successfully stabilized the periodontal status and stopped bruxism. Currently, the generalized periodontitis is under control, and the occlusal trauma has been eliminated. This case highlights the importance of coordinated interdisciplinary cooperation in the therapy of complex oral manifestations in people with Down syndrome.
Keywords: Bruxism; Down syndrome; Occlusion; Periodontits; Tooth

4. HUTCHINSON-LIKE INCISORS AND MULBERRY MOLARS IN AN EIGHT-YEAR-OLD PATIENT WITHOUT SYPHILITIC ETIOLOGY – A CASE REPORT

Maja Zečević Čulina[1], Karla Mužinić[2], Ivana Čuković-Bagić[3,4]
[1] *Resident at University Hospital Centre Zagreb, Department of Pediatric Dentistry, Croatia*
[2] *Dental Polyclinic Split, Split, Croatia*
[3] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia;*
[4] *University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Croatia*

Objective: To present an unusual case of Hutchinson-like incisors and Fournier's mulberry molars in a child without congenital syphilis, and to emphasize the diagnostic challenges posed by enamel defects that mimic classical syphilitic stigmata. Subjects and procedures: An eight-year-old boy was referred to the Department of Pediatric and Preventive Dentistry, University Hospital Centre Zagreb, due to atypical morphology of his permanent incisors. Clinical examination revealed teeth resembling Hutchinson's incisors as well as Fournier's mulberry molars. From the medical history, it is noted that the patient presents with alopecia, pitting nails, and clubbed fingers. In infancy, the patient also experienced transient combined immunodeficiency associated with cytomegalovirus infection, along with several systemic complications such as thrombosis, bacteriemia, and a perianal fistula. Despite these characteristic findings, serological tests for congenital syphilis were negative, and both medical and family history excluded prenatal infection or known syndromic conditions.
Comprehensive genetic testing of 642 genes did not identify a pathogenic mutation explaining the dental phenotype. However, a heterozygous FLG variant, a known

mutation associated with ichthyosis vulgaris, and a heterozygous FERMT variant of uncertain significance were detected, though neither correlated with the observed dental anomalies. No similar dental findings were reported among family members. To improve function and aesthetics, the morphologically altered maxillary and mandibular permanent central incisors were restored and reshaped using composite fillings. The mulberry molars, due to existing carious lesions and multiple sites predisposed to caries, were also restored with composite fillings.
Conclusion: This appears to be the first reported case of Hutchinson-like incisors and one of the rare descriptions of Fournier's mulberry molars occurring independently of congenital syphilis. The case highlights the need for caution when interpreting dental anomalies traditionally considered pathognomonic for syphilis. It also suggests that disrupted local development, immune dysregulation, or underlying genetic predisposition may contribute to enamel defects that closely resemble classical signs of congenital syphilis.
Key words: Hutchinson's teeth; Congenital syphilis; Molar; Tooth abnormalities

5. TOOTH ERUPTION DISTURBANCES IN CHILDREN RECEVING BIPHOSPHONATE THERAPY - A CASE REPORT

Dora Rebeka Divković[1*], Marko Granić[2,3]
[1]*Public health center Velika, Požega, Croatia*
[2] *Department of Oral Surgery, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[3] *University Hospital Centre Zagreb, Department of Oral Surgery, Zagreb, Croatia*

Introduction
Bisphosphonate therapy is commonly used to treat bone disorders, but it has also been associated with various adverse side effects, including impaired bone remodelling. This is particularly significant in children, where active bone remodelling is critical for tooth eruption. Pediatric patients undergoing bisphosphonate therapy can notably have a heightened risk of eruption disturbances.
Case presentation
In January 2022, a 7-year-old female patient with a two-year history of juvenile dermatomyositis was admitted to the University Hospital Centre Zagreb (Rebro). Given the progression of her condition, therapy with infliximab, and zolendronic acid was started. The treatment schedule included the administration of these drugs at weeks zero, two, and six, followed by treatment every four to eight weeks.
The patient developed orofacial side effects caused by bisphosphonate therapy. In 2023, she was readmitted to University Hospital Centre Zagreb with multiple impacted teeth. Clinical and radiological exams showed retained teeth (12, 11, 21, 22), due to persistent primary teeth (52, 51, 61, 62). Dental extraction was scheduled under local anesthesia (Articaine 4%, 1.7 ml) two months after the administration of the last zoledronic dose, with antibiotic prophylaxis starting two days before procedure.
Conclusion
Delayed tooth eruption is an emerging concern in children undergoing bisphosphonate therapy. Clinical reports and observational studies have suggested a correlation between bisphosphonate exposure and disturbances in tooth eruption, particularly when therapy is initiated at a young age or administered at higher cumulative doses. Regular dental assessments should be integrated into the multidisciplinary care of children receiving bisphosphonate therapy.
Keywords: Bisphosphonates; Pediatric; Tooth eruption

