



21st Congress of BaSS

May 12 - 15, 2016. Banja Luka, B&H

ABSTRACT BOOK





Balkan Stomatological Society (BaSS)

and



**Association of Private Dentists of Republic of Srpska,
Bosnia and Herzegovina**

organize

21st CONGRESS OF THE BaSS

ABSTRACT BOOK

12-15th of May, 2016

Banjaluka, Bosnia and Herzegovina

<http://www.e-bass.org/21thcongress/>

21st CONGRESS OF THE BaSS
ABSTRACT BOOK

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Boris Tadić

Dear distinguished colleagues and friends

Clinicians, researchers, academics, and all dental healthcare professionals are warmly invited to the 21st Congress of the Balkan Stomatological Society (BaSS), which will be held in Banja Luka, the beautiful historical city, Bosnia & Herzegovina from 12 to 15 May 2016.

The scientific program of the Congress will comprise plenary lectures, oral presentations and posters of leading Balkan, European and World lecturers and scientists! They will all present the latest achievements in the field of dental medicine, the most modern practice in contemporary preservation of oral health, and enhancement of dental treatment.

Banja Luka is a charming city with incredible history and beautiful scenery, which you are sure to enjoy. Beside the many interesting events and scientific meetings, I hope you will find time to meet up with old friends and make new acquaintances.

The 21st BaSS Congress will also be an opportunity for our industry partners to showcase their latest advances in all fields of dentistry, and I believe that related industries will continue to support our Societies' activities for the future wellbeing of our profession.

I wish you a memorable stay in the host city of Banja Luka, and look forward to welcoming you at the 21st BaSS Congress.

Professor Dragoslav Stamenković, DDM, MSc, PhD

President of the BaSS

Dear friends and colleagues,

It is my pleasure to invite you to the 21st Congress of the Balkan Stomatological Society (BaSS) that will be held from 12 to 15 of May 2016 in Banja Luka.

The 21st BaSS Congress is set up as a platform aiming to exchange knowledge, ideas and experience in Dentistry and parallel to let the participants to meet new people, to renew old friendships, to enjoy the city and the social program.

The scientific and professional lectures will be held by eminent lecturers from Balkan and European countries as well as from countries all over the world. Apart from the lectures the Congress will present to the participants many hands-on courses where our colleagues will be able to improve or gain new, day to day, skills necessary to improve the quality of dental service.

A large dental exhibition, that has always been an integral part of BaSS Congresses, will take place bringing the newest innovations in dental materials, tools and equipment to the dentists, to dental technicians and to dental assistances.

Beyond of the interesting scientific program the Congress Committees will offer to the participants various chances of contacting and enjoying a traditional and touristic social program, to visit local worth sightseeing, to make shopping or just to relax in the beautiful city of Banja Luka.

Geographically, the city of Banja Luka is located at a cross road from East to West, easily approached by all means and thus we believe it's an ideal place to attract participants from the entire Balkan region and also throughout Europe. We additionally believe that Banja Luka is a potentially attractive place for participants from all over the world.

Sincerely yours

Mihael Stanojevic, DDS, MSc

President of the 21st BaSS Congress

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INVITED SPEAKERS (IS)

IS – 1**CRITICAL EVALUATION OF BIOLOGICAL AND MEDICAL ASPECTS OF NEW AND TRADITIONAL FILLING MATERIALS**

Prof. dr. Georg Meyer

Head of Department for Restorative Dentistry, Periodontology and Endodontology and acting Dean of the Dental School at the Ernst-Moritz-Arndt-University Greifswald, Germany.

In former times discussions about biological risks of filling materials were mainly related to amalgam due to its content of mercury, whereas dental composites seemed to be „the good ones“. However, new research shows that there are lots of biological risk factors by inserting composite materials into the oral cavity mainly because of organic chemistry compounds. Allergies against dental composites are increasing. Estrogenic effects in the fertility of mice were shown due to TEGDMA and bisphenol A as ingredients of composite materials. In a clinical study bisphenol A and other compounds in human saliva and urine were associated with the placement of composite restorations in the mouth. Another study concludes that the use of these materials should be minimized during pregnancy whenever possible. The final recommendation of another research project is to minimize the open surface of composite restorations in the mouth. Against this background amalgam and cast gold restorations should not be banned at this time. Unfortunately, glassionomer materials do not have good mechanical properties which are necessary for multisurface posterior restorations. CAD/CAM restorations might be a way to reduce the biological risk factors of composite restorations.

IS – 2**PATIENT WITH CHRONIC OROFACIAL PAIN IN A PRIVATE DENTAL OFFICE - DIAGNOSTIC DILEMMAS**

Prof Liubomir Torodovic, DDS, MSc, PhD

*Academy of Medical Sciences, Serbian Medical Society, Belgrade, Serbia
University of Travnik, Faculty of Pharmacy and Health, Department of Dentistry, Travnik, Bosnia and Herzegovina*

Patients with chronic orofacial pain (COP), which means pain lasting almost always more than six months and serving no obvious purpose, very often present a quite diagnostic dilemmas. In some instances, this may especially create problem in a private dental office as various variants and manifestations of COP should be treated differently. COP may have several clinical manifestations; however, it is usually classified in three basic categories: (1) *neural pain*, caused by functional or structural irregularities within neural components (the most prominent model is so-called paroxysmal trigeminal neuralgia); (2) *somatic pain*, caused by disturbances within the muscular/skeletal system (the most prominent model is so-called temporomandibular joint pain dysfunction syndrome); and (3) *atypical pain*, mainly caused by emotional stress and consequent changes of psychological response (the most prominent models are so-called atypical facial neuralgia and atypical odontalgia). Diagnosis and treatment of any kind of COP should be

undertaken only after thorough and meticulous diagnostic procedures, preferably done multidisciplinary in institutions particularly orientated to the treatment of COP syndromes. Choice of treatment method should be directed to control the basic cause of chronic pain, which is ascertained by detailed clinical assessment, and fully adjusted to the particular needs of each patient. That is why the treatment of most frequent chronic orofacial syndromes - paroxysmal trigeminal neuralgia, temporomandibular joint pain dysfunction syndrome, and atypical pains - after diagnosis of chronic pain made in a private dental office, should be often, and preferably, done in institutions particularly orientated to the treatment of COP syndromes. The lecture will help dental practitioners establish diagnostic criteria relevant to the most frequent COP syndromes, and find guidelines to detect crucial symptoms to elucidate the existing problem. Moreover, basic principles of choosing individual treatment options will be presented, including instructions when to refer a patient to specialised institutions for multidisciplinary approach to the treatment.

IS – 3**IMPLANT PLACEMENT PROTOCOL FOR THE ESTHETIC ZONE**

Prof. Aleksa Marković, DDS, PhD

Oral Surgery Clinic, School of Dental Medicine, University of Belgrade, Serbia

Implant placement in the esthetic zone is a complex procedure and requires a restoration-driven approach. Proper selection of patients and implant together with individual assessment of the risk of esthetic complications are very important. Correct 3D-implant positioning and sufficient bone volume should provide long-term esthetic and function. Esthetic region is a zone in which expectations and possibilities collide. Clinician should bring the important decision on the appropriate time of implant placement. Immediate implant placement is particularly challenging in the esthetic zone. Patient desire for reduced treatment time should be weighed against the possible risk factors. Protocol of immediate implant placement in conditions of unfavorable gingival biotypes, the lack of bone or soft tissue in patients with a high smile line lead to esthetic failure which is very important in the esthetic region. This lecture will focus on indications, timing and surgical protocol of implant placement in the esthetic zone.

IS – 4**NEW COLOR MATCHING CURRICULUM FOR DENTAL PROFESSIONALS AND STUDENTS**

Rade D. Paravina, DDS, MS, PhD

Tenured Professor at the University of Texas School of Dentistry at Houston and Director of Houston Center for Biomaterials and Biomimetics (HCBB), USA

This presentation will be very different from programs in color matching, communication and reproduction of natural teeth that you may have attended in the past. The new Color Matching Curriculum for dental professionals and students, developed by the presenter and the Society of Color and Appearance in Dentistry (SCAD, www.scadent.org), will be introduced. The lecture will

emphasize color concepts and resources, methods, conditions and tools that are essential to master a plan for successful color matching in both office and dental laboratory, together with step-by-step instructions. Examples and practical suggestions will be provided, including the update on new developments on this subject. Dental Color Matcher, a color education and training online program for esthetic dentistry that has been used by dental professionals and students from 100+ countries, will be demonstrated.

Objectives

UNDERSTAND color

Learn about advanced shade matching conditions and methods

Contrast dental shade guides and elaborate color-related properties of dental materials

Review the state of the art in tooth whitening monitoring

Learn about resources for color education and training in esthetic dentistry

IS – 5

LONG-LASTING RESTORATIONS IN PATIENTS WITH REDUCED DENTITION: IMPLANTS VS. DOUBLE CROWNS

Prof. dr. Winfried Walther

Director of the Academy for Continuing Professional Development, Karlsruhe, Germany

Telescopic crown restorations and implant borne restorations are regarded as appropriate prosthodontic therapy in patients with substantially reduced residual dentition. The success of these types of treatment depends mainly on the preservation of the residual dentition. In particular teeth selected as abutments should have a good prognosis. Therefore careful assessment of the risk of tooth loss and the anticipated longevity of the planned prosthodontic solution is needed as a prerequisite for sound therapeutic decision-making. Since patients with severely reduced dentition differ considerably in initial clinical situation this assessment constitutes a major challenge for the dentist. The lecture presents case histories of patients treated with double crown restorations or partial dentures on implants. Scientific data is used to identify predictors for the sustainability of both types of therapy. Long-term studies on telescopic crown restorations showed within a 20-year period that 23% of the initially inserted restorations survived. However the proportion of patients that were supplied with double crown restorations 20 years after initial treatment was 73%. Patients underwent one and 15% more than one revision of the double crown restoration. Within a 20 year interval complete dentures were inserted in 23% of the cases. A significant predictor for the occurrence of edentulism was the amount of alveolar support of the abutment teeth. Implant-retained restorations show minor failure rates but technical complications are common. In particular removable restorations show high expenses for the repair of technical damage. Prospective studies are needed to compare maintenance costs of implant- vs. tooth-retained dentures. Special scientific attention is required to differentiate between cases with good and poor prognosis. Double crowns restorations represent an alternative form of therapy in cases with severely reduced dentition in which also implant-borne restorations can be applied.

IS – 6**IMPLANTOLOGY - ADVANTAGES AND LIMITATIONS OF DIFFERENT RADIOLOGICAL TECHNIQUES**

Univ. prof. dr. Margrit-Ann Geibel (DPU)

Department of Oral and Maxillofacial Surgery and Radiology, University of Ulm, Germany, Univ. Prof. in Danube Private University, Austria

2-D radiographs are conventional in oral surgery.

3-D diagnostic is recommended increasingly in surgery of impacted third molars and in implantology.

Cone-beam computed tomography (CBCT) can be indicated if a pathological alteration with a need for clarification was noticeable in the two-dimensional radiographic diagnostic.

Moreover, a CBCT can be indicated in implantological cases with clear anatomical deviations in sagittal and/or transversal and /or vertical plane. Usually used for under-cutted alveolar process regions, alveolar bone atrophy and maxillary sinus septum.

Unsecured imaging of important anatomical structures in 2-D diagnostic in implantology can be verified by three dimensional techniques like CBCT /CT/MRI.

ALARA (As Low As Reasonably Achievable) principles have to be considered. Preeminently for children and young adults who are at higher risk of radiation (Factor 3) in comparison to middle-aged adults (commission, 2004)

The limitation and benefit of 2-D and 3-D treatment with focus on CBCT technology is reviewed.

IS – 7**SINGLE TOOTH IMPLANT RESTORATIONS IN THE AESTHETIC ZONE**

Prof. dr. Argirios Pissiotis

Department of Removable Prosthodontics, School of Dentistry, Aristotle University of Thessaloniki, Greece

Options for restoring a missing tooth include fixed partial prosthesis, resin bonded restoration and implant supported prostheses. Since the late 1980s, implant supported prosthesis have been the treatment of choice, particularly when the preservation of the integrity of a sound tooth is considered, adjacent to the edentulous area. The evolution of replacing missing teeth with single implant supported restorations over the years will be discussed in terms of prognosis and treatment planning. The advantages and limitations from the prosthodontic point of view will be shown as well as the treatment options and modalities. Furthermore some complication and shortcomings that may occur will be pointed out.

