

*Conference proceedings***3rd INTERNATIONAL CONGRESS OF
CROATIAN SOCIETY OF ORTHODONTICS,
SPLIT, OCTOBER 6th-8th, 2016****ETHICS IN BIOMEDICINE: FORENSIC ASPECTS**

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Under pressure from the rapid development of science and high technology expert witness is required to operate in an ethical and professional terms, and to work on the continuous training and education. He is also invited to build his professional reputation and contribute to the reputation of the profession, but above all he has a duty to keep his personal moral integrity on high level, which is condition to be a better scientist and primarily, a moral human being that has a power to reveal a truth.

Abstract

An important characteristic of forensics is the fact that it is interdisciplinary. Among other things, it is a place where the law and medicine meet. This is especially evident in the forensic expertise. As an expert witness, physician is bound at least with two sets of code of ethics that he need to follow during forensic processing of the case assigned to him and after that, especially in court. These codes do not necessarily coincide, indeed, sometimes they exclude each other. Besides this, in the context of ethical reflection in the field of forensic expertise occur many other (ethical) issues that needs to be taken into the consideration: the power and value of the scientific evidence, the security of scientific results, ethics of used scientific methods, the impact of scientific research and expertise on society and individuals (especially the victims), conflict of conscience and professional duties, the impact of external factors (media, dominant ideology, political pressures and other things) on scientific research and expertise, exposure of the expert witness to the public, the differences in interpretation of the evidence with colleagues, communication barriers and more.

Physician who is also a court expert, in addition to knowing the both sets of ethics rules is in a position to improve the dialogue between legal and biomedical sciences in favor of truth and justice as the fundamental ethical values and in that way contribute to the quality and credibility of expertise.

ALVEOLAR BONE REMODELING CAUSED BY ORTHODONTIC EXTRUSION – A CASE REPORT

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Abstract

Aim: to examine the effect of orthodontic teeth extrusion on the height and width of alveolar bone and the dimension of the interdental septum.

Case report: A 24-year-old female patient received orthodontic treatment. The fixed appliance was used to extrude the upper right canine. Two CBCT radiographs of the upper right canine were performed (S-field, high resolution): the first one before the treatment and second one during the treatment when the extrusion was completed, 15 months after the first one. The patient was treated with a fixed appliance in the straight wire technique, with the extraction of both upper bicuspid.

Parameters measured on both radiograms: the height and width of the buccal bone, the vertical movement of the extruded tooth as well as the height and width of interdental septum mesial and distal of extruded tooth.

Results: The difference in values on two radiograms showed that the extrusion caused some changes in the alveolar bone of the extruded tooth.

Conclusion: Modern dentistry strives to minimally invasive treatments and methods that provide tissue regeneration. This report shows the significance and potential of orthodontic extrusion in periodontal tissue regeneration and dental implant site development.

BIBLIOMETRIC ANALYSIS OF THE PUBLICATIONS IN SCIENCE CITATION INDEX-EXPANDED ORTHODONTIC JOURNALS

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Abstract

Aim: To analyze the types of articles, authorship, origin and affiliation characteristics of six orthodontic journals [three journals indexed by Science Citation Index (SCI) – American Journal of Orthodontics and Dentofacial Orthopedics (AJODO), The Angle Orthodontist (AO), and European Journal of Orthodontics (EJO) – and the others indexed by Science Citation Index Expanded (SCIE) – Australian Orthodontic Journal (AOJ), Orthodontics & Craniofacial Research (OCR), Korean Journal of Orthodontics (KJO)] during 2 intervals of 5 years each (2006-2010 and 2011-2015).

Materials and methods: Article type, the number of authors, main affiliation (referring to the first author's affiliation), the number of affiliations and geographic origin of each article were analyzed. Descriptive statistics were performed, and the results were analyzed with the Pearson Chi-square for independence at the .05 level of significance.

Results: For each journal, differences were identified between the two-time intervals. Among all groups, research-type articles were the most published in SCI journals in the first period. In the second interval, the research component of articles decreased in SCI journals but did not show a significant difference in SCIE journals. The percentages of articles with the author of more than 4 increased in both SCI and SCIE journals in the second interval. In both periods and both journal types, the contributions of articles from Asia and Oceania were statistically higher than articles from the United States/Canada, European Union and non-European Union countries.

Conclusions: This study, providing information about the articles in science citation index-expanded orthodontic journals, is one of the limited bibliometric studies and reveals the quantitative profile of these journals regarding the article types and authorship characteristics.

ALLERGY IN DENTAL MEDICINEDolores Biočina-Lukenda ^{1,2}

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Abstract

Allergy reactions of the oral mucosa comprise an array of clinical manifestations. Some of the reactions are difficult to differentiate from toxic reactions. Allergy reactions of type I, type III, and type IV are well known, although, especially for types II and III, they are rarely encountered. Type-I reactions are most frequently seen related to application of polymers in the oral cavity, such as orthodontic bonding and fissure sealant materials. There may also be systemic manifestations such as urticaria. Type-IV reactions may be seen related to most dental materials used, from amalgam and gold to polymers. These reactions appear as chronic reddening and/or ulceration of the oral mucosa. Lichenoid reactions have histopathological characteristics compatible with type-IV allergy reactions and are the most prevalent material-adverse reactions seen in the oral cavity. A special variety inside the lips with multiple papules and/or diffuse redness has recently been identified. This lesion comprises a serious treatment challenge. Recent advances have been made in characterizing the more prevalent allergens on oral mucosa, such as methacrylates, natural rubber latex (NRL) proteins, rubber glove chemicals and disinfectants. This improved understanding has clearly enhanced the success, particularly for type I NRL allergies. New and existing research on the immunological pathogenesis of allergies may still yield better diagnostic, treatment and management strategies. Skin patch tests, applying a series of dental materials in non-toxic concentrations on the skin, have been used to identify sensitization. However, the value of those tests can be questioned. Although obvious advances have been made in characterizing dental allergens and understanding potential exposure, improved diagnostic and management techniques are still needed. Corticosteroid therapy is all too often the only treatment.

**ENDODONTIC- ORTODONTIC RELATIONSHIP:
ANSWER THE QUESTION DRILL, FILL AND MOVE
OR MOVE, FILL AND DRILL**

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Abstract

It is well known that exists close relationship between endodontics and ortodontics during treatment planning decisions, as well as after the ortodontic therapy. In the clinical management of the tooth, there are lot of situations that require endodontic therapy before and during ortodontic treatment.

Ortodontic treatment has also, in addition to its benefits, complications and risks associated with its procedures. This includes some problems in relationship with endodontic and periapical tissue. The relationship ranges from effects on the pulp (pulp necrosis, calcifications and tooth discolorations), root resorption during tooth movement to enamel decalcification. The most frequent and undesirable complications are external and cervical root resorption.

The aim of this presentation is to provide a theoretical review and clinical cases on the root resorptions and other complications of ortodontic therapy with the undesirable effect to a endodontic tissue.

TIPS 4 TAD'S

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Abstract

Correction of Class II malocclusion is one of the most common problem in orthodontics and regard about one-third of the treated patients. Whereas in a case of mandibular retrusion is preferred to use appliances that can stimulate mandibular growth, in a case of dento-alveolar protrusion or minus skeletal discrepancies the choice is often directed to distalization devices. Conventional headgear has been successful in correcting Class II malocclusion, either by restraining the forward growth of the maxilla or by distalizing maxillary molars. In patients with inadequate cooperation reaching Class I occlusion by using it is difficult and this is the reason why clinicians often prefer intraoral distalizing appliance that minimizes the need for patient compliance. The technologic progress in orthodontics, associated with the improved knowledge of the biomechanics principles, allowed to conceive and plan a new class of orthodontic devices, no compliance and characterized by a high control of teeth movement. The lecture will cover several aspects of low compliance technique for the management of Class II molar relationship. Besides a literature overview, anatomical aspects as well bio-mechanical ones will be discussed. A large number of clinical cases will be presented and different strategies will be discussed.

OLD PROBLEMS & NEW SOLUTIONS: THE ROLE OF CBCT IN ASSOCIATION WITH BREATH-DISORDERS

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Abstract

The human nasal airway has a variety of physiological functions. Probably the most important is to provide oxygen-rich air to the lungs during inspiration cycle and to remove carbon dioxide during the expiration cycle. Moreover, airway contributes to the overall facial development. Children who switch back to

nose breathing showed correction of several cephalometrics indicators. RME is known to improve nasal airway ventilation. However, it is difficult to precisely value the improvement with conventional methods. The purposes of this lecture are:

- A) to use CBCT and computational fluid dynamic models to estimate the effect of RME on the nasal airflow;
- B) to understand if there is any difference between different types of expanders on the upper airway resistances;
- C) to value the short and medium term effects of RME on the upper airway resistances;

During the lecture will be highlighted the role of CBCT and 3D reconstructions in association with the computational fluid dynamics (CFD). Moreover, CFD will be analyzed in order to detect the improvement of the nasal airway ventilation generated by the expansion. Differences between different expanders will be discussed according to the different RME bonded on "E" or "6" for the airway resistance modifications.