6. REGENERATIVE TREATMENT AFTER FAILED ENDODONTIC THERAPY – A CASE REPORT

Jasna Peručić Vučak[1], Karla Mužinić[2], Petra Bučević Sojčić[3], Hrvoje Jurić[3,4]
[1] *Dental Polyclinic Zagreb, Zagreb, Croatia*
[2] *Dental Polyclinic Split, Split, Croatia*
[3] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[4] *University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Zagreb, Croatia*

Objectives: Endodontic treatment of immature permanent teeth presents a particular challenge due to their underdeveloped root structure, wide apical opening, and thin dentinal walls. Such teeth are more susceptible to pulpal infections and traumatic injuries; therefore, it is essential to use treatment approaches that support continued root development.
Materials and Methods: This paper presents a comparison of two regenerative protocols: standard revascularization, in which an intracanal blood clot is induced and MTA is placed, and a modified platelet-rich fibrin (PRF)-assisted protocol, in which bleeding is induced, PRF is applied, MTA is omitted, and a glass ionomer cement is used as the coronal seal. A clinical case involving the revascularization of a maxillary permanent incisor in a young patient demonstrates the effectiveness of this approach. The use of materials such as mineral trioxide aggregate enabled successful infection elimination, ensured adequate canal sealing, and stimulated regeneration of pulp tissue alongside continued root maturation. The protocol applied in this case included minimal instrumentation, canal disinfection, and stimulation of periapical cells responsible for restoring pulpal function.
Results: The findings indicate that standard revascularization is highly effective in the treatment of immature permanent teeth and provides superior clinical outcomes compared with traditional apexification or modified platelet-rich fibrin techniques.
Conclusion: Standard revascularization has proven to be the most effective approach for treating immature permanent teeth. Although both techniques aim to regenerate pulp and preserve tooth vitality, standard revascularization yields more favorable therapeutic outcomes due to its well-defined protocol and lower likelihood of procedural deviations.
Keywords: immature permanent tooth; revascularization; regenerative endodontics

7. SPORTS MOUTHGUARDS IN PEDIATRIC DENTISTRY

Nikša Čutura[1*], Tomislav Škrinjarić[2,3]
[1] *University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[2] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*
[3]*University Hospital Centre Zagreb, Department of Pediatric and Preventive Dentistry, Zagreb, Croatia*

Objectives:
To summarize current evidence on the role, indications and effectiveness of sports mouthguards in preventing orofacial injuries in children and adolescents.
Materials and Methods:
This narrative review synthesizes data from authoritative literature on dental trauma and sports-related injury prevention, focusing on the types, characteristics and clinical recommendations for mouthguard use in pediatric populations.
Results:
Sports-related orofacial injuries are common among children, with the maxillary incisors most frequently affected. Evidence consistently shows that properly fitted custom-made mouthguards provide superior protection, retention and comfort compared with boil-and-bite and stock devices. Their use reduces the risk and severity of crown fractures, luxations, avulsions and soft-tissue injuries. Despite demonstrated efficacy, compliance remains low due to cost, comfort concerns and limited mandates across sports. Pediatric dentists play crucial role in identifying at-risk patients, modifying risk factors such as increased overjet and promoting appropriate mouthguard selection and routine use.
Conclusion:
Sports mouthguards remain a cornerstone of orofacial injury prevention in young athletes. Custom-made appliances offer the highest level of protection and improved education of parents, coaches and children is essential to increase adherence. Early orthodontic evaluation and regular dental follow-up further enhance preventive outcomes in pediatric patients engaged in sports.
Keywords: Mouthguards; Wounds and injuries; Athletic injuries; Pediatric Dentistry; Tooth injuries

8. IMPLANT-PROSTHETIC REHABILITATION OF A PATIENT WITH EPILEPSY UNDER GENERAL ANESTHESIA

Bagarić J.[1,2], Verzak Ž.[1,2], Karlović Z.[1,2]
[1]*University Hospital Centre Zagreb, Department of Pediatric Dentistry, Zagreb, Croatia*
[2] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*