IS – 8**PULP TREATMENT FOR THE PRIMARY DENTITION****dr. Curtis Goho***US Army colonel and pediatric dentist, Germany*

Pulp therapy for primary teeth is not difficult, and has as its goal treating the child and the pulp properly and one time, without the need for multiple appointments. However, one must avoid making the typical error of insufficiently aggressive treatment. This evidence based presentation identifies the common problems with indirect pulp capping, direct pulp capping, pulpotomy, and pulpectomy for primary teeth. Special emphasis is given to pulpotomy techniques for fast and efficient treatment by any dentist.

IS – 9**INFLAMMATORY REACTIONS IN PATIENTS WITH DIABETES AND PERIODONTITIS – POSSIBLE MECHANISMS LINKING BOTH DISEASES AND IMPLICATIONS ON PERIODONTAL THERAPY****dr. med. dent. Sarah Kristin Sonnenschein***Assistant director at Department of Conservative Dentistry, University Hospital of Heidelberg, Germany*

The bidirectional relationship between periodontitis and diabetes mellitus can cause distinct oral symptoms that can impact the general health conditions of affected patients. The lecture will summarize the recent evidence for mechanisms linking both diseases focusing on the altered local inflammatory reactions in the periodontium of diabetes patients. Clinical implications for the dentist in daily routine will be discussed and on the basis of different case presentations it will be shown how interdisciplinary collaboration between the attending physician and the dentist can significantly improve oral conditions and metabolic control.

IS – 10**CONSERVATIVE DENTISTRY WITH COMPOSITE RESIN RESTORATION****dr. med. dent. Simona-Georgiana Schick***Department of Conservative Dentistry at the University Hospital of Heidelberg, Germany.*

As dental patients are becoming increasingly conscious about their appearance, they demand for aesthetic and minimal invasive high quality restoration. With the improvement of adhesive and composite technology it became possible that direct composite restorations are able to withstand great masticatory forces without suffering from fracture or loss. Recent aesthetic composite resin materials provide great optical properties and offer a wide range of shades and varying opacities, translucencies and textures. This lecture will provide the general principles of smile design and treatment alternatives to anterior ceramic restorations.

**INVITED LECTURERS FROM BaSS
COUNTRIES (BL)**

BL – 1**AMSA BLOCK WITH PALATAL APPROACH EFFICIENTLY ANESTHETIZE MAXILLARY ANTERIOR TEETH AND PREMOLARS FOR ENDODONTICS AND ORAL SURGERY**

Assist. prof. dr. Slavoljub Tomić

Department for Dentistry, Oral Surgery and Medicine, Faculty of Medicine Foca, University of East Sarajevo; Bosnia and Herzegovina

Background and Aim: The anterior and middle superior alveolar (AMSA) nerve block is an alternative technique of local anaesthesia in the maxilla, useful in cases of tooth extraction in the presence of acute periodontal infection and the successful application of the same techniques to achieve anesthesia dental pulp from the central incisor to first molar. The aim of this presentation was to investigate efficacy of the AMSA nerve block, applied with a computer-controlled injection system or a conventional syringe, for painless extraction of upper premolars and efficacy of pulpal anaesthesia mentioned teeth. **Material and Method:** 60 healthy adults, requiring extraction of a single upper premolar participated in the study. and 60 healthy adult volunteers who in two separate visits administered anesthetic and questioned the success pulpal anesthesia using the apparatus for testing the vitality (scale 0-10 mA). **Results:** Local anaesthesia achieved by AMSA block was efficient enough to ensure a painless tooth extraction in all the patients, provided by both pain rating scales. There were no statistically significant differences in anaesthetic efficacy regardless the local anaesthetic solution or the equipment used. Anesthesia pulp regardless of the method of application is more successful when anesthetic solutions that contain epinephrine. **Conclusion:** The use of conventional syringe for inducing the AMSA block for painless upper premolar extraction was equally efficient as the use of a computer controlled injection system. and can be regarded as successful for use in an endodontic treatment of the restorations .

BL – 2**FROM SPLINTING TO ADHESIVE BRIDGE THE FUSION OF PRACTISE AND SCIENCE**

Slobodan Anđelković, DDM

Private Dental Practice, Belgrade, Serbia

There has been a quest for a solution in cases of tooth mobility through the history of dentistry. Many of these methods were complicated and expensive, thus were a privilege of a small number of patients who could afford it. Modern dentistry shows various examples of procedures that have seemingly reached their limit, when in fact new technological achievements still help them gain importance. Fibre reinforced composites have been a significant improvement which helped establish some of the currently standard treatment methods in traumatology and periodontics. They have become a method of choice for splinting the teeth, mostly because they allow dentists to take care of a patient in a faster, easier and safer way. Furthermore, aesthetics achieved with fibre reinforced composites is an additional advantage for the patients. Lately, generally accepted postulates in dentistry refer to minimal invasion and minimal intervention procedures. Based on

these principles and after good experiences in periodontal splinting, the method of the adhesive bridge appears as a possible quality solution in certain clinical indications. Adhesive bridges, such as surface retained bridges, inlay and onlay bridges, immediate bridges, implant-supported bridges, hybrid bridges, full cover crown bridges and temporary bridges could be used for indications directed to the replacement of missing teeth either temporarily, transitionally or for a long term. Adhesive bridge as a procedure owes its clinical significance to the development of composites, dentine bonding agents and the application of fibres. Indirect techniques have been introduced to practise first. They showed both their advantages and disadvantages and owing to that took the corresponding place in everyday dental practise. Technological improvement of the materials introduced progress and a possibility for the adhesive bridge to be done satisfactorily with direct technique. Materials containing glass fibres immersed in non-polymerised composite matrix enabled this. Such materials are suitable for direct application during one session, since they have excellent physical features following the process of polymerisation. Direct production of adhesive bridge becomes a method of choice in certain indications, especially in cases when we need surface retained bridges, immediate bridges and temporary bridges or long term temporary bridges. The aim of this lecture is to point out the development of clinical methods presenting various splinting techniques, and to show the new possibilities that contemporary dentistry has gained through the technological improvement of composite systems.

BL – 3

PLANNING – THE KEY TO SUCCESS IN IMPLANTOLOGY

Zoran Vlahović, DDS, MSc, PhD

Private Dental Practice in Podgorica, Montenegro; Lecturer in the Stomatology Department of the Medical Faculty in Kosovska Mitrovica, Serbia

The beginnings of planning in implantology are connected to standard panoramic X ray, which was the only option back then. Numerous shortcomings of this radiological technology were being compensated by comparing different objects of known sizes which were used during the radiographing and which were fixed within dentures and acrylic trays (metal balls, pins, etc.). Significant progress was made with the emergence of digital panoramic X ray devices which could be calibrated and used to perform 1:1 analyses of the patient's jaw. These images are electronic in their nature, thus they can be digitally manipulated within an appropriate software. They can also be used to perform measurements, virtual implant placement, etc., but only in two dimensions. This manner of preoperative planning in implantology is inadequate, has numerous risks and was unpredictable in the terms of planning of the type, duration and price of the therapy. Of course, we had access to computerised tomography which, due to its characteristics, was not applicable in day-to-day practice. Very important moment in modern implantology was the introduction of CBCT (Cone Beam Computer Tomography). This apparatus uses computer tomography which is adapted to the orofacial region and is, according to all aspects, applicable to dental practice. Cone Beam Computer Tomography is most useful in the field of implantology, where the therapists are finally able to perform an analysis using a three dimensional image together with spatial planning of implant placement, all of that in real-time. With technological

advancements, this technology is advancing fast. Due to that reason we are witnesses to the development of computer-guided implantology. With the help of software it is possible to virtually place implant on optimal positions and then send that information to a laboratory which will create 3D guides with sleeves which are used to prepare implants. Today, these guides are 3D-printed. In our presentation, we will show the principles of planning in implantology, its advantages and disadvantages and some clinical cases.

BL – 4**PREPARATION JUNCTIONS FOR ALL-CERAMIC CAD / CAM CROWN AND BRIDGE RESTORATIONS**

Assoc. Prof. Dr. Angelina Vlahova, DDS, PhD

Department of Prosthetic Dentistry, Faculty of Dental Medicine, Medical University – Plovdiv, Bulgaria

Introduction. The preparation junction type is determined by a number of factors that need to be taken in consideration with CAD / CAM Fixed Prosthodontics: the used material; the type and condition of the retainer teeth, their periodontium and the occlusion; the design software, the CAM settings and the type of drills; the working protocol; the cement and the method of cementation. **Purpose.** The aim of this lecture is to describe the optimal preparation junctions for CAD / CAM crown and bridge restorations made by ceramics based on zirconium dioxide. **Materials and methods.** Chamfer and radial shoulder preparation junctions are suitable (width 1 - 1,5 mm). Trimming of 1,5 - 2 mm dental tissues is necessary on the occlusal surface. The homothetic tooth reduction is optimal. The surface has to be smooth and the edges rounded. **Results and discussion.** The finishing line width depends on the size and vitality of the tooth. In stained teeth and those built with metal pins the removal of more tissues provides a greater volume needed for masking the dark color. Vestibular preparation under the level of the gingiva is preferable to ensure optimal aesthetics. The preparation junction is determined also by the CAD / CAM technology - the type of drills and protocol of impression taking (classical or digital). The creation of a working model with TRIOS, 3Shape intraoral scanner is greatly facilitated by preparation junctions above the gingival margin. **Conclusion.** Knowledge about the criteria for selection of preparation junctions is essential for fabrication of accurate and aesthetic CAD / CAM restorations. **Keywords:** preparation junctions, CAD / CAM, all-ceramic crown and bridge restorations.

BL – 5**DOUBLE FERRULE EFFECT A NEW APPROACH TO CONTEMPORARY CONCEPT****Sasho Jovanovski, DMD, MSc, PhD**

Department of Prosthodontics, Faculty of Dental Medicine, University of "Ss. Cyril and Methodius" Skopje, The Former Yugoslav Republic of Macedonia; Post-Doctorate, Department of Prosthodontics, Faculty of Medicine, University of Ljubljana, Slovenia

Statement of the problem. Restoration of root treated teeth is a part of restorative practice in esthetic dentistry. However, the successful treatment of destroyed teeth depends on the good quality of endodontically treatment and on their conservative or prosthetic construction. **Purpose.** The aim of this study is to define contemporary treatment for restoration of root treated teeth, which is determined by physiological stress distribution of chewing forces and their contributions to additionally increase the fracture resistance (double ferrule). **Methods.** Numerous experimental and clinical methods were applied. The restorations that we analyzed include maxillary anterior teeth and zirconia posts (IJS/MF-VALLPOSTS, Ljubljana, Slovenia) with three retentive rings in the coronal part, and core build ups (MultiCore and E-max press, Ivoclar) with all ceramic crowns (E-max press, Ivoclar). At the initiation of the study, 160 single teeth were provided with artificial covering crowns. Experimental teeth were prepared with inner and outer dentin shoulder and divided into following groups: A (0/0mm), B (0/2 mm), C (2/0 mm) and D (2/2mm). In vitro specimens (n=10/gr) were embedded in acrylic resin blocks, loaded until fracture (1mm/min) at angle of 45° in an Instron Testing Machine 4301 (Instron Corp., USA) and statistically analyzed (ANOVA, Tukey test, p<0.05). Failure patterns were analyzed using optical microscope Stereo Discovery V.8 (Carl Zeiss, Germany). For controlled clinical trial, before treatment allocation, the recipient tooth was categorized according to the expected inner and outer dentin height after tooth preparation. The performance of the restorations was based on data collected from the files of the current dentists monitoring the oral health of the patients. Kaplan Meier analyses were used to compare survival probabilities. **Results.** Type of inner or outer restoration showed significant influence on the experimental probability (P-value < 0.05). Type of core restoration showed no influence on the experimental and the survival probability (P-value > 0.05). The 5-years survival rates at restoration level varied from 91% to 93%, and at tooth level from 92% to 93%. **Conclusion.** Our experimental and clinical research was to receive results that we would be able to use to determine the quality of the contemporary therapeutic methods used in the preparation of the root treated teeth. These results will be the key to finding the most compatible solutions for restoration, namely, for the most efficient dentine recovery on endodontically treated teeth in proportion to their clinical condition. The preservation of substantial remaining coronal tooth structure (double ferrule) seems to be critical to the long-term survival of endodontically treated crowned teeth.