FUNCTIONAL TREATMENT FOR CLASS II MALOCCLUSION: NEW PERSPECTIVES ON GROWTH INDICATORS

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Abstract

Current evidence has shown that functional treatment for skeletal Class II malocclusion, irrespective of the used fixed or removable appliances, may be effective with clinically relevant skeletal effects if performed during the pubertal growth phase. While growth indicators have a primary role in the identification of the pubertal growth phase in individual patients, these indicators also suffer limitations regarding reliability, repeatability or invasiveness. A logical combination use of several indicators in individual patients may be useful in the proper identification of the different growth phase making the treatment more efficient.

TEMPORARY PROSTHODONTIC APPLIANCES - TYPES AND PRODUCTION METHODS

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Abstract

The lecture will focus on the latest techniques and materials used in temporization procedures in prosthetic dentistry, from direct chairside methods, temporary tooth replacements by inlay or adhesive bridge, application of glass-fiber materials in single-tooth temporization, production of partial temporary removable dentures, to temporization in implant prosthodontics. Materials' choice and techniques will be presented in detail. Specifics of implant-borne temporary crown production and modification in a creation of proper soft tissue emergence profile, including materials and techniques will also be demonstrated and explained in detail.

SIMULTANEOUS RETRACTION AND INTRUSION IN THE SEGMENTED ARCHWIRE APPROACH

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Abstract

Aim: To simultaneously retract and intrude upper incisors with a segmented arch wire approach and to evaluate its effect on the dentoalveolar structures. The efficiency of the retraction force between the NiTi closed coil spring and power chain was also compared.

Materials and methods: Twenty-four subjects with severe overbites and Class II division II malocclusion were selected for the study. Each subject had the two upper first premolars extracted. The straight

wire technique (SWA) was used for the retraction of upper canines. The intrusion of the upper canines and incisors was performed with the segmented archwire technique, and a symmetrical extraction space of at least 3 mm was present distal to the lateral incisors. The subjects were divided into two groups: a coil spring group and a power chain group with 12 patients each. Both, the closed coil spring and power chain were applied from the second molar hook to the distal extensions of the anterior sectional archwire which ended 3 mm below and behind the center of resistance (CR) of the upper incisors. The initial retraction force was 150 g per side. At the same time, intrusion cantilever arms were applied from the auxiliary first molar tube to the distal extensions of anterior sectional arch wire 3 mm anterior to the CR of the upper incisors to produce the intrusive force of 80 g per side. To examine the type of movement of the anterior and posterior teeth and the time and rate of space closure, 13 parameters were measured and evaluated statistically with Wilcoxon and Mann-Whitney U-tests.

Results: In both groups a significant retraction of upper incisors was observed ($P < 0.01$) without a significant mesial movement of the buccal segments. Distal movement of the root apex of the incisors was noted in both groups but was more pronounced in the coil spring group ($P < 0.01$). The retraction time was faster in the coil spring group (1.10 mm for four weeks) compared with the power chain group (0.92 mm for four weeks). A retraction force applied under the CR and intrusive force applied in front of the CR of the upper incisors produced a resultant translatory force which enabled controlled backward movement of the upper incisors.

Conclusion: Three-dimensional controlled movement of upper incisors can be obtained by simultaneous retraction and intrusion mechanisms as a part of three piece base arch system.

OBSTRUCTIVE SLEEP APNEA AND ITS MANAGEMENT

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Abstract

Sleep apnea is a sleep disorder characterized by repeated pauses in breathing during sleep, in association with alterations in blood oxygenation and sleep fragmentation. At least 4% of the men and 2% of the women suffer from sleep apnea. About half

of patients with sleep apnea are obese, have a neck circumference of more than 43cm (in men), snore very heavily and suffer from excessive sleepiness. Other risk factors for OSA are: metabolic syndrome, arterial hypertension, diabetes, arrhythmia and congestive heart disease. OSA is an independent risk factor for ischemic stroke.

The most effective treatment in severe cases of sleep apnea is a breathing device, commonly known as CPAP (Continuous Positive Airway Pressure), via a mask that is used while sleeping. This treatment is very efficient in the majority of cases and resolves most of the symptoms within the first weeks of treatment. However, other treatment options are ENT and maxillofacial surgery and different oral appliances. Many minimally invasive procedures to treat snoring are currently under evaluation. Weight loss improves symptoms and morbidity in all patients with obesity, and bariatric surgery is an option in severe obesity. A multidisciplinary approach is necessary for an accurate management of the disease.

KNOWING BIOLOGY OF ORTHODONTIC TOOTH MOVEMENT IS ONE OF THE KEY ELEMENTS FOR SUCCESSFUL TREATMENT OF MEDICALLY COMPROMISED PATIENTS

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Abstract

Orthodontic tooth movement (OTM) is one of the key processes of the successful treatment performed on the patients. The patients with systemic diseases are frequently treated in our offices. Not only adults, but also there is an important number of medically compromised children and adolescents also being on drug therapy. It is well known that there is a strong correlation between oral and general health and between processes in the body and oral cavity. The processes going on in the body also influences the mechanisms of OTM. Knowing the pathological and pathophysiological processes are very important to plan and to perform optimal orthodontic treatment without unwanted side effects on the teeth and surrounding tissues which are involved in OTM. The other factor which is also in correlation with successful orthodontic treatment is a huge biological

variety among orthodontic patients. These are the reasons to continue research in the field of biology of OTM in normal and pathological conditions and also to get knowledge in some basic mechanisms to be able to perform an excellence in orthodontics. Applying a force to the tooth leads to different biological responses in PDL and alveolar bone which result in bone modeling and soft tissue remodeling. Adjusting the bone response which is the key process of OTM to orthodontic force depends on the normal functioning of osteoblastic and osteoclast genes that express proteins necessary in the respective amounts of time and the right places. Using force to liberate many mediators, systemic and local factors, including cytokines, which play an important role in the mechanism of moving the teeth.

The lecture will focus on different clinically significant biological mechanisms during bone modeling of OTM and on some medical problems which can influence the processes of OTM (diabetes mellitus, allergies, etc.).

DISE - DRUG INDUCED SEDATION ENDOSCOPY

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Abstract

Drug-induced sedation endoscopy (DISE) was first described in 1991 and today represents one of the basic diagnostic procedures in the treatment of patients with obstructive sleep apnea (OSA). The current literature and our experience have shown that DISE is a reliable diagnostic procedure, easy to perform and safe for the patient. The patient is sedated with continuous intravenous administration of propofol and mandatory brain activity monitoring. During endoscopy location of the obstruction, mechanism and degree of obstruction are observed. The most common are multilevel obstruction, whereas circular mechanism of obstruction is associated with a more severe form of OSA. DISE significantly impact the planning of surgical therapy and success of surgical treatment. The modified mandibular maneuver during DISE simulate treatment with mandibular advancement splint (MAS) and MAS can be used during DISE to correct the treatment. Therefore, DISE represents one of the basic diagnostic procedures, not only before the surgery but also before conservative treatment of patients with OSA.

OBSTRUCTIVE SLEEP APNEA SYNDROME, DIAGNOSTIC AND THERAPEUTICAL APPROACHES

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Abstract

Our understanding of the brain control of breathing and awareness of the widespread prevalence of obstructive sleep apnea syndrome (OSAS) both increased in the last decade or two. The link between the two is poorly understood. There is growing evidence that OSAS contributes to the initiation and progression of hypertension, heart failure, cardiac ischemia, stroke and cognitive decline. Chronic sympathetic activation resulting in elevated sympathetic nerve activity and cardio-respiratory sensitivity to hypoxia appears to be important. Still, the exact mechanisms underlying the link between OSAS and cardiovascular and neurophysiologic disturbances are not fully understood. Whole-night polysomnographic (PSG) recordings, performed by the trained somnologists and sleep technologists, in accordance to the standard guidelines published by the European Sleep Research Society and the American Academy of Sleep Medicine, is a diagnostic gold standard for sleep disorders including sleep disordered breathing. PSG includes EEG, electrooculography (EOG), EMG, ECG, pulse oxymetry, airflow and nasal pressure, the respiratory movements of chest and abdominal muscles. All recordings have to be visually checked and the final scoring is done by the licensed somnologist. Due to limited human resources and sleep lab capacities, the reduced diagnostic method called cardio-respiratory polygraphy was introduced and proved to be useful diagnostic tool for OSAS patients.

The longitudinal therapeutic effects of the gold standard therapy in OSAS, such as the overnight use of continuous positive airway pressure (CPAP) devices, have been extensively studied in the last several years.

Recently, the clinical use of mandibular advancement devices (MAD) for the treatment of OSAS patients has remarkably increased. Recent studies provided strong evidences on positive effects of MAD therapy in patients with mild to moderate OSAS on long-term cognitive and psychomotor performance, particularly in the domain of perceptive abilities, operative thinking and psychomotor reaction times, as well as excessive daytime sleepiness and quality of life.