Introduction: Epilepsy is a chronic neurological disorder characterized by recurrent epileptic seizures, which may lead to injuries due to loss of consciousness and uncontrolled movements. Dental trauma during seizures represents a common complication, particularly in patients with additional developmental and neurological impairments.
Case report: A sixteen-year-old female patient with epileptic encephalopathy, psychomotor delay, autism, and nonverbal status sustained a fracture of tooth 21 involving both the crown and the root during an epileptic seizure accompanied by loss of consciousness. The fractured fragment was extracted by the primary dentist. Due to pharmacoresistant epilepsy and a high risk of aspiration, a temporary removable prosthesis was not considered appropriate, while the patient's age represented a contraindication for definitive fixed prosthetic rehabilitation. Therefore, the initial therapeutic approach focused on psychological adaptation to dental procedures and regular prophylactic care. By the time the patient reached adulthood, gradual improvement in seizure control was achieved, allowing for implant-prosthetic rehabilitation under general anesthesia.

Following radiological assessment (periapical radiograph, CBCT), a 4.0/10 implant was placed during the first surgical procedure, and impressions with intermaxillary registration were taken. During the second surgical procedure, gingivectomy was performed, a prosthetic abutment was placed, and a definitive crown was permanently cemented. The patient remains under regular outpatient dental and psychological follow-up.
Discussion: Treatment planning in patients with developmental disabilities and pharmacoresistant epilepsy requires an individualized, multidisciplinary approach. The risk of aspiration, limited cooperation, and age-related contraindications significantly restrict therapeutic options. Timely planning, patient adaptation, and close collaboration with relevant medical specialists are essential for safe and successful rehabilitation.
Conclusion: This case highlights the importance of an individualized, multidisciplinary approach in the dental care of patients with complex neurological and developmental comorbidities. Implant-prosthetic rehabilitation at an appropriate time, combined with careful planning and psychological preparation, can result in successful functional and esthetic outcomes.

9. ICON RESIN INFILTRATION AS A MINIMALLY INVASIVE TREATMENT FOR MOLAR–INCISOR HYPOMINERALIZATION DEFECTS: A CASE REPORT

Karla Mužinić[1], Jasna Peručić Vučak[2], Sarah Turjanski[3], Petra Bučević Sojčić[4]
[1] *Dental Polyclinic Split, Split, Croatia*
[2] *Dental Polyclinic Zagreb, Zagreb, Croatia*
[3] *Polyclinic IMED, Zagreb, Croatia*
[4] *Department of Pediatric and Preventive Dentistry, University of Zagreb School of Dental Medicine, Zagreb, Croatia*

Objective: Molar incisive hypomineralization (MIH) is an enamel defect that affects at least one first permanent molar and often the incisors. Affected teeth contain clearly demarcated enamel opacities that vary in color from white to yellow or brownish with or without hypoplastic changes. Such changes in the front teeth have a functional and aesthetic impact on the patient, negatively affecting self-confidence and quality of life. Enamel opacity observed in MIH defects is an optical phenomenon resulting from the difference in refractive index (RI) between healthy and affected enamel. When infiltrating the porosity with the low-viscosity resin ICON Infiltrant (DMG, Hamburg, Germany), the opacity of the defect changes to a color similar to the surrounding enamel, thereby concealing the defect. The aim of this case is to demonstrate the therapy of defects caused by MIH using ICON resin.
Materials and procedures: In patients A i B, only the ICON procedure (DMG, Hamburg, Germany) was used, which includes the application of 15% hydrochloric acid, ethanol and ICON low-viscosity resin. In patient C, a combination of the ICON procedure and composite resin was used (3M Filtek Supreme A2 liquid composite, 3M ESPE Filtek UD and A2 rigid composites).
Case report: Patient A aged 17, Patient B aged 15 and Patient C aged 12, came to the Department of Pediatric and Preventive Dentistry for the repair of hypomineralization changes on the upper incisors. In patients A and B, only the ICON procedure was performed, while in patient C, a combination of the ICON procedure and composite restoration was used. In all the cases, an improvement in the aesthetic appearance of the affected teeth was achieved.
Conclusion: ICON infiltration resin is a minimally invasive method that effectively improves the appearance of teeth affected by molar incisive hypomineralization. The procedure enables aesthetic restoration without significant removal of healthy tooth tissue. In combination with a composite restoration, an additional improvement of the aesthetic result and patient satisfaction can be achieved. Future research could further confirm the long-term effectiveness and aesthetic stability of this therapy.
Key words: molar incisor hypomineralization; ICON procedure; composite restoration