BL – 6**ROBOTIZED SYSTEMS FOR PRACTITIONERS TRAINING IN CONTEMPORARY DENTAL CARE**

Prof. Univ. Dr. Norina Forna, DDS, PhD

University "Gr.T.Popa" Iasi, Dean of Dental Faculty, Vice President BASS, Fellow and Diplomate ICOI, Romania

Contemporary dental care is based on modern computerized techniques using digital smile configuration, digital impression, CAS-CAM techniques, Dental Lasers, and robotized Implantology. Modern techniques such as robotized systems specify the exact position of implants and prosthetic solutions related to natural teeth. Wax-up and mock -up offer planning solutions, for predicting future prosthetic implant solutions. Any bone reconstruction must precede the implantation and will be made considering the edentulous bone volume that reproduce the normal ridge in the area. Implanto-prosthetic rehabilitation requires preparation of all the preprosthetic steps absolutely necessary for a viable implanto-prosthetic solution. Success is governed by the rigor and accuracy of the steps previously planned.

BL – 7**IMMEDIATE IMPLANT PLACEMENT: A STATE OF THE ART APPROACH.**

prof. dr. Antonis Konstantinidis

Professor and Chairman of Preventive Dentistry, Periodontology and Implant Biology, Dental School, Aristotle University of Thessaloniki, Greece

High clinical success rates have been reported when implants are placed according to standard indications. This has encouraged efforts to improve the success rates for implants placed in more demanding clinical situations. One of these indications is tooth replacement with implants placed into extraction sockets. Although the first clinical procedures for the placement of implants immediately following tooth removal were described long ago, it is only recently that the details for such clinical approaches have been studied in greater detail. One of the aims of the present communication is to scrutinize the available literature to identify predictable and successful procedures for replacing extracted teeth with implant-supported reconstructions. In addition, inconclusive or absent data will be identified and discussed. The whole analysis will be supported by representative case reports.

BL – 8**DIAGNOSIS AND TREATMENT OF ACCIDENTAL PERFORATION DURING ROOT CANAL TREATMENT**

prof. dr. Theodor Lamprianidis

Aristotle University of Thessaloniki, Faculty of Dentistry, Department of Endodontics, Greece

Perforations are abnormal communications between the pulp space and the periodontal tissues or the oral cavity. They may be caused by caries, resorptive processes or may be iatrogenically induced. Perforation complicate the treatment and dramatically compromises endodontic treatment outcomes, especially when bacterial infection is allowed to establish. The presentation aims at describing causes, diagnosis and the most of all materials and methods used for perforation repair.

BL – 9**MANDIBULAR DISTRACTION OSTEOGENESIS IN SYNDROMIC CHILDREN**

prof dr. Ioannis A. Iatrou

Head of the Department of Oral and Maxillofacial Surgery, Dental School, University of Athens and Head of the Department of Oral and Maxillofacial Surgery of the Children's Hospital "A. Kyriakou" in Athens

Pierre Robin and Treacher-Collins syndromes present congenital craniofacial abnormalities, with retro-, micro- or rarely stenognathia being a main component. Depending on the severity of each case they may be accompanied by posterior tongue positioning, causing very early serious breathing problems such as frequent sleep apnea episodes or even upper respiratory tract obstruction together with feeding difficulties. Prone position of the baby and placement of a nasopharyngeal and nasogastric tube are the main conservative options. Glossopexy by means of adhesion of the anterior tongue to the lower lip has also been applied. Nevertheless, the above may not be enough and tracheostomy and nestidostomy occasionally may be required, followed in due course by surgical approach to the mandible in order to provide an effective and stable final solution. Distraction osteogenesis is the surgical technique of gaining new bone by progressive stretching of divided osseous segments. Ilizarov at the early 50's was the first to prove that while creating a slowly growing gap in long bones an increase in metabolic activity, cellular proliferation and vascular ingrowth leading to endochondral ossification and finally lengthening of the extremities was achieved. However, it was only in 1992 when McCarthy showed that lengthening of mandibular bone in children was also feasible. Aim of our presentation is to report our over 10 years of experience in treating syndromic children with severe micrognathia by means of distraction osteogenesis. Mandibular body augmentation followed by anterior position of the tongue was the main treatment target of those potentially life threatening situations. The results in all cases were impressing with an anterior mandibular elongation of 18 to 22 mm. Based on our findings, we strongly recommend distraction osteogenesis for the treatment of syndromic micrognathia, since the method largely improved both functionally and aesthetically the skeletal anomalies; complications, if any, were minor.

BL – 10**LASER DENTISTRY, MYTH OR REALITY?**

Associate Prof. dr. Guney Yilmaz

Near East Universty, Faculty of Dentistry, Department of Periodontology, Lefkosa, KKTC, Mersin10, Turkey

The use of lasers opens a new dimension in the Dentistry. In this lecture we will try to discuss with cases and researches, if dental lasers are really effective or just marketing miracles in the treatment of dental, periodontal, peri-implant or esthetic problems. This lecture aims to situate the current state of knowledge about the treatment of these porblems with Er,Cr:YSGG and diode lasers suggesting protocols irradiation and, through them, endorse their use with safe protocols. The treatment of dentin hypersensitivity, oral aphtous stomatitis, ulcerations, gingival hyperplasia, gummy smile, periodontitis, peri-implantitis; close crown lengthening procedures and sinus lift surgery procedures with hard and soft tissue lasers are the subtitles of this lecture.

BaSS AWARD CONTEST
(BaSS Award)

BaSS Award – 1**OP – 45****ION RELEASE PROFILE OF FIVE DIFFERENT DENTAL RESTORATIVE MATERIALS**

Bojana Cetenovic¹, Dijana Trisic¹, Nevena Markovic¹, Vukoman Jokanovic², Dejan Markovic¹

¹*University of Belgrade, Faculty of Dental Medicine, Clinic for Pediatric and Preventive Dentistry;*

²*University of Belgrade, Institute for Nuclear Sciences Vinca; Belgrade, Serbia*

Background: The impact of fluoride ions released from dental restorative materials, in caries prevention, has been proven in many studies. However, the influence of discharged matrix-forming ions, in the oral environment, is not documented well as fluoride ions. The aim of this study was to establish the amount of different ions discharged from five dental restorative materials (two conventional and resin-modified glass-ionomer cements and one compomer) into deionised water. **Methods and materials:** The plates (n=6) consisting of ten moulds were filled with each investigated material, prepared according to the manufacturers' instructions, and incubated at 370 C in 95% humid environment for 24 h prior to testing. After the incubation, one side of each plate was submerged into 20 ml of deionised water. Solutions were changed on a daily basis for 90 days. Concentrations of released ions were analysed using inductively coupled plasma-optical emission spectrometry and ion-selective electrode. **Results:** Considering the first four days significant decrease in fluoride release was determined respecting all investigated materials (p<0.05). Significant correlation was observed between fluoride and strontium, and fluoride and aluminium ion release. Apart from sodium, which exhibited t½ dependent release after the 10th day, release of fluoride, strontium, silicium, calcium, aluminium and phosphorus ions was constantly t½ dependent. **Conclusion:** Conventional glass-ionomer cements exhibit the most consistent fluoride release. Resin modified glass-ionomer cements may release fluoride in amounts equivalent to the conventional glass-ionomers, and depending on the type and the ratio of added monomer and particle size of fluoroaluminosilicate glass may exhibit burst effect.

BaSS Award – 2**OP – 82****FINITE ELEMENT STRESS ANALYSIS OF DIVERSE ALVEOLAR BONE LOSS PATTERNS AND REGENERATIVE PERIODONTAL THERAPY**

Milena Barac¹, Ksenija Zelic², Arso Vukicevic³, Natasa Nikolic-Jakoba¹

¹*School of Dental Medicine, Department of Periodontology, University of Belgrade;* ²*Laboratory for Anthropology, Department of Anatomy, School of Medicine, University of Belgrade;* ³*Faculty of Engineering, University of Kragujevac, Bioengineering Research and Development Center Kragujevac; Serbia*

Finite element stress analysis of diverse alveolar bone loss patterns and regenerative periodontal therapy **Background:** Alveolar bone destruction may occur in two diverse patterns, vertical or horizontal, altering height and the morphologic features of the bone. The aim was to assess the

biomechanical aspect of horizontal and vertical alveolar bone loss, and the impact of regenerative periodontal therapy by means of finite element analysis (FEA). **Methods and materials:** Three patient-specific 3D FE models were developed from the acquired CBCT scans, comprising the patient's upper left canine, first and second premolar, and adjacent alveolar bone. Model 1 was represented the horizontal bone loss. Model 2 was generated by using preoperative CBCT scans, representing intrabony defect along the distal aspect of tooth #24 before regenerative periodontal surgery. Model 3 was created from CBCT scans acquired six months following the regenerative periodontal therapy. Von Mises and principal stresses were evaluated by means of FEA, following the vertical occlusal load of 150 and 200 N. **Results:** Vertical bone loss resulted in higher stress values in the affected alveolar bone compared with horizontal bone loss. Six months following the regenerative periodontal therapy stress values in the alveolar bone were noticeably reduced, but the magnitude of these values still were higher than the values detected in case of horizontal bone loss. **Conclusions:** Vertical bone loss resulted in higher stress values compared with horizontal bone loss, while regenerative periodontal therapy noticeably reduced the stress in the affected alveolar bone six months following the surgery.

BaSS Award – 3

OP – 154

HERPESVIRAL-BACTERIAL CO-INFECTION IN MANDIBULAR THIRD MOLAR PERICORONITIS

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²*University of Belgrade, Faculty of Medicine, Institute of Microbiology and Immunology, Department of Virology;* ³*University of Belgrade, School of Dental Medicine, Department of Human Genetics And Biology; Serbia*

Objective The aim of this study was to assess the presence of herpesviruses and periodontopathic bacteria and to establish their potential association in development of pericoronitis. **Materials and methods** Fifty samples obtained with paper-points (30 pericoronitis and 20 controls) were subjected to PCR analysis. A single-stage and nested PCR assays were used to detect 2 herpesviruses: Human cytomegalovirus (HCMV) and Epstein-Barr virus (EBV) and 6 periodontopathic anaerobic bacteria: *Aggregatibacter actinomyceticomitans*, *Porphyromonas gingivalis*, *Prevotella intermedia*, *Parvimonas micra*, *Treponema denticola* and *Tannarella forsythia*. **Results** Pericoronitis samples harbored HCMV and EBV at significantly higher rates than the control group (70% vs. 40% and 46.7% vs. 15%, $P < 0.05$, $P < 0.05$, respectively). *P. micra* and *T. forsythia* (66.7% vs. 0%, and 40% vs. 10%, $P < 0.001$, $P < 0.05$, respectively) were significantly more common in pericoronitis compared to the control group. Multivariate logistic regression analysis showed that the presence of *T. forsythia* was a strong predictor of pericoronitis development (OR 7.3, 95% CI, 1.2-43.2, $P < 0.05$). **Conclusion** The occurrence of HCMV and EBV extends our previous knowledge on microbiota in pericoronitis. These PCR-based findings demonstrated that bacterial and viral DNA occurred concomitantly in pericoronitis samples. *T. forsythia* appeared to be an important predictor of pericoronitis development in the examined sample.

CONGRESS LECTURES (LECT)

LECT – 1**WORK OF ARMY DENTIST IN MULTINATIONAL PEACEKEEPING OPERATIONS****Nikola Pijevčević***University of Defence, Clinic for Stomatology, Department for Diseases of Teeth, Endodontics, Oral Medicine and Parodontology, Pančevo, Serbia*

Work of army dentist in multinational peacekeeping operations Introduction Working as a dentist in difficult environment in country torn in civil war is very challenging, having in mind heavy climate, risk of malaria, HIV, hepatitis and other less familiar infectious diseases. Great achievement is to make people familiar with importance of good dental care and hygiene especially in country where dental services is difficult do get. During my time in peace keeping operation I was in situation to see many different and difficult diagnoses which I needed to treat and help people. Importance of good communication skills, especially in English and French . Aim is to present my experience, challenges and specific cases during 27 weeks of work as dentist in multinational peacekeeping operations in Central African Republic. Method and results is continuous work for six days a week in field hospital LEVEL 2 as only dentist for whole DPKO-Department for Peacekeeping Operations of United Nations in Central African Republic. Working in limited conditions but with great effort and success during treatment of almost 850 persons, with different cultural and nutritional habits, from whole world. Facing and treatment of their problems and follow up of certain interesting cases. Conclusion Work in these specific conditions needs an experienced dentist with good clinical practice in conservative and restorative dentistry, endodontic therapy, basic knowledge of oral, periodontal surgery and prosthetics.