A CLINICAL PROTOCOL FOR ORTHODONTIC TREATMENT OF PATIENTS WITH JUVENILE IDIOPATHIC ARTHRITIS

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Abstract

Introduction: Juvenile idiopathic arthritis (JIA) is one of the most common chronic diseases in childhood (1/1000 children), that can involve the temporomandibular joint (TMJ), consequently affect craniofacial growth, jaw function creating discomfort and pain. As TMJ arthritis is often clinically silent, MRI with contrast enhancement has been considered to be the most reliable method to assess early signs of inflammation. From the orthodontic aspect, the TMJ arthritis may cause significant limitations in sagittal and vertical mandibular growth, conditionally resulting in severe micrognathia and anterior open bites with strong esthetic and functional restrictions. Therefore, an early TMJ diagnosis in children with JIA is important in order to prevent a negative effect on the TMJs.

Case report: In the present paper, the case of 14 years old girl who were given a diagnosis of juvenile rheumatoid arthritis is presented. Based on the orthodontic treatment protocol of juvenile idiopathic arthritis patients performed at the Department of Orthodontics, School of Dental Medicine, University of Sarajevo.

INFECTION IN DENTAL MEDICINE, CAN BE PREVENTED: YES OR NO?

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Abstract

As the 21st century is marked by infectious disease and therefore by different infectious agents, daily risk of infection evens in dental medicine and therefore in orthodontics are also present. The most common etiologic agents of infection in the oral cavity are of the genus Streptococcus, Staphylococci and Pseudomonas in immuno at immunocompromised patients, while Mycobacterium is rare findings. The most common etiologic cause, separated from the group of viruses are hepatitis B, C, HIV, herpes viruses, and group of viruses that cause respiratory infections. In a world of increased number of immunocompromised diseases, patients who are immunosuppressed, and misuse of antibiotic therapy, fungi as noxae must not be forgotten. All preventive measures should be based primarily on the mode of transmission either by direct contact with blood, saliva or other secretions, or by indirect transfer through contaminated surfaces or instruments and aerosols.

SHEAR BOND STRENGTH OF DIFFERENT ORTHODONTIC BONDING MATERIALS

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Abstract

Introduction: The goal of this research was to determine the effect of the blood contamination on the bond strength of orthodontic attachments and tooth.

Materials and methods: This research was conducted on 120 extracted human premolars with preserved vestibular surface. The sample was classified into six experimental groups based on used adhesives, and the presence of blood contamination on the etched surface. As an attachment, we used circular shape attachment with chain, 4 mm diameter and a reticulate meshed base.

Results: Three different adhesive materials showed no statistically significant difference in the bonding strength between enamel and attachment, in both cases - within the group without contamination as well as within the group containing contamination of blood enamel.

Conclusion: There is no statistically significant difference in the bonding strength between the enamel and attachment which would be caused by a type of adhesive used in this study.

Key words: Blood contamination, shear bond strength, orthodontic attachment.

MANUAL VS. COMPUTERIZED CEPHALOMETRIC ANALYSIS - A COMPARATIVE STUDY

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Abstract

Introduction: The Steiner analysis, developed and promoted by Cecil Steiner in 1950s, can be considered the first of the modern cephalometric. Steiner analysis consists of skeletal, dental and soft tissue analysis. Use of computer programs to analyze the lateral cephalograms is very popular, both for research and for clinical use. The objective of this study is to conduct a comparative analysis between manual and computerized tracings using specific software, to define intra-observer results of Steiner analysis.

Materials and methods: The study was conducted on lateral cephalograms of 20 subjects, orthodontic patients. The lateral cephalograms were analyzed by two observers, who each performed the manual and computerized tracings by computer software (AxCeph Cephalometric X-ray Analysis Software, AUDAX, Slovenia). The following angular parameters were analyzed on lateral cephalograms: SNA, SNB, ANB and UI:NA. Spearman's correlation at the level of $p < 0.05$ was used.

Results: The results of this study indicates that most of the variables show consistency between manual and computerized tracing with high correlations between them (that is statistically significant), except for UI:NA angle where low correlations between manual and computerized tracing were noticed.

Conclusion: The differences seem to be caused by the challenging landmark identification. Maxillary incisor inclination may be subject to easiest landmark identification error that can contribute to the discrepancies in a cephalometric analysis. The precision in landmark identification on the computer screen is simplified and can be enlarged, filtered and enhanced for easier viewing. More research on this subject may be required.

MYOFUNCTIONAL STORY - STEP BY STEP TO SUCCESSFUL EFFECTS

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Abstract

Aim: To present the influence of myofunctional appliances as pre-orthodontic treatment, in order to achieve adequate functional occlusion and to correct jaw relationship, in subjects with early mixed dentition and with the presence of myofunctional dysfunctions and bad habits.

Materials and methods: The treatment of patients with a dysfunctional influence of the forces of the soft tissue structures and myofunctional habits, aged from 6-9 years, with different types of malocclusion is presented in this study. Patients were treated at the Clinic for Orthodontics in Skopje, using different passive myofunctional appliances: Trainer T4K and Myobrace K1 and K2 appliances were used for correction of crowding and jaw discrepancies with malocclusion Class II, whereas Myobrace (interceptive class III) I-3 appliance was used for mild Class III or pseudo Class III malocclusion. Patients were given proper instructions: to wear the appliances exactly one hour per day, and during their sleep overnight. Regular check-ups with intraoral and extraoral photos are mandatory for this treatment.

Results: By implementation of myofunctional appliances, correction or reduction in maxillary incisors protrusion and overjet reduction in class II, “edge-to-edge” incisor position in class III, as well as optimal jaw alignment and noticeably improved facial profile for the whole sample of subjects, are just a few of the positive results of the pre-orthodontic treatment, that may prevent surgical intervention in the future.

Conclusion: Bad oral habits and oral dysfunctions in children with mixed dentition, may develop future severe forms of malocclusion. Proper identifying of soft tissue dysfunction and proper treatment of these problems enables better performed a myofunctional

orthodontic treatment. By establishing muscular balance, and eliminating oral dysfunctions, these myofunctional appliances are remarkable tools that offer the greatest benefits for the patients in the most effective way. Patient’s motivation is essential for great success of the myofunctional therapy.

EVALUATION OF MASTICATORY EFFICIENCY IN CLASS II

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Abstract

Aim: To evaluate the masticatory efficiency, by performing a specific masticatory task, in subjects with class I and class II, and to determine the differences in masticatory efficiency between them.

Materials and methods: Studies were performed in 60 subjects classified into 3 groups: Group 1 (n=30) subjects with neutroclulsion (Class I) and without pathological changes of the other elements of the masticatory system (control group), Group 2 (n=30) subjects with malocclusion Class II division 1, and Group 3 (n=30) was represented by subjects with malocclusion Class II division 2. Subjective evaluation was made by unstandardized questionnaire, specially designed for this study, while the objective evaluation was performed by bilateral superficial electromyography. The bioelectric potentials of the masticatory masseteric muscles were registered, during time-limited mastication performance of real middle-hard test food (walnut=2.0 gr), so this method was called electromyomasticatiography. The masticatory efficiency of the subjects was evaluated by parameters - the automatic habitual chewing rate (AHcr) and the index of asymmetry.

Results: The tests have shown that the parameter AHcr (automatic habitual chewing rate) has significant differences in every single test. This means that there are significant differences in the mastication efficiency between genders, as well as between Angle classes of malocclusion. According to the assessed asymmetry, the

whole sample of subjects generally, shows right orientation, which stands in addition to the unilateral type of mastication. If the analysis is not assessed according to gender, class II/1 masticates with the highest number of chewing strikes/sec, followed by Class II/2, and eventually, class I masticates with the lowest number of chewing strikes/sec. The obtained results from this research were performed with application of an objective, precise method, electromyomasticography (graphic recording), in which the subjective factor has not been present, so all of the tests were performed with the same treatment, and by its importance are uniformed.

Conclusion: Based on this study results the Angle classification which was primarily based on the morphological characteristics, also shows differences in the main function of the masticatory system-mastication. It was confirmed that there are significant differences in the masticatory efficiency between class I, class II/1 and Class II/2.

DO WE PAY FOR NOT READING ENOUGH?

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Abstract

Self-ligating brackets (SLB) have been publicized to be more efficient and effective than conventional brackets. Besides shorter chair and treatment time, better hygiene, less pain and friction, decreased need for orthodontic extractions have been SLB's most compelling advantages.

In order to investigate whether claims related to superior performance of SLB are substantiated in scientific literature, as well as in everyday practice, two different researches were done. After online search on electronic databases, review articles and meta analysis comparing SLB to conventional brackets written in English were selected. From the patients' records at the Department of Orthodontics, School of Dental Medicine in Belgrade, Serbia example patients that will support various claims about SLB or conventional brackets were singled out. According to the results from highest ranked researches, superior performance of SLB compared to conventional brackets could not be confirmed. On the other hand, it was realized that almost any claim could be supported by or rejected with patient example.

Based on the results of our research it can be concluded that in evidence based orthodontics, the type of brackets (SLB vs conventional brackets) should not have any influence on treatment type decision.