LECT – 2**BIOMARKERS IN GINGIVAL EXUDATE AND SALIVA FOR DIAGNOSIS OF PERIODONTAL DISEASES****Theodora Bolyarova-Konova***Medical University, Faculty of Dental Medicine, Sofia, Bulgaria*

Periodontitis is a chronic inflammatory disease affecting periodontium and leading to progressive loss of attachment and bone. Data from conventional clinical and radiological diagnosis of periodontitis rather reflect the severity and changes resulting from the disease progression in the past than provide an assessment of disease activity at the time of testing. The introduction of new diagnostic approach based on the detection of biomarkers in oral fluids (gingival crevicular fluid and saliva) allows to determine changes that occur at some point in periodontal complex. Biomarkers assessment in oral fluids could help to predict the risk of onset and periodontal disease progression of individual and definite place to justify the individual approach in treatment and disease monitoring. Components of gingival fluid and saliva, which are most often associated with periodontal status, are macroorganism products – cytokines, chemokines, enzymes, immunoglobulins, etc. However, contemporary research focuses on assessing saliva biomarkers from other groups (genetic and microbiological), as well. Development and use of modern and quick tests for chairside implementation will make the diagnosis of periodontal diseases more reliable and their treatment and prevention more effective.

**CONGRESS VIDEO PROJECTION
(VIDPR)**

THE SIGNIFICANCE OF FORENSIC MEDICINE FOR DENTISTS**Jovanka Trifunovic*****Farmacy and Medical Faculties, University of Travnik, Travnik, Bosnia and Herzegovina***

The majority of the term forensic dentistry primarily associated with the identification of individuals and finding snap. These areas constitute the main part of the work. There are other aspects of this discipline which are equally important. The analysis of craniofacial trauma, estimation of age, manifestation of child abuse, negligent dental practices, dental health insurance. This includes the responsibility of forensic in connection with demanding education and qualifications. In addition to the law it is essential knowledge of anatomy with the forms and interpretation of injuries. Also necessary knowledge of the patterns of bites caused by the attack, trauma, sexual abuse, manifestations of injury from child abuse. Knowledge of the methods, procedures of identification, if the knowledge of procedures in, ethical issues related to the investigation, manipulation of the bodies of the deceased and issues related to investigation of war crimes. All this knowledge of craniofacial anatomy, dental anatomy, development process, dentition and skeleton, the interpretation of injuries of expertise in the field of judicial medicine. Important is a good understanding of the law relating to dental practice. Therefore that the objects of forensic mainly related to identificatio unidentified. In dental forensics used scientific analysis identifiers that are essential to the body, dental restorations, DNA, everything that can be objectively compared with ante-mortem samples.

ORAL PRESENTATIONS (OP)

OP – 1**DECREASED TOOTH MINERALIZATION IN OBSTRUCTIVE SLEEP APNOEA SYNDROME****Cafer Sahbaz¹, Ersin Gunay²**¹*Department of Restorative Dentistry, Afyon Kocatepe University School of Dentistry;*²*Department of Pulmonary Diseases, Afyon Kocatepe University School of Medicine; Afyonkarahisar, Turkey*

Objectives: We aimed to determine the mineralization density of the central, canine and first molar teeth of patients with obstructive sleep apnoea syndrome. **Methods:** The study involved 60 patients who met the inclusion criteria (no smokes, caries, crowns, extractions). Based on the patient apnoea-hypopnoea index, the severity of OSAS was classified into three groups: Group 1: 20 patients (15-males, 5-females) with mild-moderate OSAS (5-30 events/h); Group 2: 20 patients (15 males, 5 females) with severe OSAS (>30 events/h); and Group 3: 20 healthy volunteers (15 males, 5 females) as a control group (no OSAS, <5 events/h). The degree of teeth tissue demineralization was measured with DIAGNOdent. **Results:** The data were not normally distributed ($p > 0.05$), so Kruskal-Wallis test was used. The difference in demineralization among groups was statistically significant ($p < 0.05$). The Nemenyi post hoc test revealed no difference between the mild-moderate OSAS group and the severe OSAS group in the central teeth ($p > 0.05$), but values for the two OSAS groups were significantly different from those for the control group ($p < 0.05$). In the canine and first molar teeth, a statistically significant difference was found between the control group and the severe OSAS group ($p < 0.05$). **Conclusions:** Our study indicates that there is a relationship between OSAS and tooth mineralization. However, further controlled studies comprising a greater number of patients are needed to investigate the relationship between tooth mineralization and OSAS. **Key words:** Obstructive sleep apnoea syndrome, DIAGNOdent, tooth mineralization.

OP – 2**AWARENESS OF HEPATITIS B INFECTION AMONGST THE PEOPLE OF ADIYAMAN, TURKEY.****Metin Çalışır¹, Ahmet Cemil Talmaç²**¹*Adiyaman University Faculty Of Dentistry Department of Periodontology;* ²*Private Yildiz Dental Clinic; Adiyaman, Turkey*

Background: Viral hepatitis has become a silent epidemic worldwide. More than two billion people have been infected with hepatitis B virus (HBV). Globally, 350-400 million suffer from chronic HBV infection. In a dental office, infections can be expedited through several routes, including direct or indirect contact with blood, oral fluids, droplet splatter, aerosols, etc. The aim of the present study is to determine the knowledge and awareness of Hepatitis B infection amongst the people who refer to our clinic. **Materials and Methods:** 244 patients randomly selected from among patients admitted to our clinic were included this study. Data about Hepatitis were obtained from the patients. Then, hepatitis condition of the patients were determined by Elisa test. The data were compared. **Results:** 72 patients were anti-HBs (+). 25 patients had received three doses of hepatitis B vaccine and 47 patients were unconsciousness about anti-HBs(+) status. 14 patients were HBsAg(+). 11 patients had known HBsAg(+) and 3 patients were unconsciousness. **Conclusion:** To decrease the burden of hepatitis in dental health care workers, it is recommended that the dental professionals should receive

immunization against hepatitis virus and should use individual protective equipments such as gloves, head caps, masks, etc. Necessary tests for the infectious diseases should be applied to all patients admitted to the clinic.

OP – 3**SELLA TURCICA MORPHOLOGY OF CLEFT LIP AND PALATE SUBJECTS: A CONE BEAM COMPUTED TOMOGRAPHY STUDY**

Mehmet Ertugrul Ciftci¹, Suleyman Kutalmis Buyuk², Mevlut Celikoglu³, Ahmet Ercan Sekerci⁴, Faruk Izzet Ucar⁵

¹*Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Akdeniz University, Antalya;* ²*Department of Orthodontics, Faculty of Dentistry, Ordu University, Ordu;* ³*Department of Orthodontics, Faculty of Dentistry, Akdeniz University, Antalya;* ⁴*Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Erciyes University, Kayseri;* ⁵*Department of Orthodontics, Faculty of Dentistry, Selcuk University, Konya; Turkey*

Aim: The aims of this study were to evaluate the calcification and morphology of the sella turcica and the horizontal and vertical position of the sella point of patients affected by unilateral (UCLP) and bilateral (BCLP) cleft lip and palate and to compare the findings with a well-matched healthy control group using cone-beam computed tomography. **Material and Methods:** The study sample consisted of 91 patients divided into three groups: the UCLP (23 males; mean age, 14.38±3.38 years), BCLP (19 males; mean age, 12.98±2.89 years), and control groups (49 males; mean age, 14.31±2.00 years). Measurements of length, depth, diameter of sella turcica, distances of sella point to frankfort horizontal (FH) line (S-HRL), and to the nasion vertical line (VRL) to FH (S-VRL), and shape of sella turcica were performed using Simplant Pro software. One-way variance analysis and post hoc tests were performed to compare the measurements among the groups. **Results:** Patients affected by UCLP and BCLP had statistically significantly decreased sella turcica diameter measurement compared with control group (P =0.01 and P =0.047, respectively). There were no significant differences among the groups in distances from "Sella" point to VRL and HRL (P >0.05). Moreover, number and percentage of normal sella turcica was higher than other types in all of groups. **Conclusion:** The UCLP and BCLP groups showed statistically significantly smaller values for sella turcica diameter compared with the control group by using cone beam computed tomography.

OP – 4**RADIOLOGICAL ANALYSIS OF PONTICULUS POSTICUS IN AN ORTHODONTIC POPULATION BASED ON CONE-BEAM COMPUTED TOMOGRAPHY**

Suleyman Kutalmis Buyuk¹, Ahmet Ercan Sekerci², Yasin Atakan Benkli¹, Abdullah Ekizer³

¹*Ordu University, Faculty of Dentistry, Department of Orthodontics;* ²*Erciyes University, Faculty of Dentistry, Department of Oral and Maxillo Facial Radiology;* ³*Erciyes University, Faculty of Dentistry, Department of Orthodontics; Turkey*

Objectives: The ponticulus posticus (PP; Latin for little posterior bridge) has become an important anomaly of the atlas, as the use of the C1 lateral mass screw has become common in treating atlantoaxial instability. The purpose of this study was to retrospectively determine the prevalence and morphologic characteristics of PP in an orthodontic patient population using cervical three-dimensional

(3-D) cone beam computed tomography (CBCT) images. Material and Methods: A retrospective study was conducted by selecting cervical 3-D CBCT images of 374 adolescent population and examining them for the presence and type of PP. **Results:** 161 patients with 298 complete or partial or bilateral or unilateral PPs were identified based on the 374 cervical 3-D CBCT scans. The prevalence of posticus ponticus was founded 43.04% in adolescent population. **Conclusion:** Our results show that the presence of this anomaly should be carefully examined using preoperative lateral radiographs before lateral mass screw placement. If a PP is suspected or confirmed on radiographs, 3-D CBCT scanning should be considered before lateral mass screw placement into the posterior arch because of the variation in the size and shape of PPs and the possibility of injury.

OP – 5**THREE-DIMENSIONAL ASSESSMENT OF PALATAL VAULT AFTER TREATMENT WITH SELF-LIGATING BRACKET AND RAPID PALATAL EXPANSION**

Mehmet Emre Yilmaz, Faruk Ayhan Basciftci

Selcuk University, Faculty of Dentistry, Department of Orthodontics; Konya, Turkey

Aim: To evaluate palatal morphology and volumetric changes after treatment with rapid palatal expansion and self-ligating brackets. **Methods:** The sample for this retrospective study included 30 individuals treated with acrylic cap splint rapid palatal expanders, 30 individuals treated with passive SLB (self-ligating brackets), and 30 individuals treated with conventional brackets. Dental casts taken at the beginning of the treatment and at the end of the treatment were analyzed to measure palatal volume, surface area, height, intermolar inclinations, and interarch lengths of the teeth. Maxillary incisor positions were evaluated on lateral cephalograms. **Results:** The volume of the palate increased by 20.02% in the RPE (rapid palatal expansion) group, and by 9.08% in the SLB group, and surface area increased by 18.02% in the RPE group and by 6.14% in the SLB group. Arch lengths and molar angulation showed a greater increase in RPE group than other groups. Incisor retroclination and retrusion were observed in the RPE group and proclination and protrusion were seen in the SLB and standard bracket group. **Conclusions:** Palatal volume, surface area, interarch lengths were increased the most in the RPE group. Buccal tipping of molars was seen in RPE and SLB groups. Proclination and protrusion of maxillary first incisor was observed in the SLB group. Palatal volume and surface area change were observed in SLB group but these changes may result of the increase in arch lengths, buccal tipping of molars and the new position of maxillary incisors.

OP – 6**EVALUATION OF CHANGES IN MANDIBULAR SYMPHYSIS MORPHOLOGY AND DIMENSIONS AFTER FACE MASK THERAPY**

Zeliha Muge Baka

Selcuk University, Faculty of Dentistry, Department of Orthodontics; Konya, Turkey

Background: The orthopaedic facemask was introduced for maxillary protraction with a forehead and chin support and are commonly used in the treatment of Class III malocclusion characterized by maxillary retrognathism. The aim of this study was to evaluate changes in the morphology and dimensions of mandibular symphysis (MS) after face mask therapy in skeletal Class III patients.