AESTHETIC CONSIDERATIONS IN ORTHODONTICS

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Abstract

Aristotle said, "Beauty is a greater recommendation than any letter of introduction". A statement that is true nowadays where attractive people have a much better chance of being successful. Aesthetic concerns continue to remain at the forefront for a significant segment of patients seeking orthodontic treatment. Orthodontists can greatly contribute to enhancing patient's smile, appearance, and subsequently self-confidence. Appearance is undoubtedly the most important motivating factor for orthodontic patients whether it is termed "facial appearance", "dental appearance" or "straight teeth". 'Dental aesthetics' is defined by the way things are perceived visually. The role of the orthodontist in resolving the patient's dental and facial aesthetic concerns is a challenge due to the number of factors to be evaluated. The effect of growth and aging and the existing dental, gingival, dentoalveolar, skeletal, and facial soft tissue components mandate a thorough investigation into all treatment options and modalities available to reach optimal aesthetic goals. The orthodontist is further challenged with professional bias and patient bias and desires. Improvement in appearance is the primary reason that adults seek orthodontic care. Proper recognition of the dental and facial aesthetic defects at the outset of treatment is the most important key to aesthetic success and is, therefore, essential to satisfying the patients' needs. For the adult patient, optimizing treatment involves an interdisciplinary approach necessary to evaluate, diagnose, and resolve aesthetic problems using a combination of orthodontic, endodontic, periodontic and prosthodontic treatment. With proper planning, the challenge of reaching dental and facial aesthetic goals can be met without compromising the functional occlusal goals, periodontal health, TMJ health, and long-term stability. This presentation outlines the adjunctive protocols in orthodontics to enhance aesthetics post orthodontic treatment.

UNILATERAL MANDIBULAR CONDYLE NECK FRACTURE, TREATMENT COMPLICATIONS AND INTERDISCIPLINARY COLLABORATIONS

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Abstract

Objectives: Emphasizing the importance of interdisciplinary collaboration in condyle neck fracture treatment planning.

Background: The incidence of condyle fractures is very high and treatment still remains controversial. Treatment options depend on the age of the patient, the co-existence of other fractures, level of displacement, the state of dentition and occlusion and whether the fracture is unilateral or bilateral. Condyle neck fracture can cause long-term complications such as malocclusion, particularly open bite, reduced posterior facial height, and facial asymmetry in addition to chronic pain and reduced mouth opening.

Case report: A 35-year-old woman presented with fracture of the left condyle, luxation of tooth 11, lacerations and contusions of the right cheek, upper lip and chin and contusion of wrists caused by a bicycle accident. The patient was treated with intermaxillary fixation using bone screws for 20 days. After intermaxillary fixation removal, patient showed facial asymmetry, reduced mouth opening, malocclusion and gingival recessions that were not present before trauma. During the few months after the accident teeth 11, 12, 13, 14, 15 and 16 presented with pulp necrosis and were treated endodontically. BSSO was recommended for occlusion and facial asymmetry correction. The patient refused further surgery because of previous surgical complications. She is currently being treated with aligners to correct malocclusion.

Conclusion: Condyle neck fracture treatment and its success depend on multiple factors. Interdisciplinary collaboration with dental specialists could reduce treatment complications and accelerate the recovery.

AGREEMENT OF SCHEMATIC AND DIRECT VIEWING TECHNIQUES FOR CERVICAL VERTEBRAL MATURATION ASSESSMENT

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Abstract

Introduction: Assessment of biological age based on the stage of maturation of cervical vertebra is a method which has wider use in orthodontic clinical practice. The ideal time to start orthodontic therapy is one of the most important factors in determining the plan of treatment, especially in cases with skeletal abnormalities. It's proven that success of functional therapy is highest in the period of the most intense growth of craniofacial structures. Since Lamparski (1972), Hassel and Farman (1995), and Baccetti (2002) until today many methods of evaluation of biological age by observing the cervical vertebra have been developed. The goal of this research is to determine whether there are deviations in an assessment of the stage of maturation of cervical vertebra by specialists-beginner, based on the analysis of LCG scans of orthodontic patients in Sarajevo Faculty of Dentistry.

Materials and methods: the study was conducted on 20 LCG scans of orthodontic patients in Sarajevo School of Dental Medicine. CVM is evaluated based on Baccetti's methods: without the schematic representation during the evaluation of the stage (two different examiners), with schematic display during the assessment of the stage (two different examiners) and also as a follow-up (one examiner has conducted the assessment of the scans with and without schematic representation, within the 24 hours). The results were statistically processed with the Spearman's rho test.

Conclusion: Based on the statistical analysis deviations haven't been established in the CVM assessment between the tested parameters ($R=0,9814$; $R=0,90286$, $R=0,96912$). Nonetheless, it has been observed that there is divergence during the assessment of certain stages, so we believe that further researches with a bigger sample are needed.

LATERAL INCISOR AND CANINE IMPACTION IS THERE CORRELATION?

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Abstract

Aim: of this study was to determine the potential link between the impaction of upper canines and mesiodistal diameter of upper lateral incisors in order to identify patients who are at high risk for canine impaction.

Materials and methods: The study was conducted at the Department of Orthodontics, Faculty of Dentistry in Sarajevo. A total 29 patients in the age range of 14 to 18 years who had at least one impacted maxillary canine were included for the study. The control sample consisted of models of patients with complete permanent dentition (n = 300).The maxillary lateral incisor diameter and nature of canine impactions were diagnosed from the radiographs and study models. The diameter was measured on the models with manual venire caliper. The single sample t-test (one way) was used for statistical analysis.

Results: The results have shown that there is no significant difference between the right and the left maxillary incisor, but the descriptive statistics showed that there is a tendency of a difference in the mesiodistal width of the maxillary incisors.

Conclusion: The limitation of this study is a number of cases, and there is evidence that we need more simlira studies with larger sample to clarify this matter.

CONTEMPORARY ORTHODONTIC TREATMENT OF THE IMPACTED TEETH

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Abstract

The impacted teeth are always a challenge for an orthodontist and they require an interdisciplinary cooperation with an oral surgeon. The greatest number of impacted teeth is attributed to the mandibular wisdom teeth, followed by the maxillary canine, the mandibular second premolars, and the maxillary central incisors. The causes of the tooth impaction are crowding, trauma, root dilacerations, odontoma, cyst, supernumerary tooth or a mesiodens.

Although the incidence of impacted mandibular wisdom teeth in the population is 72%, only a small percentage enters directly into the orthodontic therapy. The maxillary canines are teeth the most often extracted by an orthodontic-surgical therapy. According to the researches, two thirds of them are palataly impacted, and one third are labial. Of all premolar impactions, the mandibular second premolar is impacted the most often. In most cases, maxillary and mandibular premolars are impacted in the middle of the alveolus, palatally or lingually, while buccal impactions are very rare. The impaction in the middle of alveolus cannot be clinically palpated. It is also important to mention the maxillary central incisor impactions which are most commonly caused by supernumerary teeth or a mesiodens. A very important diagnostic tool for all impactions is undoubtedly CBCT (Cone Beam Computed Tomography). The impacted tooth topic is very wide and encompasses incidence, diagnostics, prevention and therapy. The purpose of this lecture is to present the results of the impacted tooth incidence research in comparison with global bibliography as well as the therapeutic approach with an overview of the specificities and advantages of biomechanics of the self-ligating systems.

THE ROLE OF HYOID BONE POSITION TREATING PATIENTS WITH SEVERE NASOPHARYNGEAL OBSTRUCTION

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Abstract

The hyoid bone is unique bone in the human body with no articulation but suspended in the soft tissue by ligaments and muscles. The position of the hyoid bone changes with head posture, body position, and another physiological movement during various oral functions in close relation with tongue activity. The aim of this presentation will be addressed to main problems facing patients with nasopharyngeal obstruction. Investigation was performed to demonstrate the effects of impaired nasal breathing on head posture, position of the hyoid bone and the tongue, and mandibular growth direction. Also to estimate the relationship between head posture, hyoid bone position and airway dimension. The skeletal measurements performed on lateral cephalograms included horizontal and vertical measurements of the hyoid bone position, airway dimensions, cranio-cervical angulations, gonial and basal plane angle, MP-OcP/MP-PP ratio and the slope of the occlusal plane.

Significantly increased gonial and basal plane angle, and the slope of the occlusal plane and higher inclination of the mandibular plane in investigated mouth breathers group indicated the hyper divergent vertical growth with clockwise rotation. A steeper PP/MP angle, also palate-tongue distance showed a positive correlation with an increased cranio-cervical angulation. Postural changes of the head are positively correlated with a more inferior posture of the hyoid bone and the tongue. The distance between the hyoid bone and the lower mandible border could be a sensitive morphological indicator. Compensatory activity associated with a low hyoid bone position in those patients work to maintain the patency of the pharyngeal airway.

Patients could be treated with the rapid expansion during the period of growth modification. Very useful appliance in those patients is mandibular advancement device, to fix the mandible in an anterior position with the aim of decreasing airway collapsibility. Determination of the hyoid bone and the tongue position in children with impaired naso-respiratory function can be used in the therapeutic and prognostic evaluation.

OCCLUSION AND ORTHODONTIC THERAPY

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Abstract

"Occlusion is not everything but without occlusion everything is nothing." Patients with malocclusions frequently function normally and retain their dentition without problems. Strong correlations between occlusal factors and mandibular dysfunction are still controversial. However, signs and symptoms of craniomandibular disorders appear to be prevalent in children as well as in adults. Work in the developmental aspects of these disorders has to be done. Orthodontic therapy seems unable to prevent TMD or resolve these problems. Generally, it does not cause or predispose patients to develop TMD. If painful symptoms arise during treatment, it may be necessary to modify active treatment. Occlusal equilibration must be carried out with very much caution.