Methods and materials: This study comprised 20 patients (9 females and 11 males, mean age of 12.1±1.8 years) with skeletal Class III malocclusion due to retrognathic maxilla. All patients were treated by a bonded acrylic-splint Petit type face mask, with a protraction force of 600 to 800 gf. When adequate overjet (min 2 mm) was obtained, face mask therapy was ended. The mean treatment period with face mask was 6.2±3.4 months. Lateral cephalograms were traced at the start (T1) and at the end (T2) of active treatment. Several craniofacial and MS parameters were measured. Paired-t test were used for statistical analysis. **Results:** The total length of MS was increased significantly after face mask therapy ($P < .001$). No significant changes were found in the other angular and linear parameters of MS ($P > .05$). **Conclusion:** This study showed that face mask therapy has no significant influence on the morphology and dimensions of MS except for its total length.

OP – 7**CORRELATION BETWEEN BRUXISM AND MALOCCLUSION IN THE UNIVERSITY STUDENTS AT THE AGE OF 18-25**

Gersi Vërcani¹, Brikena Lika¹, Alketa Qafmolla²

¹Private dental clinic; ²Faculty of Dental Medicine; Elbasan, Albania

Background: Bruxism can result in temporomandibular disorders, oral pain, and tooth wear. However, it is unclear whether bruxism affects malocclusion. **Objectives:** The aim of this study was to examine the association between self-reported bruxism and malocclusion in university students. **Methods:** During 2013 – 2014, 211 patients at the age of 18 – 25 were investigated, from which 166 female and 45 male. Malocclusion was defined using a modified version of the Index of Orthodontic Treatment Need. The presence of tooth wear, dental impression on the tongue, and the number of teeth present were recorded, as well as hypertrophy of masseter. Additional information regarding gender, awareness of bruxism, orthodontic treatment, and oral habits was collected via questionnaire. **Results:** The proportion of students with malocclusion was 42,7% (n = 90). In subgroup analyses, the probability of crowding was significantly associated with awareness of clenching ($P < 0.01$). Also the awareness of clenching in subjects with deep bite and cross bite malocclusion was significantly higher than in those with normal occlusion (chi square test, $P < 0.01$). **Conclusions:** Awareness of clenching were related to deep bite, cross bite and crowding malocclusion in university students.

OP – 8**VOLUMETRIC CHANGES IN THE PHARYNGEAL AIRWAY AFTER FUNCTIONAL THERAPY WITH TWIN-BLOCK APPLIANCE**

Seniz Karaçay, Ersin Yildirim

Gata Haydarpasha Training Hospital; Istanbul, Turkey

Aim: Retrognathic mandible is considered as a risk factor for the respiratory function due to reduced pharyngeal airway dimension. The aim of this study was to evaluate three-dimensional volumetric changes in pharyngeal airway after functional therapy with Twin-block (TB) appliance

by using cone beam computed tomography (CBCT). **Subjects and Methods:** 30 patients (16 male, 14 female) with skeletal Class II malocclusion due to retrognathic mandible were participated in this study. All patients were treated with TB appliance. Volumetric changes in pharyngeal airway space were evaluated on CBCT images that were taken before treatment (T0) and after functional therapy (T1). Four reference planes were generated on CBCT images: (1)Frankfort Horizontal Plane, (2)CV1 plane, (3)CV3 Plane, (4)PNS Plane. CV1 plane divided the airway space into superior and inferior compartments. Airway volume was automatically calculated on T0 and T1 images for each patient. Differences were analyzed with Wilcoxon signed-rank tests, and Mann Whitney-U tests were used to compare the scores of male and female participants. Significance was set at $p < .05$. **Results:** In the evaluation of volumetric airway dimensions, statistically significant increases ($p < .01$) were determined in superior and inferior compartments. These increases also increased the total airway volume ($p < .01$). Comparison of gender differences was insignificant for all measurements ($p > .05$). **Conclusion:** CBCT can be successfully used to evaluate volumetric changes in the pharyngeal airway space. Forward mandibular displacement by TB appliance increases the pharyngeal airway volume in patients with retrognathic mandible.

OP – 9**EFFECTS OF ZYGOMA GEAR APPLIANCE FOR UNILATERAL MAXILLARY MOLAR DISTALIZATION**

Dogan Kilkis¹, Mevlut Celikoglu¹, Metin Nur², Mehmet Bayram³, Celal Candirli⁴

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Aim: The aim of the study was to evaluate the dentoskeletal effects of the Zygoma Gear Appliance (ZGA) used for unilateral maxillary molar distalization in patients with Class II subdivision malocclusion. **Material and methods:** This prospective clinical study consisted of 21 patients (9 males and 12 females; mean age: 15.68 ± 2.18 years) with unilateral Class II malocclusion treated using unilateral ZGA supported by zygomatic miniplate inserted on the Class II malocclusion side. The dentoskeletal effects of the system were evaluated using the cephalometric lateral and panoramic films by means of a paired t-test. **Results:** The mean amount of distalization for the maxillary first molar was found to be 5.31 ± 2.46 mm ($P < .001$) in 0.45 ± 0.12 years, showing an amount of 0.98mm distalization per month. It was also accompanied by a slight intrusion (0.76 ± 2.85 mm; $P > .05$) and distal tipping ($6.39 \pm 5.39^\circ$; $P < .001$) of the maxillary molar. The maxillary premolar also spontaneously moved distally 1.63 ± 1.90 mm ($P < .01$) with distally tipping ($4.05 \pm 3.47^\circ$; $P < .001$). Moreover, the inclination of the maxillary incisors and the overjet were decreased ($-1.59 \pm 1.45^\circ$; $P < .001$ and -0.29 ± 0.63 mm; $P < .05$, respectively) showing no anchorage loss. No statistically significant changes were found for the skeletal and soft tissue measurements ($P > .05$). **Conclusion:** ZGA system was found to be an effective method for unilateral maxillary molar distalization without anchorage loss.

OP – 10**INVESTIGATION OF RELATIONSHIP BETWEEN “SELLA TURCICA BRIDGE” AND “PONTICULUS POSTICUS”: A LATERAL CEPHALOMETRIC STUDY**

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Objectives The ponticulus posticus (PP) is a bridge of bone sometimes found on the atlas vertebra surrounding the vertebral artery and the first cervical nerve root. Bridging of sella turcica is the fusion of anterior and posterior clinoid processes. It appears that tooth formation and eruption and sella turcica bridge calcification, as well as neck and shoulder skeletal development, are influenced by neural crest cells. On this basis, main purpose of this study is to find out the association between sella turcica bridging and ponticulus posticus. **Materials and methods** Digital lateral cephalograms from 752 patients, comprising 376 males and 376 females, within two age subgroups (9-15 and 16-24) were examined. Each radiograph was carefully inspected for the presence of a sella turcica bridging and a ponticulus posticus and whether it was complete or partial. Shape and morphological appearance of sella turcica were assessed according to the method described by Axelsson et al. Direct visual method of examination under adequate illumination was used. During initial examination all lateral cephalograms were observed by a radiologist and an orthodontist (MT and HK). A chi-square test was used to find out the association of sella turcica bridging and ponticulus posticus. **Results** Statistically significant association was found between sella turcica bridging and PP ($p=0,000$, $p<0,001$). **Conclusion** This study indicates that PP was found to be present more in the patients with sella turcica bridging than the patients without sella turcica bridging.

OP – 11**COMPARISON OF THE EFFECTS OF TWO DIFFERENT ALT-RAMEC PROCEDURES: 5 WEEKS VERSUS 9 WEEKS**

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AIM: To evaluate and compare the skeletal, dentoalveolar and soft tissue effects of two different Alt-RAMEC procedures. **MATERIALS AND METHODS:** Thirty-two patients who met the criteria were randomly divided into two groups: Group 1 consisted of 16 patients (5 females and 11 males; mean age: 11.45 ± 1.87 years) who had Alt-RAMEC procedure for five weeks and Group 2 consisted of 16 patients (6 females and 10 males; mean age: 11.52 ± 1.29 years) who had Alt-RAMEC procedure for nine weeks. The parents of the patients were instructed to open the screw twice per day for one week and to close it twice per day for the following week (0.20mm per turn). Hard and soft tissue profile changes observed in both Alt-RAMEC groups were assessed using paired and Student's t tests. **RESULTS:** In both groups, the maxillae moved slightly forward (A-VRL, 0.93 ± 1.46 mm and 0.85 ± 1.07 mm, respectively; $P < .05$) and the mandible moved slightly

downward (Pog-HRL, 1.25 ± 1.32 mm and 1.04 ± 1.53 mm, respectively; $P < .05$). In the nine weeks of Alt-RAMEC group, the maxillae moved downward (A-HRL, 1.00 ± 1.28 mm and $P < .05$). The overjet was slightly increased (0.38 ± 0.66 mm and $P < .05$; 0.77 ± 0.68 , respectively; $P < .01$) and the overbite was decreased in both groups (-1.13 ± 1.13 mm and $P < .01$; -1.17 ± 1.72 mm, respectively; $P < .05$). Comparison of the groups showed no statistical significant differences for any parameter. CONCLUSION: Both Alt-RAMEC groups showed similar statistically significant dental and skeletal changes. KEYWORDS: Skeletal Class III malocclusion; Alt - RAMEC; Maxillary deficiency

OP – 12

MULTIPLE HYPERODONTIA: REPORT OF A CASE WITH SEVEN SUPERNUMERARY TEETH AND SIX IMPACTED PERMANENT TEETH

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Supernumerary teeth are known as the teeth in excess of the norma dentition and is an infrequent developmental alteration that appears in any area of the dental arches and can affect any dental organ. Multiple hyperodontia can be associated with several syndromes such as Gardner's, cleidocranial dysplasia, tricho-rhino phalangeic syndrome or in patients with cleft lip and palate. Conversely, the occurrence of multiple supernumerary teeth associated with any single syndrome is rare. The presence of supernumerary teeth is associated with different alterations in neighboring teeth, being the most common: over retained teeth or delayed eruption, ectopic eruption, dental malposition, occlusal problems, diastemas and rotated neighboring teeth, among a series of associated pathologies. The routine use of radiographic images during examination is a valuable tool that helps make the early diagnosis of these types of abnormalities. Keeping in mind that there are different treatment options, the therapeutic modalities increase. A case of a 16 year old female patient with multiple supernumerary teeth with non syndromic association is presented. The teeth were located in the maxilla and the mandible causing a severe malocclusion. This unusual case report, where a female patient who has 7 supernumerary teeth was without any syndromes. Patient also had 10 embedded permanent teeth (two incisor, four canine, four wisdom).

OP – 13

MINISCREW-ASSISTED RAPID PALATAL EXPANSION IN LATE ADOLESCENCE PATIENTS. CASE REPORT

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Rapid palatal expansion (RME) has been widely accepted method in patients with transverse discrepancy. However it has some restrictions such as limited skeletal movement, buccal tipping of dentoalveolar segments, root resorption, dehiscence of buccal alveolar bone and lack of long term stability especially when it applied to older patients. To overcome these side effects, bone-

borne expander, supported by four miniscrews, utilized in late adolescence patients. Sufficient maxillary orthopedic expansion with minimal buccal tipping was achieved without any traumatic surgical procedure such as surgical assisted rapid palatal expansion (SARPE).

OP – 14**EFFECTS OF CALCIUM-PHOSPHATE BASED BONE CEMENT ON ORTHODONTIC MINI-SCREW STABILITY**

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Background: Augmenting bone with various cements has been shown to be an efficient way to improve the fixation of cancellous bone screws. Nowadays in the field of orthopedics, if there is weak or inadequate cortical bone, application of calcium-phosphate based bone cements during fixation of the bone fracture areas is very popular. The aim of our study is to evaluate the effects of calcium phosphate based bone cement on orthodontic miniscrew stability. **Methods and Materials:** Twenty-three adult male New Zealand rabbit were used. Four miniscrews were inserted to the femur bones of the each rabbits. Rabbits were randomly divided into 3 groups (group 1, self drilling group; group 2, self tapping group; group 3, self tapping with cement application). After 12 weeks later the operation, rabbits were sacrificed. All specimens were prepared for histomorphometric, radiographic (micro-CT), mechanical and resonance frequency analysis (RFA) tests. **Results and Conclusion:** There were no significant difference between groups in biomechanics, RFA and Micro-CT values. However, new formed bone area and number of osteoblast statistically increase in-group 3 that we applied bone cement. According to our research calcium phosphate based bone cement around the screw has demonstrated positive effects on bone healing in 12-week period, but the biomechanical properties of screws did not contribute positively. In future studies biomechanical contribution of bone cement should be investigated long and short-term with applying screws to different bone density areas.