COMPARISON OF CHRONOLOGICAL AND DENTAL AGE ESTIMATED BY THE METHOD ACCORDING TO CAMERIERE

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Abstract

Introduction: After mandibular third molars, the maxillary canines are the second most commonly impacted teeth. Palatal impaction is more often than buccal. Canines are the very important for correct occlusion, as well as functional and esthetics. Impacted canines are those with a delayed eruption time or that are not

expected to erupt completely based on the clinical and radiographic assessment. The orthodontist treating patients with palatally impacted canines usually strives to build a complex treatment plan, based on orthodontic and surgical techniques.

Case report: The patient was a female 12.7 years old. Clinical, orthopantomographic (OPT) and CBCT examinations show that both upper canines were impacted in palatal position. Lateral cephalogram shows skeletal Class I, retrusion of upper and lower incisors and horizontal growth of the face and study model analyze shows contact of lateral incisors and first premolar in the upper dental arch and lower arch dental crowding.

Result: Orthodontic treatment included fixed appliances whit extraction of first left lower premolar. Surgical exposure was performed during orthodontic treatment. During the 2.5 years of therapy both canines were aligned in the right position in the dental arch with Class I occlusion.

Conclusion: Good patient's age, the position of canines, orthodontic and surgical treatment enable proper canines alignment in the dental arch.

ORTHODONTIC TREATMENT OF UPPER IMPACTED CANINES - A CASE REPORT

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Abstract

Introduction: After mandibular third molars, the maxillary canines are the second most commonly impacted teeth. Palatal impaction is more often than buccal. Canines are the very important for correct occlusion, as well as functional and esthetics. Impacted canines are those with a delayed eruption time or that are not expected to erupt completely based on the clinical and radiographic assessment. The orthodontist treating patients with palatally impacted canines usually strives to build a complex treatment plan, based on orthodontic and surgical techniques.

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Conclusion: Good patient's age, the position of canines, orthodontic and surgical treatment enable proper canines alignment in the dental arch.

CIVIL LIABILITY OF DOCTORS OF DENTAL MEDICINE

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Abstract

Compensation for non-pecuniary damage is regulated by the Obligations Act, in force since 01 August 2015. "Everyone is obliged to abstain from the procedures which may cause damage to other persons." In case of personality and human rights violation (right to life, physical and mental health, reputation, honor), the court shall, if it considers that severity of the violation and the circumstances of the case justify so, award a just monetary compensation, independent of any material damage, even when one does not exist. When deciding on the compensation rate, the court shall take the severity and duration of physical pain, mental pain, fear and the aim of the fee into account. Furthermore, it will ensure that the aim does not favor the aspirations incompatible with its nature and social purpose. Litigation on deciding the reimbursement payment is often preceded by the criminal prosecution of the defendants, where the medical expert is regularly required to explain the health violations suffered by the injured party (finding) and to indicate the cause and the eventual consequences of the adverse event (opinion).

We will show examples of criminal and civil proceedings against a doctor of dental medicine. Special focus will be paid to the common question on the court: "has the defendant acted according to professional standards."

PSYCHOSOCIAL IMPACT OF MALOCCLUSION IN ADOLESCENTS FROM MACEDONIA

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Abstract

Introduction: The perception of the patient is an important indicator of the need for treatment and complements conventional clinical measurements. The assessment of treatment requires the integration of multiple dimensions of health care, improving the quality of life and self-image associated with pleasure from his body, the effectiveness of intervention and evaluation of the benefit / harm of same.

Aims: Determination of the adolescents level of dental self-confidence, social impact of dental appearance, the psychological impact of dental appearance, aesthetic aspects of dental appearance. *Materials and methods:* 295 students, aged 16-19 years participated. The Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ) was used. SPSS for Windows 17,0, Chi-square test with Yates correction and no, t- test for independent samples, Mann-Whitney U test, Kruskal-Wallis test, Analysis of Variance, Linear Regression Analysis) were used for statistical analysis.

Results: Respondents aged 16 to 20 years. Macedonians with 95.6% of respondents in the structure dominated by ethnicity. 37.3% of respondents were male and 62.7% females. The total score of PIDAQ ranged from 1 to 67, and average was $29 \pm 9,84$. The Cronbach 's Alpha coefficient for the total is 0.74. The average score of DS was $16,36 \pm 6,09$; for SI was $5,29 \pm 4,56$; PI = $5,29 \pm 4,56$; AC = $2,51 \pm 3,37$. The value of Cronbach 's Alpha coefficient varied from DSC =0.937; SI =0.857; PI =0.798; AC =0.919.

Conclusion: Our version of PIDAQ demonstrated structure and internal consistency similar to the original. We confirmed the impact of dental self-confidence, aesthetic aspects, psychological and social impact of malocclusion on the daily life of adolescents. PIDAQ meets the criteria of a good instrument manifesting factorial stability through a specimen consistency of scales and criteria regarding the validity. It could be used when distinguishing perspectives and values of the therapist and the patient and documenting the benefits of orthodontic treatment in the discussions of public health policies.

(REJECTING) HELP REJECTING COMPLAINER

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Abstract

Although frequently encountered in daily practice, the data about so-called difficult patients are relatively sparse, even in psychiatric literature. One type of difficult patients, help-rejecting complainer (HRC), was described by J. Frank in 1952. HRC presents numerous, often ill-defined and in surmountable complaints. She/he stubbornly rejects offered solutions, frequently sabotages therapeutic process and changes therapists. She/he is even proud of the degree of difficulty of his/her problem(s). The described pattern of relationships is usually not established just with the therapist, but with the entire environment. The physicians view these patients as demanding, frustrating, they often elicit negative emotions, thus creating a vicious circle. The difficult patient can represent a major clinical challenge, and the therapeutic process often fails. This type of patients is encountered in every medical specialty and often remains unrecognized. Other than mutual frustration, therapeutic failure may also have forensic consequences. Therefore, it is important not only to recognize, understand and name the feelings of the patient but also therapist's own feelings, attitudes, and limitations, to provide some chance for a favorable outcome of the therapeutic process.

DOS AND DON'TS IN CLASS III ADULT AND ADOLESCENT TREATMENT*

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Abstract

Class III malocclusion has a prevalence of approximately 1% in white populations but it may reach up to 15% in Orientals. When treatment in the adolescent or adult age is sought, it usually consists -especially in more severe cases - of a combination of orthodontics and orthognathic surgery. In milder cases camouflage treatment that implements a combination of extractions is usually suggested. The aim of this presentation is to show how to treat Class III cases without resorting to any of the above solutions but rather using the advantages of the Damon System to produce results that are very difficult to achieve with conventional methods. Various types of Class III malocclusions will be defined and the “dos and donts” depending on this classification, will be explained.

*sponsored lecture

HOW MANY ORTHODONTIC TREATMENT HAS THE EFFECT ON FACIAL AESTHETICS?

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Abstract

In the past, the occlusion was the primary objective of orthodontic treatment with aesthetic playing only a secondary role. All too often, attention is directed toward reconstructing the dentition for function and an existing malocclusion without regard for aesthetic appearance and facial imbalance. Now days the aesthetic outcome is critical for patient satisfaction and enhance self-image. For centuries, artists and physicians alike have tried to quantify the ideal proportion of the face. These attempts continue to this day without the success in it. Beauty criteria are highly subjective, reflecting the races of mankind, cultural peculiarities of a population, the region where they live and a determined period of time. For esthetics in orthodontics the practitioner needs to consider more than just tooth shade and contour and it is a significant error to attempt to put everyone in to the same aesthetic framework.

In adolescents' patients with complete dentitions, orthodontic treatment objectives tend to be idealistic. Idealistic treatment objectives might not be appropriate for some adults. It might be more appropriate to create realistic.

In some orthodontic case esthetic be considered a multidiscipline service encouraging cooperation among orthodontist and a few specialists. Orofacial beauty is a combination of oral and facial attractiveness.

Through diagnosis, the professional must try to identify the unpleasant facial characteristics which can be improved with the orthodontic treatment and considering the ethnical and personal characteristics of the patient, trying to use the same esthetic evaluation parameters of the patient and the society in which he belongs.

TREATMENT TIMING CAN'T READ MY POKER FACE

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Abstract

Orthodontic treatment can be carried in different stages of occlusal development. Early orthodontic treatment (treatment in the period of deciduous and early mixed dentition); Later orthodontic treatment (treatment in the period of early permanent dentition); Adult orthodontic treatment (treatment in adult patients, late permanent dentition). The primary principle of good clinical practice is not to harm the patient; all the treatment procedures need to be undertaken in other to have significant benefits and very low risks and burdens. Preventive measures and early orthodontic treatment have long been the focus of orthodontic treatment, but sometimes early orthodontic treatment can lead to unintended consequences such as the withdrawal of patient treatment, long duration of therapy, etc. Research confirms that in some cases if the treatment is started later, e.g., in the post-adolescent, patients may develop psychosocial problems caused by non-aesthetic appearance due to present orthodontic anomalies. On the other side in case of skeletal anomalies, we need to postpone treatment until the end of the growth and development of the patient.