OP – 15**THE EFFECTS OF MECHANICAL VIBRATION ON THE RATE OF TOOTH MOVEMENT: 3D EVALUATION**

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Background: Accelerating tooth movement and therefore shortening treatment time can prevent complications related to long treatment times. These problems motivate the investigation of the acceleration of tooth movement with surgical, chemical, and physical methods. The aim of this study were to evaluate the effectiveness of mechanical vibration on the rate of tooth movement. The null hypothesis was that there was no statistically significant difference on the rate of tooth movement with contralateral control side compared experimental side. **Materials and methods:**

Forty maxillary canines of 20 patients (8 male, 12 female) with Class II division I malocclusion with increased overjet were evaluated in this split-mouth study. A mechanical vibration appliance was used on every patients maxillary archs right or left side during canine distalization for 3 months. Every 28 days, intraoral scans and 3D digital models were obtained. The 3D digital models were superimposed after 3 months to measure orthodontic tooth movement. The superimposition of the digital models was performed with best fit method. The tooth movement rates of the AcceleDent and control sides during all time periods were evaluated with an independent samples t-test. Results: There was no statistically significant difference between the contralateral control side and the experimental side in terms of orthodontic tooth movement rate. The average rate based on the device's use data indicated 89.05% compliance with device. Conclusions: There is a need for additional studies on mechanical vibrational stimulation as an auxiliary approach to orthodontic treatment before such mechanical vibration devices are used routinely.

OP – 16

REASONS FOR PERMANENT TOOTH EXTRACTION IN ORTHODONTIC TREATMENTS

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Background: There are many reasons for tooth extraction. One of them is for orthodontic purposes. The aim of this study was to identify the reasons for permanent tooth extraction in orthodontic treatments. Material and methods: The population of this study consisted of 1842 patients who completed orthodontic treatments, aged 11–18 years, 681 males and 1161 females. Each patient's age, gender, number of extracted teeth and the reasons for the extraction were recorded for a period of 2 years (2014-2015). Number of treatments with and without tooth extraction were 768 and 1074. The reasons for tooth extraction were assigned to eight groups: caries and periodontal problems (poor prognosis), severe malposition, crowding, camouflage, stability, arch asymmetry, impacted tooth and others. A tooth could be extracted for several reasons. Results: The number of female patients was higher than males. The rate of orthodontic treatment with tooth extraction was 41.7%. The number of extracted teeth and the reasons for the extraction were 2263 and 2486. Maxillary and mandibular 1st premolars were the most frequently extracted teeth. The main reasons for extraction were crowding (55.5%), camouflage (18.6%), arch asymmetry (7.4%). Conclusion: The number of orthodontic treatment with tooth extraction was relatively high. In orthodontic treatments, sometimes a tooth can be extracted from multiple reasons. Although the main reason for extraction was crowding, there were different reasons for orthodontic tooth extraction. In most of the patients, tooth extraction can be considered to prevent by protective and preventive treatments at early ages.

OP – 17**EVALUATION OF SERUM AND SALIVARY TOTAL OXIDANT-ANTIOXIDANT STATUS OF CHILDREN UNDERGOING FIXED ORTHODONTIC THERAPY**

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Evaluation of Serum and Salivary Total Oxidant-Antioxidant Status of Children Undergoing Fixed Orthodontic Therapy
Background Some components released from orthodontic composites and nickel titanium arc wires may cause various adverse effects in the organism, such as allergic reactions, systemic toxicity, cytotoxicity, mutagenicity, and carcinogenicity. Aim of this in vivo study was to determine the total oxidant status (TOS), total antioxidant status (TAS) and oxidative stress index (OSI) levels in serum and saliva in orthodontic patients. **Methods and Materials** Forty-four healthy individuals (14,42 ±2,05 years) were participated in the study. All teeth were bonded with Transbond XT (3MUnitek, Monrovia, Calif) and preadjusted edgewise brackets (Dentaurum, Germany) were used. Treatment was started with 0.014 nickel-titanium archwires. Blood samples and saliva samples were collected before bonding (T1) and after 3 months (T2) and the samples were centrifuged at 1500 x g for 15 min and stored at -80 °C for biochemical analyses. TAS and TOS of serum and saliva samples were measured using an automated colorimetric method developed by Erel (Rel Assay Diagnostics kits, Mega Tip, Turkey). OSI values were calculated as follows: OSI (arbitrary unit) =TOS (µmol H₂O₂ Eq/l) / TAS (µmol Trolox Eq/l) x 100. **Results** There were no significant differences in TOS, TAS, and OSI within the time Periods (T2-T1) in saliva (p>0.05). Although statistical significantly increasing was found in serum TAS (p<0.01), TOS (p<0.05) and OSI (p<0.05). **Conclusion** In orthodontic patients, cytotoxicity markers in saliva were not changed but these markers were increased in serum.

OP – 18**EFFECTIVENESS OF DAMON SYSTEM AS A SELF-LIGATING BRACKET**

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Background: Self-ligating brackets (SLBs), first described several decades ago, have undergone a renaissance in the last 10 years. Some of their advantages over conventional ligating brackets (CBs) include faster wire engagement and disengagement, shorter treatment appointments, and reduced treatment time, as well as increased patient comfort. However, several controversial aspects regarding their mode of action and correction of malocclusions have been suggested. So, the aim of this review is to evaluate the effects of a passive self-ligating system by presenting the treatment outcomes of cases treated with Damon system. **Methods and Materials:** Five cases with different malocclusions treated in clinic of orthodontic department were selected. All cases were evaluated intra-orally and extra-orally. The radiographic examinations were also performed. The values about cephalometric measurements and treatment time were noted. **Results:** Each

individual malocclusion was corrected successfully. Well-aligned and coordinated arches were obtained. Conclusions: SLBs correct crowding by mechanisms involving incisor proclination and protrusion and expansion of the dental arches. Damon system is capable of correcting any kind of malocclusion.

OP – 19**EFFECTS OF DIFFERENT RATES OF MESIAL MOLAR MOVEMENT ON THE THIRD MOLAR ANGULATION**

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Introduction The aim of this study is to evaluate the effects of different anchorage types on the third molar eruption and angulation. **Methods:** Panoramic radiographs of 90 patients undergoing orthodontic treatment with 4 premolar extractions; or congenitally missing premolars were collected pre- (T0) and post-treatment (T1). They were divided into 3 groups according to the type of anchorage used. Groups consisted of 30 children with each one (1) minimal mesial-molar-movement (MinM), (13 males, 17 females, mean age 13.7±1.4 years), (2) moderate mesial-molar-movement (ModM), (18 males, 12 females, mean age 13.9±1.6 years), and (3) maximum mesial-molar-movement (MaxM), (16 males, 14 females, mean age 14.2±1.5 years). The angles were measured between the long axis of the developing third molars and the horizontal reference plane on panoramic radiographs. A p value of less than 0.05 was considered as statistically significant. **Results:** The third molar angulations showed a significant improvement in post-treatment records (T1) compared to pre-treatment records (T0). Pre-treatment third molar angulations were significantly different in the MaxM (maxillary: mean±SD degrees; mandibular: mean±SD degrees) cases compared to the MinM (maxillary: mean±SD degrees; mandibular: mean±SD degrees) and ModM (maxillary: mean±SD degrees; mandibular: mean±SD degrees) cases (p<0.05). Angular changes of the maxillary (p<0.001) and mandibular (p=0.030) third molars have been found greater in the MaxM cases than the MinM cases. **Conclusion:** Different rates of mesial molar movement have significant effects on the third molar angulation. Angular changes of the third molars have been found greater in the MaxM cases than the other groups.

OP – 20**THE EFFECTS OF REVERSE HEADGEAR ON CONDYLAR AND RAMAL VERTICAL ASYMMETRY**

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Aim: The orthopedic fasemask was used for maxillary protraction anchored by forehead and mandibular support. The aim of this study was to evaluate the side effects of reverse headgear to the condylar and ramal vertical asymmetry. **Material and method:** This study comprised 20 patients (5 females and 15 males) with skeletal pattern due to retrognathic maxilla and dental class III relationship. We examined panoramic radiographs to evaluate condylar and ramal vertical asymmetry changes before and after reverse headgear treatment. Habets method was used to

assess vertical mandibular asymmetry. The Wilcoxon test was used to determine possible statistical differences between the right and left sides for condylar height, ramal height, and asymmetry indexes. Results: There was not statistically significant difference between the before and after treatment in the ramal height and condylar height and asymmetry index measurements in the right and left side ($P>0.05$). Conclusion: This study showed that reverse headgear has not significant side effect on condylar and ramal vertical asymmetry

OP – 21**EVALUATION OF HIGH-SENSITIVITY C REACTIVE PROTEIN AND OTHER BIOCHEMICAL PARAMETERS LEVEL IN ORTHODONTIC PATIENTS**

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Objective: The aim of this study was to assess effects of fixed orthodontic therapy on high-sensitivity C-reactive protein (hs-CRP) level, CBC parameters and levels of aspartate aminotransferase (AST) and alanine aminotransferase (ALT), gamma glutamyl transferase (GGT), alkaline phosphatase (ALP), urea, creatinine, sodium (Na), potassium (K), calcium (Ca), total protein (TP), and albumin (Alb). **Methods:** Blood samples (7 ml) were drawn at baseline, on days 1 and 7, and three months after placement of braces in the study group, while only one blood sample was drawn in the control group. Serum hs-CRP levels were measured by nephelometric method. Friedman two-way variance analysis was used to assess values with skewed distribution obtained at baseline, on days 1 and 7, in the third month. Wilcoxon rank sign test was performed if median values were unequal. **Results:** During measurement periods, there were significant increases in hs-CRP level, WBC count and neutrophil count while a significant decrease in Na level. K level was significantly decreased on the day 1. No significant differences were detected in other biochemical parameters evaluated. **Conclusions:** Elevation in serum hs-CRP levels within first 3 months indicates that a systemic immune response develops against therapy in patients undergoing fixed orthodontic therapy.

OP – 22**EVALUATION OF CEPHALOMETRIC CRANIOFACIAL FEATURES IN TURKISH PARENTS AND THEIR OFFSPRING**

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The aims of this study to determine the effect of the genetical inheritance on the craniofacial structures, to find out the aspects of facial aesthetics and craniofacial bones in which direction to develop before the orthodontic treatment. Based on the results of the study, to obtain more accurate determination of growth patterns, to find out what values are affected by environmental factors and which of affected

by genetical factors. For this study, individuals and parents who applied to Selcuk University Faculty of Dentistry of Department of Orthodontics treatment, whose lateral and posterior anterior cephalometric radiographs were examined. Families considering with their children are divided into the groups according to Angle classification skeletal Class I, II and Class III and a total of 212 subjects (53 mothers,53 fathers,53 daughters,53 sons) were included in the study. All girls and boys were evaluated among each others and also with their parents as well. As a result of statistical analysis; in the Class I girl group mother-daughter compliance showed more correlation than father-daughter compliance, on the other hand, in the Class II girl group the harmony between father and daughter is more than the harmony between mother and daughter. However, in the Class III girl group high correlation is observed with both mother and father. As a result, especially in the inner family parents-children groups, many cephalometric craniofacial properties have high correlations and heritability and older siblings can provide meaningful information to the young brothers who can need to be treated and prevented early of craniofacial anomalies.