To assess the optimal time for orthodontic treatment, can we use some parameters that can help us? Are there scientific facts on which we can relay? Or can it be that there is no such timing like the ideal time for orthodontic treatment?

PATTERN AND AMOUNT OF CHANGE OF UPPER FRONT TEETH AFTER RETENTION WITH A BONDED RETAINER FOLLOW-UP ONE TO SEVEN YEARS POSTRETENTION

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Abstract

Objectives: To investigate the amount and pattern of relapse of maxillary front teeth previously retained with a bonded retainer for two to four years. Which teeth are more prone to relapse? Is there any difference in behavior between contact point displacement and rotation? What is the magnitude of the relapse in short-term and long-term?

Materials and methods: The study group originally consisted of 45 patients, and 27 patients on recall for the second study. Recordings from study models before treatment (T1), at debonding (T2), one year after removal of the retainer (T3) and seven years postretention (T4) were present. All patients had been treated with fixed edgewise appliances by the same operator. The irregularity index (sum of contact point displacement [CPD]), and rotations of front teeth in relation to the Raphe line and intercanine distance, were calculated at T1, T2, T3 and T4.

Results: The irregularity index of the maxillary front teeth changed very little or not at all during the first year postretention. Further changes long-term resulted in an irregularity index of mean 2.0 mm (range 0.0-5.8). The contact relationship between the laterals and centrals seems to be the most critical. Forty rotated teeth in 21 patients were corrected more than 20°. Mean relapse during the first year postretention was 6.7 degrees (range 0.0-14.7). Mean changes during seven years were 8.2 degrees (range 0.0-19.3).

Conclusions: Minor or no relapse in short-term follow-up (one year). Further, small relapses occurred long-term i.e. at mean seven years postretention. There was a strong correlation between irregularity one and seven years postretention. There was a significant positive correlation between the amount of correction of incisor rotation and the magnitude of relapse. Laterals are more prone to relapse.

MINI IMPLANT APPLICATION IN ORTHODONTIC TREATMENT

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Abstract

Orthodontic mini implants are widely accepted in contemporary orthodontic practice. They are made of titanium alloy, might be of different sizes in length and width, as well as the shape of the head. They are set in the bone using relatively simple procedure and serve to move individual or groups of teeth during orthodontic treatment. The main role of orthodontic mini-implants is to provide temporary skeletal anchorage. Due to the stability of the anchorage, the tooth movement is predictable and more efficient concerning orthodontic treatment when the teeth are applied as a most commonly used anchorage.

The most important aspect of any orthodontic treatment has the desired maximum movement (teeth, jaws) with minimal unwanted side effects. There are two basic forms of absolute anchorage: direct (when the active segment produced directly from the mini implant) and indirect (when the active segment produced from a reactive moiety which is fixed to the mini implant to enhance the anchorage). The main purpose of the use of mini implants is the fact that they represent absolutely - skeletal anchorage. For this reason, there are numerous indications for their use of artificial order for both dental and skeletal displacements, particularly in complex cases, as well as in cases with potential loss of anchorage and disabling the most favorable outcome of orthodontic treatment. Space closure is one of the most common indications for setting orthodontic mini implants. Mini implants represent a safe anchorage for closing the space in unilateral missing posterior mandibular teeth, especially in patients where the reciprocal anchorage led to the loss of the middle shift. Due to the possibility of double load, the bicortical mini implant has shown particular efficiency.

THE EVALUATION OF NURHAT ELECTRONIC TRACKING HEAD PAD SYSTEM

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Abstract

Objective: To evaluate the Nurhat Electronic Tracking Head Pad System designed for objective determination of extra oral appliance wear time and regularity.

Material and methods: Nurhat Electronic Tracking Head Pad System has six main parts. These parts are the body, lateral arm fixer, median arm fixer, hole, cover, and sensor. The sensor was inserted into the hole, and cover was placed. Ten petit type reverse pull headgears; ten delaire type reverse pull headgears, a device that simulates the human forehead, and new system was used in the study. The system was connected to reverse pull headgears and tested under laboratory conditions. Reverse pull headgears with new system were attached through the planned time on the human forehead simulating device. After the experiment, the data of new system was analyzed.

Results: The system was connected and used with both types of reverse pull headgears successfully. The system worked well and followed the usage time and regularity. The system stored total usage time, daily usage time and regularity of usage. The data of system provide accurate information about the reverse pull headgear wear. The power and memory of the system are enough for orthodontic practice.

Conclusions: Nurhat Electronic Tracking Head Pad System is a successful device while following reverse pull headgear wear under laboratory conditions.

CLASS II AND TMD TREATMENT WITH TWIN BLOCK APPLIANCE IN ADOLESCENTS: A CASE REPORT

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Abstract

Introduction: Symptoms of temporomandibular joint dysfunction (TMD) such as pain, clicking and limitations could appear in adolescents. Despite the presence of malocclusion, these symptoms, and parafunctional activity during the night, are the main reasons why parents are searching for medical help.

Aim: The aim of this case report is to present successful treatment of Class II division 2 with symptoms of TMD.

Case report: In 14-year-old boy clinical examination and cast analysis revealed Class II division 2. with TMD. Parent described parafunctional activity during the night in a case history. Cephalometric analysis showed skeletal class II with retrognathic mandible, horizontal growth pattern and retro inclinations of the upper incisors. The patient was in CS4 stage based on cervical vertebral maturation (CVM) method. Treatment started with a removable appliance for upper incisors protrusion and then continued with Twin-block appliance. Pain relief started during the first month of functional treatment.

Results: Class I occlusion with overjet of 3mm was obtained after 18 months of treatment with good patient compliance. During treatment symptoms of TMD and parafunctional activity, have disappeared. The patient continued to wear appliance during night in next six months as a retention.

Conclusion: With good patient compliance it is possible to successfully treat moderate cases of Class II and to eliminate early symptoms of TMD.

BOOST YOUR CLINICAL PRACTICE USING SCIENTIFIC EVIDENCE

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Abstract

Evidence Based Medicine is a systematic approach to answering clinical questions in an evidence-based manner to provide patients with the appropriate treatment. When seeking answers to specific clinical questions in medicine and orthodontics, different research designs are available. These designs differ concerning the risk of error and bias in their results. Some research designs provide a higher level of evidence than that provided by others. According to the hierarchy of evidence, Systematic Reviews (SRs) and Meta-Analyses (MAs) are considered as providing the highest level of evidence, because conclusions are made by combining the results of other types of studies presenting already strong evidence, such as the Randomized Controlled Trials (RCTs). Orthodontic literature uses many forms of evidence, including RCTs, SRs and MAs. However, SRs and MAs investigating orthodontic related subjects are very few in comparison to medical literature, while also many of these studies are associated with methodological flaws or drawbacks that diminish their quality. Consequently, only a few topics in clinical orthodontics are supported with strong evidence as provided by well-performed SRs and MAs.

Aim of this lecture is: (a) to present the basic principles of evidence-based medicine, (b) to address the basic principles and quality characteristics of systematic reviews and meta-analyses with orthodontic related subjects, and (c) to present and discuss the results of a series of MAs, which investigate controversial issues in orthodontics, in order to reach evidence-based conclusions that could be applied in contemporary clinical orthodontic practice.

DENTAL OCCLUSION AND BODY POSTURE: BIOLOGICAL SIGNIFICANCE VS. CLINICAL RELEVANCE

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Abstract

Scientific evidence for detectable correlations between dental occlusion and body posture is still missing. Recently, several literature surveys and primary studies were performed with the aim of evaluating any possible clinical relevance of such correlations, and to ultimately propose the posturography as a useful diagnostic aid in orthodontics. Taking into account, the poor quality of current evidence with very few randomised clinical trials performed, being most of the studies observational without follow-up or controls, the following conclusions may be drawn: 1) Most used posturographic recordings suffer major errors in terms of repeatability; 2) Correlations between dental occlusion and body posture would reach a biological (statistical) significance although being not clinically relevant. With current evidence, occlusal interventions aimed to treat primary postural imbalances are not recommended.

MULTIDISCIPLINARY COLLABORATION IN MANAGING STOMATOGNATHIC SYSTEM PROBLEM

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Abstract

Orthodontics concerns good maxilla-mandible relation achieving functional and healthy occlusion, focusing also on facial and smile aesthetics. In the last couple of decades, it is thought that orthodontics can solve all the problem of stomatognathic system. That is only partially true. To provide fully functional and aesthetic care to our patients it is often needed to collaborate with oral surgery, periodontology, implantology... A problem like impacted teeth, hypomineralisation, missing teeth could not be solved without the help of our colleagues. These are cases from my practice.

EXTRACTION-YES OR NO

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Abstract

Basic doubt of every orthodontist before starting an orthodontic treatment is whether to do it with extractions or not. This two opposite ways of solving orthodontic diagnosis are the main concern of every orthodontist, patient and/ or parent. We will try to find answers to many questions: Why to extract teeth, why healthy teeth, why those exact teeth, why so many... What are the factors that help clarify treatment decision between extraction and nonextraction? Is it potential of the growth, direction of growth, soft tissue profile or position of lower incisors? What are other factors and how much influence do they have on final decision? What about borderline cases? All of these topics will be presented from the aspect of Alexander Discipline technique.