OP – 23

COMPARISON OF SELLA TURCICA CLASSIFICATION OBTAINED FROM LATERAL CEPHALOMETRIC RADIOGRAPHY WITH CONE BEAM COMPUTED TOMOGRAPHY

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OBJECTIVES: The aim of this study was to compare the sella turcica classification obtained from lateral cephalometric radiography (LCR) with cone beam computed tomography (CBCT). **MATERIALS AND METHODS:** A total of 115 data of patients (52 males and 59 females) who had been referred to Department of Dentomaxillofacial Radiology including both CBCT and LCR were investigated retrospectively. The shapes of the sella turcica of each individual were described and classified according to the classification system by Axelsson et al. using LCR. Then the sella turcica classification was determined using sagittal section and 3-D image from CBCT. **RESULTS:** A normal sella turcica was the most common type found and was seen in 33 individuals, (28.6 %), followed by the type f (22,6 %) and type d (20 %). A weak agreement ($\kappa:0,58$) was found between right sella turcica CBCT image and LCR, a moderate agreement ($\kappa:0,67$) was found between right and left sella turcica CBCT images according to the sella turcica classification. A weak agreement ($\kappa:0,51$) was also found between left sella turcica CBCT image and LCR. **CONCLUSION:** Within the limitation of the present study two dimensional sella turcica classification using LCR may be varied when compared with three dimensional images since superimpositions of craniofacial structures may affect this 2D images.

OP – 24

EVALUATION OF TREATMENT PROCEDURES AMONG THE TURKISH ORTHODONTISTS

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Aim: To create a portrait of current orthodontic treatment procedures in Turkey. **Method:** The study was conducted via an online, 32-question survey (Survey Monkey) on certain questions. In

this study; 183 orthodontists were participated. The survey comprises questions which are comprehensive treatment applications. Statistical analysis was conducted using chi-square tests, and analysis of variance (ANOVA). Results: One hundred eighty-three responses were received. The most popular fixed appliance systems are Roth and MBT prescriptions. The use of lingual technique is not widely. Of our respondents, % 98.62 use stainless steel brackets, with secondly 64.83 % use ceramic brackets. The respondents were almost evenly divided between .018" and .022" slot size. The most preferred bonding material is light-cured adhesive and etching system is total etching. 94.48 % of participants apply to bands on first molars. Second molars apparently are not included in the arch by many practitioners, because 13.79 % reported routinely bonding second molars. 58.62 % respondents use light-cured glass ionomers. Majority of respondents prefer Nitinol and stainless steel arch wires. Twinblock, monoblock and Forsus were the most commonly used functional appliances. Most orthodontists use TADs for molar distalization. 48.89 % of the respondents use fixed bonded retainer and they apply with multistranded stainless steel. 47.71 % respondents prefer lifelong retaining procedure. Conclusions: This study offers us information about treatment approaches of Turkish orthodontists. We believe that this study would find highlights the work to be done next and contribute to the development of the orthodontics.

OP – 25

SKELETAL EVALUATION OF MANDIBULAR WIDENING BY DISTRACTION OSTEOGENESIS

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Aim: The purpose of this prospective study was to evaluate the skeletal evaluation of mandibular widening by midline distraction osteogenesis with using tooth borne distraction device. **Method:** The sample comprised of 20 (8 males, 12 females) patients with skeletal Class I and class II. The mean age in this study was $15,86 \pm 2,17$ years, ranging from 13,1 to 21,5 years. All patients had moderate and severe mandibular anterior crowding, V shaped arch form and maxillo-mandibular transverse deficiency. A custom made intraoral tooth-borne distraction device was used for distraction. During consolidation period, rapid maxillary expansion was also completed in all of the patients. The patient's records contained with postero-anterior radiographs and cephalometric images were obtained at the beginning of treatment, at the end of distraction (9.19 ± 0.85 days after surgery) and consolidation periods ($165,85 \pm 10,42$ days after surgery). For statistical analysis, paired t test and Wilcoxon signed-rank test were used. **Results:** When postero-anterior radiographs were analyzed bicondylar, bimolar, upper and lower implants widths statistically increased and bigonial widths decreased ($p < 0.05$). **Conclusions:** The short term results of this study would shows that mandibular midline distraction osteogenesis procedure provides an efficient non-extraction treatment alternative for mandibular dental crowding, by increasing the mandibular skeletal widths. Also, clinically there were no adverse effects on extraoral soft tissue.

OP – 26**A NEW APPLIANCE FOR IMPROVING THE MINI SCREW STABILITY****Nurhat Ozkalayci, Mehmet Yetmez***University of Bülent Ecevit, Faculty of Dentistry, Department of Orthodontics; Zonguldak, Turkey*

Introduction: The anchorage is the one of the most important subject of Orthodontics. Mainly, it can be classified as extra-oral and intra-oral. Extra-oral anchorage can be provided with extra-oral appliances. **Purpose:** The aim of this study is to present a new appliance called stability leg designed as an additional anchorage providing device for increasing primary stability of orthodontic mini screw. **Method and Materials:** Two finite element model (FEM) with two different cortical-layer thicknesses of 1 mm and 2 mm are considered by using a general purpose finite element code ANSYS. In order to achieve the stability analysis, these two main models namely Model I and II are divided into subgroups according to stability leg lengths. Two types of forces are considered: (1) First force is a constant force of 1 N is applied to all two models. (2) Second force is defined in the range of 1-4 N. Each 1, 2.5 and 4 N of the second force is applied with a position angle ranging from 34 to 44 degree. **Results:** The results of the proposed FEMs are significantly acceptable for the sake of experimental/clinical conditions. Results show that the stability leg with 5 mm increases primary stability of mini screws. **Conclusions:** Application of stability leg is useful for increasing primary stability of mini screws. However, this subject is a new area and there is in need of more investigation on this issue, i.e. new design to improve the clinical studies.

OP – 27**ASSESSMENT OF ORTHODONTIC TREATMENT NEEDS AND MALOCCLUSION IN TURKEY ACCORDING TO PARENTAL EDUCATION STATUS****Hasan Orakcioğlu¹, Mustafa Ersöz²***¹Adiyaman University, Adiyaman; ²Inönü University, Malatya; Turkey*

Aim: Assessment of orthodontic treatment needs and malocclusion in Turkey schoolchildren according to parental education status. **Material and Method:** Our working team consists of 514 volunteer students from the schools of Malatya region which accredited by the the Ministry of Education. Evaluation of orthodontics anomalies according to Angle classification and identification of orthodontic treatment need according to ICON index **Results:** In our study, %52,1 Class I, %43,8 Class II, %4,1 Class III anomaly have been observed according to the Angle classification. In our study, according to ICON index in %35.4 orthodontics treatment needs have been found. Variable on parental education; %46.7 Primary Education, %44.4 high school, %8,9 university **Conclusion:** As a result of our study; education of parents changes according to a difference in the assessment of orthodontic treatment need not be determined.

OP – 28**EFFECT OF DENTAL VISIT FREQUENCY ON DENTAL CARIES EXPERIENCE AND ORAL HEALTH FACTORS IN SCHOOLCHILDREN**

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Background: The present study determined the effect of dental visit frequency on dental caries experience and oral health factors in schoolchildren. **Methods:** This study was carried out on 300 adolescents (14-16 years old) of both gender who attending Selcuk University Faculty of Dentistry in Konya, Turkey. Mean DMFT (decay, missing and filling tooth), plaque and gingival index scores were identified for every individual. The WHO (World Health Organization) criteria and bitewing radiographs were utilized to diagnose the carious status of the subjects. Data on age, gender, dental visit frequency, oral health habits, parental educational status and mean family income were collected by a questionnaire completed by the subjects. Subjects were divided into two groups according to dental visit frequency (regular and irregular) after recording all data. Chi-square test was used for statistical analyze. **Results:** The sample consisted of 69 subjects for regular and 231 for irregular group, respectively. The significant association was found with dental visit frequency and age of first dental visit ($p<0.001$), mean caries ($p<0.001$) and filling ($p<0.05$) teeth, plaque index ($p=0.001$), toothbrushing frequency ($p<0.001$) and brushing before bedtime ($p<0.05$). There were no significant association with dental visit frequency and gender ($p>0.05$), mean missing teeth ($p>0.05$), mean DMFT ($p>0.05$), gingival index ($p>0.05$), usage dental floss ($p>0.05$) and mouthwash ($p>0.05$), mother ($p>0.05$) and father ($p>0.05$) educational level and mean family income ($p>0.05$). **Conclusion:** It is thought to regular dental visit is extremely important for children's oral care and in terms of reducing the overall caries risk.

OP – 29**PENETRATION-DEPTH AND MICROLEAKAGE OF FISSURE SEALANT MATERIALS AFTER CYCLIC AGING**

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Backgrounds: Dental caries is one of the most affecting bacterial diseases to the humankind. As well as caries prevalence and severity have decreased in many countries, reducing of prevalence of the fissure caries is still ineffective because of the complex fissure morphology. Fissure sealant application is one of the most reliable and effective method for preventing occlusal caries. The aim of this study was to evaluate penetration-depth and microleakage of eight different fissure-sealant materials applied with/without enameloplasty. **Methods and materials:** 160 mandibular molars were divided into two main groups (non-invasive and enameloplasty) and further eight subgroups including three flowable composites (Filtek Ultimate Flow, GrandioSo Flow and Majesty Flow), three resin-based (Clinpro Sealant, Fissurit FX and GrandioSeal), and a giomer-

based (BeautiSealant) and a glass ionomer-based fissure sealant (Fuji Triage)(n=10). Specimens subjected to two-year cyclic chewing and brushing simulation. After 0,5% basic fuchsin dye penetration and sectioned of teeth, specimens were evaluated under stereomicroscope in terms of penetration depth and microleakage. Data were analysed using Kruskal Wallis and Mann Whitney U tests ($p < 0,05$). Results: It was observed that enameloplasty significantly enhanced penetration of tested materials ($p < 0,05$). However, the main groups were not significantly different in terms of microleakage ($p > 0,05$). While flowable composites showed significantly the most penetration-depth and the least microleakage, glass-ionomer based sealant showed the least penetration-depth and the most microleakage in both main groups. Conclusion: When compared to conventional fissure sealants, flowable composites offer better results with regard to penetration depth and microleakage after cyclic chewing and brushing simulation.

OP – 30**THE COMPARISON OF CARIES DEGREE AND SALIVARY S.MUTANS, CALCIUM LEVELS IN PRESCHOOL CHILDREN**

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INTRODUCTION The purpose of this study was to evaluate the salivary Streptococcus mutans, calcium and dft levels at South-east Anatolia. **MATERIALS AND METHODS** 243 children; aged between 24-72 months included this study. The children were examined and dental caries was determined. These children were requested to rinse their mouth with distilled water and wait for 5 minutes. Then spit all of the saliva accumulated in their mouth during 5 five minutes once a minute into the tube five times. Microbiological studies were performed. Saliva Ca measurements were performed with commercial kits. Then all data were statistically analyzed. **RESULTS AND DISCUSSION** DfT value without discrimination between boys and girls was found to be 4.52 ± 2.36 . The relationship between the levels of calcium in saliva and DfT was statistically significant ($r = 0.731$, $p = 0.00$, $p < 0.05$). In this study there was a negative correlation between maternal educational level and DFT ($r = 0.202$, $p = 0.02$, $p < 0.05$). Microbiologically there was no significance between gender and MS colonization ($p = 0.778$, $p > 0.05$). In this study a negative relationship was found between mutans colony and calcium levels. ($r = 0.376$, $p = 0.00$, $p < 0.05$). This is significant statistically. **CONCLUSION** However there was a significant relationship between MS colonization and dft, a negative correlation was found between MS colonization and calcium level. This situation suggests effect of calcium levels on MS colonization, further studies need to be done to see more influence on these issues.

OP – 31**EVALUATION OF FLUORIDE RELEASE AND RECHARGE ABILITY OF THE DIFFERENT CONTENT GLASS IONOMER MATERIALS**

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Background: The aim of the study was to evaluate the fluoride release and recharge ability of various glass ionomer materials. **Materials and Methods:** In this study, three different content glass ionomer materials were used (GC Fuji Triage, GC Fuji VII EP, GCP Glass Seal). Thirty specimens (8.0x2.5 mm) were immersed in 20 ml of deionized water for initial aging during 49 days. The analysis days were defined as 1/2/4/8/15/22/29/36/43 and 49 days and a digital ion analyzer was used. The specimens were immersed in 1.23% APF gel on the 49th day. After recharging, fluoride release measurements were repeated in the same intervals. The results were statistically analysed using non-parametric Kruskal Wallis and Mann-Whitney U test. Friedman test and Wilcoxon test used for intertemporal comparisons ($\alpha = 0.05$). **Results:** The highest fluoride release values for all materials were observed at the first day ($p > 0.05$), this value is decreased depending on the time. GCP Glass Seal released the most fluoride on the first day and fluoride release values from this material were found statistically significantly different from GC Fuji VII EP ($p < 0.05$). It has been detected that, recharging with APF fluoride gel increased the fluoride release of the materials, however, the fluoride release levels decreased within time. **Conclusion:** All materials released fluoride during the study period and have ability of recharging. In comparison to conventional glass ionomer material; while the fluoroapatite/hydroxyapatite added glass ionomer material released similar fluoride, casein phosphopeptide-amorphous calcium phosphate added glass ionomer material released less.