ECTODERMAL DYSPLASIA: CASE REPORT

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Abstract

Introduction: Ectodermal Dysplasia (ED) is not a single disorder, but a group of closely related conditions of which more than 150 different syndromes have been identified. The Ectodermal Dysplasias (EDs) are genetic disorders affecting the development or function of the teeth, hair, nails and sweat glands. Depending on the particular syndrome ED can also affect the skin, the lens or retina of the eye, parts of the inner ear, the development of fingers and toes, the nerves and other parts of the body. Ectodermal Dysplasias are caused by altered genes. The altered genes may be inherited, or normal genes may become defective (mutate) at the time of conception. The chances for parents to have affected children depend on the type of ED that exists in the family. It is important to remember that a person cannot choose or modify the genes that he or she has, and that events of pregnancy do not change the genes. Thus, parents who have a child with ED should not think that they did anything to cause the defective gene and should not blame themselves for its existence. Genetic counseling is available for families. One common type of ED affects males more than females this is the X-linked type of hypohidrotic ED, other types can affect males or females equally and may be inherited in different ways. Pre-natal diagnosis is available for some families with X-linked hypohidrotic ectodermal dysplasia, through the use of DNA probes. This is not possible for all families. Each syndrome usually involves a different combination of symptoms, which can range from mild to severe, such as: absence or abnormality of hair growth, absence or malformation of some or all teeth, inability to perspire, which causes overheating, impairment or loss of hearing or vision, frequent infections due to immune system deficiencies or, in some cases, the inability of cracked or eroded skin to keep out disease-causing bacteria, absence or malformation of some fingers or toes, cleft lip and/or palate, irregular skin pigmentation.

Case report: We represent a case of a 9-year-old boy with ED, with hypohidrosis, hypodontia, and absence of normal hair growth. Reconstruction of the permanent canines located in the front area of the incisors was done and also a partial upper prosthodontic appliance and a total lower prosthodontic appliance were done and a recommendation for control every six months, for reparation of the prosthodontic appliances. The boy left our institution with a big smile.

PROFESSIONAL EXPERTISE IN DENTAL MEDICINE: COMPLICATION OR MISTAKE

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Abstract

Undesirable outcome of a diagnostic or therapeutic measure poses as a great embarrassment for every medical professional, and may result in criminal, civil or disciplinary act. During the course of our professional work we are increasingly exposed to possible requests for legal procedures aimed at determination of professional misconduct. Our patients expect a safe and high quality service, whereas in cases of a damage caused by the procedure they would expect an adequate compensation. Quite often it becomes a challenge to assess whether the undesirable outcome is to be defined as a medical fault, complication or a consequence of the disease itself. Fault is defined by the fact that in the specific case something happened which prevented completion of the usual procedure therefore causing harm to the patient's health. Whether legal actions will be taken depends upon the circumstances leading to the event. Complication itself marks further progression of the disease as well as the spread of pathological condition to other organs and systems despite the correct medical procedure.

DEVELOPMENT AND MANAGEMENT OF TRANSVERSAL DISCREPANCIES

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Abstract

Transverse discrepancies are defined as discrepancies between the upper and lower jaws and dentition in the transverse plane. They can be either skeletal or dentoalveolar in origin. The transverse dimension of the upper and lower jaw is determined by both genetic and environmental factors, with the latter affecting mainly the dentoalveolar region. Transverse discrepancies may be diagnosed intraorally in the posterior region either as non-occlusion or crossbites of various degrees including an edge-to-edge relationship. Posterior crossbite can be bilateral, unilateral or unilateral with a functional shift and it can be a result of a symmetric or asymmetric constriction of the upper jaw or widening of the lower one or occurs due to palatal position or tipping of the posterior teeth. Sometimes crossbite or non-occlusion is not only a consequence of a transverse skeletal or dentoalveolar discrepancy but occurs due to a sagittal skeletal discrepancy. If left untreated, transverse discrepancies have a tendency to worsen during growth and development and require surgical treatment at later developmental stages. Due to the high percentage of relapse after early treatment, this malocclusions remains one of the most challenging for the orthodontist.

ASSESSMENT OF CRANIOFACIAL ASYMMETRY USING METHOD OF MIRROR OBJECT MODELING

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Abstract

Asymmetry is a deviation from the identical shape or size of two sides of the body. There are several classifications of facial asymmetry. Henderson's asymmetry classification is the most extensive morphological classification, which divides asymmetrical disproportion to: lower facial enlargement, lower facial deficiencies, mid-third asymmetries, upper facial asymmetry and facial cleft. The most comprehensive and clinical usable classification is that from Bishar's, who divided asymmetry according to etiology on dental, skeletal, muscular and functional. Asymmetry is one of the most common facial features. Well centered maxillary and mandibular midlines are important goals of orthodontic therapy. Symmetry improves dental and facial aesthetics and also function and the stability of the final orthodontic results. All asymmetry detection methods (including functional and frontal analysis, radiological analysis and asymmetry localization) have the same deficiency of defining the referent medio-sagittal plane. Instead of imprecise measuring landmarks distances from this plane, modeling of the mirror object can provide more accurate assessment of craniofacial asymmetry. Proper selection and digitalization of two or three-dimensional anthropometric (cephalometric) landmarks are important because the deviation of the symmetry sometimes can be very small. Therefore, landmarks homology, repeatability and good visibility on the observed structure are important predispositions for their use. The mirroring object method is clinically and scientific applicable for assessment of different types of asymmetry. This presentation will demonstrate how to model mirror imaging, create a symmetrical object, calculate the deviation from symmetry and in general, analyze facial asymmetry.

ATTITUDE AND PRACTICE OF STUDENTS IN CONNECTION WITH EATING HABITS

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Abstract

Introduction: An important role and impact on the health of the individual throughout life have food, and because of that, the attitude and practice of eating habits are the bases of good health.

Aim: The aim of this study is to examine the attitude and practice of students of Dental Medicine related to eating habits.

Material and methods: The study included 58 subjects (students) who completed the questionnaire created for this study. The survey consisted of 14 multiple choice questions. In the first part of the survey questions were related to the attitude of respondents on nutrition and another part of the questions were related to eating habits of students.

Results: All subjects showed a clear position about nutrition. Answers to questions related to eating habits are diverse, and most of them eat fast food during a semester.

Conclusion: The students have shown a clear position concerning nutrition. Eating habits of students are different. It is necessary to undertake activities to raise awareness about the effects of bad eating habits and preventing their consequences.

MULTIDISCIPLINARY APPROACH TO THE TREATMENT OF SKELETAL MESIAL BITE (LONG FACE SYNDROME) - CASE REPORT

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Abstract

Aim: The aim of this paper was to show a multidisciplinary approach to the treatment of skeletal mesial bite.

Case report: Patient, 40 years of age was diagnosed with skeletal Class III malocclusion and missing of teeth 26,36 and 45, so he underwent orthodontic and surgical procedures, and afterward prosthodontic treatment. Clinical examination, study cast analysis, orthopantomogram and lateral cephalogram have been done before treatment. Clinical examination showed bilateral crossbite, anterior crossbite (overjet - 4mm) and ½ cusp Class III occlusion. Analysis of lateral cephalogram showed backward maxillary retrognathism (SNA 78°), mandibular prognathism (SNB 83°), skeletal Class III (ANB -5°), backward facial rotation (Bjork 406°), increased basal angle (B 37°) and retro inclinations of the lower incisors (i/MP 114°). At the beginning of the treatment upper and lower fixed appliances were placed, which patient wore for 12 months before the surgical procedure and six months after the procedure, after which appliances were removed and four months later prosthodontic treatment was done.

Results: Patient is now in the period of retention, without signs of relapse and wears splints every night.

NONEXTRACTION TREATMENT OF CROWDING BY FIXED APPLIANCES - CASE REPORT

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Abstract

Aim: The aim of this paper was to show a nonextraction treatment of crowding by fixed appliances.

Case report: Patient, 23 years of age was diagnosed with crowding in upper and lower arch in skeletal Class I, which previously was not treated. Clinical examination, study cast analysis, orthopantomogram and lateral cephalogram have been done before treatment. Analysis showed 5.5 mm of crowding in upper arch and 5 mm in lower arch, with malposition of tooth 13. Treatment was done by upper and lower fixed appliances, without extraction of premolars, because it was a borderline case and the needed space was achieved by protrusion of upper and lower incisors, expansion of arches in the transversal direction and by interproximal reduction of frontal teeth, especially in the lower jaw. Treatment lasted for 26 months and during it, all four wisdom teeth were extracted.

Results: At the end of the treatment stable Class I occlusion was achieved, overjet was 3 mm and overbite 3 mm. The patient is now in the period of retention, without signs of relapse and wears splints every night.

LONG JOURNEY FOR TREATMENT OF TREACHER COLLINS SYNDROME PATIENT

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Abstract

Introduction: Treacher-Collins syndrome (TCS) is an autosomal dominant hereditary disorder that presents various malformations of the facial skeleton and soft tissues. Within the oral cavity, cleft palate, open bite and dentofacial problems including severe crowding and enamel hypoplasia are presented. Babies born with a cleft palate receive surgery within one year of birth. Parotid abnormality results in a high risk of dental caries, so maintenance of oral hygiene is very important once the teeth erupt. When growth is complete, comprehensive orthodontic treatment and orthognathic surgery are necessary to improve the facial esthetics.

Case report: The patient visited the orthodontic department at six years of age with lack of space for permanent teeth eruption and posterior cross-bite. At the first examination, the typical features of TCS (e.g., antimongoloid slanting, hypertelorism and underdevelopment of cheekbones in a frontal face, fish-shaped convex facial profile due to mandible retrognathism and cleft palate and open bite in the mouth) were observed, and her mother was TCS too. During our observation of permanent teeth eruption, we performed the first stage orthodontic therapy with an extraction of the first maxillary/mandibular premolar when the patient was 12 years old to make space for permanent teeth eruption and align the dentition. After growth was complete, we considered an orthognathic surgery accompanied by maxillary rotation to correct open bite and facial structure, but the occlusal plane is too steep, and the surgery would not generate prominent aesthetic improvements, so only mandibular surgery and chin augmentation using Medpor were planned. The patient was notified of the high risk of open bite relapse due to the function of suprahyoid muscle groups. Interarch elastics and multi-loop edgewise archwire (MEAW) were used to improve an occlusal relationship. After conformation of stability without elastics, brackets were removed. Vertical elastics on micro screws was recommended to prevent relapse of the open bite even after the device is removed and instruct the myofunctional therapy, clenching swallowing. The present article introduces a case of a TCS patient with details of treatment procedures from early childhood after receiving orthognathic surgery to adult.

TREATMENT OF YOUNG ADULT WITH SKELETAL CLASS II DIVISION 1 MALOCCLUSION AND TRANSVERSE DISCREPANCY BY MICROIMPLANT ASSISTED RAPID PALATAL EXPANSION

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Abstract

Introduction: Transverse discrepancy in the posterior region is a common problem in skeletal class II division 1 malocclusion. If treatment starts during adolescence, the median palatal suture can easily be widened with rapid palatal expansion appliance. But in adults, the median palatal suture, and circum-maxillary sutures in the maxilla show higher resistance, and so different methods are required.

Case report: The patient, 18-year-old female, showed mandibular retrognathism (SNA: 81.5°, SNB: 76.2°, ANB:+5.3°) with the transverse discrepancy in the posterior region, open bite in the anterior region, severe crowding, and a peg lateral on a left maxillary lateral incisor. To improve the transverse discrepancy, considering that the patient is a young woman, maxillary palatal expansion using Microimplant Assisted Rapid Palatal Expansion (MARPE) was conducted. To improve crowding, the 1st premolars were extracted from the right maxilla, the left, and right mandible, along with the peg laterals in the left maxilla. Even after leveling, class II molar relations and anterior open bite remained. Maxillary posterior teeth were intruded and totally retracted with micro implant. After treatment, the face, transverse discrepancy of the jaw, and molar relations were improved.

Discussion: There is no rigid guideline on how and when to expand the narrow maxilla. Analysis with CBCT which is widely used in orthodontic diagnosis these days could help the diagnosis and the treatment planning of the transverse discrepancy.

Conclusion: In treating young adult patients with the transverse discrepancy, MARPE can contribute to favorable outcomes.

THE ERUPTION SEQUENCE AND TEETH MINERALIZATION STAGES IN ORTHODONTIC PATIENTS

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Abstract

Aim: To determine the sequence of teeth eruption and mineralization stages based on analysis of OPG images of orthodontic patients.

Materials and methods: A retrospective study of 40 orthodontic patients: 28 male and 12 female. Group 1 (n=20) patients with crowding and control group (n=20) patients without crowding. The analysis performed on digital OPG images. Vertical position of the lower second premolar (P2) and lower second molars (M2) was determined in relation to the occlusal plane. The recorded data is divided into three groups, depending on whether the lower second premolar precedes, follows or has a synchronous eruptive phase with the lower second molars. A mineralization stage was determined according to the table of Demirjian et al.

Results: The data shows that M2 tooth leads in the eruption in 36.25% of cases, P2 tooth has the synchronous eruptive phase with M2 in 38.75%, while P2 tooth leads in eruption in 25% of patients with crowding. In the control group (without crowding), 56.25% of patients has a leading M2, 30% patients are in synchronous stages of the eruption while P2 leads in 13.75% of patients. The most common stage of tooth mineralization P2 and M2 was stage E, with 35% of the patients with crowding. In the control group (without crowding), the most common stage of mineralization was stage E, of 42.5%.

Conclusion: There is a difference of eruption sequence between lower second molar and second bicuspid in orthodontic patients with and without crowding.

DOCTORS' RESPONSIBILITY FOR THE DAMAGE

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Abstract

People make a mistake in all professions (*errare humanum est*). Dental profession is not an exception. Since people are by their nature sensitive, we are witnesses that medical profession is not untouchable and that there are more and more demands for different types of a doctor's responsibility because of errors in medical treatment.

Some current cases have additionally sensibilise the public for the questions of medical errors or complications that lead to tragical results for patients and their families.

It is undoubtful that everyone, even the dentists and other medical professionals have to take the responsibility for medical errors. However, on the other hand easy mentioning of doctors for the responsibility of errors, even in the media, as well as forcing them to pay high amounts for the damages can bring discomfort among doctors and dentists, which takes them away from fulfilling their duties and causes avoiding and possible risks of less known methods of treatment, which they would try out in some other social circumstances. The point is about a sociological gap. How can we enable for the doctors to do their work in a responsible way and without fear, that is how to ensure an appropriate compensation for the victim's damage? The problem of liability for damage by doctors and other medical professionals is very sophisticated and delicate. That is why in life it is not easy to make a decision if there is responsibility, that is the patient's right to fix the damage. In that sense, we cannot just consider ethical, professional and legal principles that lead (just) to the damage, but we should develop a system that prevents the making and repeating of errors. Medical responsibility is certainly pursuant to their position in the hierarchy and the responsibilities they have at work. I hope my presentation will have a useful, informative and preventive result for the pleasure of both the dentists and their patients.

ORTHODONTIC TREATMENT AND NICKEL ALLERGY

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Abstract

Nowadays allergies are more frequent than before and occur at a younger age. Corrosion, of orthodontic appliances, particularly nickel-titanium archwires, in oral environment produce a release of free nickel ions. Those ions of nickel are most powerful contact allergens. During orthodontic treatment, many adolescents in a period of maturation of their immune system are exposed to nickel for an extended period. Nickel allergy can no longer be considered a low potential risk because it occurs in up to 28.5% of the population. The lecture provides an overview of evidence-based knowledge on nickel allergy and its implications in orthodontics.

INFECTION CONTROL IN DENTAL MEDICINE AND ORTHODONTICS

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Abstract

Infection control is one of the most important dental practice's lists of priorities. It should be high on an orthodontics list of priorities too. Most of the orthodontic procedures are noninvasive. However, there can be blood exposure during orthodontic procedures. There is a greater risk during orthodontic treatment to get diseases that are transmitted in saliva splatters, splashes, and aerosols, than the blood pathogens. The saliva contamination on surfaces: air-water syringes, light cure handles, intraoral scanners, cheek retractors, and photographic mirrors have the potential for transmitting infectious diseases from one patient to another if proper infection control protocols are not used. The most orthodontic procedures are noninvasive, there is very little blood exposure during orthodontic procedures and it is low risk for an orthodontic patient, but high risk for the orthodontist. The main topics that we have to elucidate are: Why we need the clear infection control protocol in dental practice?

What steps can staff take to minimize infection risk during clinical activities in the dental practice?

RETENTION - NECESSITY OR BURDEN?

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Abstract

There is a wide agreement on the need for retention after the end of an orthodontic treatment, but the type of retention appliances and the duration of the retention protocol are still a source of controversy among professionals. In order to shed some light on this issue, it is important to investigate the most commonly applied retention protocols worldwide (experience-based), and then test the validity of these protocols for an evidence-based information. Evaluation of the effectiveness of different retention strategies after orthodontic treatment shows that there are no evidence-based guidelines as to the type of retainer, or the duration of retention that could prevent relapse and maintain a long-term stable result. The presentation will highlight existing evidence on long-term stability and retention, and focus on the most commonly reported retention protocols concerning type of retainer, duration of retention, follow-up and need for common guidelines.

INTERDISCIPLINARY APPROACH IN ORTHODONTICS

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Abstract

Patients that come in to the dental office nowadays demand to be treated optimally with fully dissolving any of the health and aesthetic problems they may have. That often means cooperation between different specialists. It is not rear that there is the need for orthodontic treatment in those patients as well. In this lecture, cases with interdisciplinary approach will be demonstrated as well as contemporary ways of treatment for different dental conditions. It will be given an insight into possibilities for the orthodontic preparation of the case and the need for the communication between the various practitioners to plan an individual approach for every person that comes into the office.