OP – 32**THE CHARACTERISTICS, PREVALENCE AND RELATED RISK FACTORS OF TOOTH WEAR IN TURKISH CHILDREN**

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Background: Tooth wear is increasing due to multifactorial reasons and little data exist on the prevalence of the Turkish children. This study aims to evaluate the prevalence, characteristics and related factors that may cause tooth wear. **Methods & Materials:** This study covers up to 932 children including (482 girls and 450 boys) with an age range of 2-14 years who were referred to the Faculty of Dentistry and Department of Pediatric Dentistry at Necmettin Erbakan University as patients for dental examinations. Consent forms and surveys were filled out by the parents. We looked for any signs of tooth wear by two observers, using the Modified O'Brien Index for the classification of erosive lesions. Our survey examined the age, gender, family income, education levels of the parents, medical and dental histories, gastroesophageal reflux (GEPD) presence, consumption of carbonated beverages and bruxism. **Results:** 178 of 482 girls surveyed

and 184 out of 450 boys surveyed had signs of tooth wear. The patient data was grouped according to the dentition stages. In the primary dentition stage, out of 154 girls examined, 78 had signs of tooth wear while 88 out of 154 boys examined displayed signs of tooth wear. In the mixed dentition stage, 74 of 240 girls and 88 of 244 boys examined had signs of tooth wear. And finally, in the permanent dentition stage, 24 of 82 girls and 10 of 54 boys showed signs of tooth wear. **CONCLUSION:** Tooth wear is a common problem in children and as a result of a lack of diagnosis and eliminating the etiologic factors, we may experience irreversible clinical conditions.

OP – 33

THE INVESTIGATION OF INCIDENCE AND LOCALIZATION OF CARIES IN DIFFERENT STAGE OF DENTAL DEVELOPMENT

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Background: Dental caries is the most prevalent chronic infectious disease in developing countries. Because of its high prevalence, dental caries in children has been described as an epidemic disease characterised by untreated teeth causing pain, discomfort and functional limitations. The number of studies reporting that in which dental caries prevalence of teeth groups in different stages of development is quite few in the literature, although there are a lot of studies indicating that caries prevalence and risk factors in children. The purpose of this study was to conduct an analysis of variation in affected teeth incidence due to dental caries at different stages of dental development in a specific Turkish population. **Methods and Materials:** The study was conducted on children admitted to the Necmettin Erbakan University, Department of Pediatric Dentistry because of various treatment needs to evaluate prevalence of dental caries relation to the age groups. A total of 622 children, aged 3-15 year old, were selected for radiographic examinations. Groups were determined considering the stage of dental development including 3-5 year old (Group A), 6-11 year old (Group B), 12-15 year old (Group C). The statistical analysis was performed using the Chi-square test, considering a minimal level of 5% of significance. **Results:** It was shown that the most affected teeth is primary 1. molars in Group A, primary molars in Group B, permanent 1. molars in Group C. **Conclusion:** The newly erupting teeth- particularly 1. molars- is susceptible to decay and preventive applications is important in this regard.

OP – 34

PREVALENCE OF TRAUMATIC INJURY TO THE PRIMARY TEETH

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In modern living conditions, children are being increasingly exposed to various types of traumas, and traumatic injury to the primary teeth and adjacent soft tissues are very common. Aim of the paper was to establish the prevalence of various traumas to the primary teeth in infants and pre-school children. **METHODS AND MATERIALS .** The study involved 70 children aged 2-5 years,

treated at the Dentistry Clinic in Niš. The data was obtained from the patient trauma records. **RESULTS.** The results demonstrated that there were statistically significantly more ($p<0.001$) periodontal tissue injuries (91.31%) in relation to hard dental tissue injuries (8.69%). Of all periodontal injuries, subluxations were statistically significantly ($p<0.001$) more common in comparison to other injuries (subluxation, 50.01%; intrusion, 26.35%; extrusion, 13.87%, lateral luxation, 17.26%; and avulsion, 14.14%). Injuries to the teeth were approximately equally distributed between the genders. **CONCLUSION.** In primary dentition, injuries to the supporting dental apparatus are more common than hard dental tissue injuries. Subluxations are the most prevalent injuries. Parent inclusion into the program of primary prevention of primary teeth injuries is necessary in order to reduce the prevalence of dental traumas.

OP – 35**THE REASONS FOR PRIMARY TOOTH EXTRACTIONS IN PRESCHOOL CHILDREN**

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Background: Extraction of a primary tooth is a treatment option for pediatric dentists because of some reasons, even if the age of a patient is earlier. The aim of the study was to investigate the primary reasons for extraction of primary teeth in preschool children. **Materials and Methods:** Retrospective evaluation was performed by using the dental records of preschool children (aged 3-6 years) who applied to the clinic of Bulent Ecevit University Faculty of Dentistry, Department of Pediatric Dentistry for treatment between the years of 2011-2015. Age, gender, type of extracted tooth and the reason for the extraction were the evaluated parameters. Statistical analysis was performed by using Chi-square test ($p>0.05$). **Results:** It was determined that, in 702 patients (340 males and 362 females), 1183 primary teeth were extracted. Primary first molars (40,8%) were the most extracted type of tooth. Extraction due to caries (86,2%) was found to be the most common reason. There was no significant difference between genders ($p>0.05$) when the percentage of the extracted teeth were compared between genders. **Conclusion:** Caries may be considered as the main reason for extraction of primary tooth in preschool children. Therefore, preventive programmes should be planned and given importance to prevent the primary tooth loss in early ages.

OP - 36**THE PREVALENCE, SEVERITY AND CHARACTERISTICS OF MOLAR INCISOR HYPOMINERALIZATION IN TURKISH CHILDREN**

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Background Molar incisor hypomineralization (MIH) describes the clinical picture of hypomineralization of systemic origin affecting one or more first permanent molar. The prevalence of MIH varies considerably around the world; however, there is a rarity of prevalence studies in Turkish children. The aim of this study was to investigate the prevalence, severity and

characteristics of MIH among 8-12-years old children living in Zonguldak, Turkey. **Methods and Materials** This study consisted of 961 children aged 8-12 years. Inspection of teeth was performed by using the EAPD-2003 criteria for diagnosis of MIH. The gender and age of the child, affected teeth and the signs of MIH were recorded. The severity of MIH was determined. The examinations were conducted by two previously trained observers, and data were statistically analyzed. **Results** MIH was observed in 99 patients among the examined population and of them, 56 were girls (56.5%) and 43 were boys (43.5%) ($P>0.05$). In these patients, a total of 1188 permanent teeth were detected, and 361 (30.3%) teeth of them were affected by MIH. Among 12 teeth involved in the examination, the most commonly affected teeth were in descending order 36, 46, 16, 11 [FDI]. Of the MIH teeth, 78.3% revealed mild defects and 21.7% exhibited severe defects. **Conclusion** MIH was common among Turkish children with a prevalence of 10.3%. The knowledge of the intra-oral distribution and severity of MIH findings at the enamel surface is important for assessing the treatment necessity.

OP – 37**AVULSION STORAGE MEDIA'S EFFECTS ON PERIODONTAL LIGAMENT FIBROBLASTS DIFFERENTIATION**

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BACKGROUND:An avulsed tooth must be store in solution which maintain periodontal ligament (PDL) cells viability.The aim of the study is investigating whether HBSS and milk leads to PDL cells differentiation or not. **METHODS AND MATERIALS:**Extracted healthy premolar and third molars which mimics avulsed teeth immersed in HBSS,milk and Dulbecco's modified Eagle's medium-Ham's F12(DMEM-F12) at 4°C for 30-60 min or 12 h.The growth dynamics of periodontal ligament fibroblasts(PDLF) was evaluated with cell proliferation graphics and population doubling time(PDT) values.To investigate osteoblast or osteoclast differentiation,Runx-Related Transcription Factor2(RUNX2) and Receptor activator of nuclear factor kappa-B ligand(RANKL) IF markers were used respectively. Collagen type XII(COL12) expression was evaluated to understand whether PDL cells' protecting fibroblast identity or not.Samples were examined with laser confocal scanning microscope. **RESULTS:**When percentage of cell number and PDT values were evaluated,there weren't statistically significant difference between groups.In HBSS groups,Runx2 expression increased,while RANKL was stable,COL12 decreased.Those values showed PDLF was inclined towards osteogenic differentiation.In DMEM-F12 groups,Runx2 expression decreased while RANKL increased,COL12 was stable showing tendency for osteoclastogenic differentiation.But,in milk groups,Runx2 expression decreased while RANKL and COL12 were stable,this means PDLF protected fibroblast identity.Consequently,milk is advisable for storage media. **CONCLUSION:**In vitro studies about HBSS and cell culture medium like DMEM-F12 were showed they are successful in maintaining cell viability.However such studies weren't able to give any answer of questions about tooth resorption after avulsion.Meanwhile,this study

can answer the questions about prognosis of avulsed teeth stored in particular media in short term and would be used for further evaluations regarding estimated prognosis.

OP – 38**COMPARISON OF USING LEFT SIDE AND RIGHT SIDE OF MANDIBULAR TEETH IN WILLEMS METHOD**

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BACKGROUND: Age estimation plays a significant role in forensic science, archeology, pediatric endocrinology and dentistry. Tooth development is a reliable pathway for age estimation. The first aim of this study was to compare using left side and right side of mandible in Willems method. The second aim was to investigate the reliability of Willems method in Turkish population. **MATERIALS AND METHODS:** In this study; the orthopantomograms of the 220 patients (110 girls, 110 boys) aged between 5,08 and 15,91 years old were used who came to Pamukkale University, Faculty of Dentistry, Denizli, Turkey for dental examination. On each orthopantomogram, dental age was estimated according to the development stages of mandibular seven teeth on both left and right sides of mandible using Willems method by two observers. Data was analyzed using SPSS version 16.0. Kolmogorov-Smirnov test was performed to test the normality of the data. Since the results of the test showed normal distribution, parametric tests were performed. Analyzing of the differences between the left side and right side of estimated dental ages and the correlation between the chronological ages and the estimated dental ages were statistically tested using paired sample t- test. **RESULTS:** The difference between using the left side and right side of mandibular teeth in Willems method and the difference between the chronological age and estimated dental age is statistically non-significant. **CONCLUSION:** Both side of mandible can be used as a reliable choice for estimation of chronological age and Willems method satisfactorily determines dental age in Turkish population.

OP – 39**ETIOLOGY, DIAGNOSIS AND MANAGEMENT OF PRE-ERUPTIVE INTRACORONAL RESORPTION: A RARE PHENOMENON**

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Background: The aim of this study was to evaluate etiology, prevalence, diagnosis and treatment of pre-eruptive intracoronar resorption (PEIR) and describe a case of a primary second molar with PEIR diagnosed in a 9-year-old patient using cone beam computed tomography (CBCT). **Materials and Methods:** A 9 years old male referred to the Department of Pediatric Dentistry at Izmir Katip Çelebi University with intruded maxillary left central tooth. The dental examination showed that maxillary right first molar inclined to mesial and there was no primary second molar at this side. The panoramic radiograph showed an unerupted maxillary right primary second molar. It was decided to obtain CBCT images from the patient to clarify of the localization of the tooth for

extraction. The CBCT images revealed that intracoronal resorption of the unerupted maxillary right primary second molar. Results: Except for a case report, a PubMed search did not retrieve any screening studies on the prevalence of PEIR in primary teeth. Thus, the present study seems to be the first report of PEIR in a primary tooth with CBCT imaging. Conclusion: The clinical significance of PEIR defects are rapid rate of progress and needs endodontic treatment, so a careful radiographic examination of unerupted teeth is essential for early diagnosis and treatment. The diagnosis of PEIR at an early stage is important to limit the extent of the resorptive lesion and prevent its progression into the dental pulp.

OP – 40**BILATERAL FUSION OF MAXILLARY CENTRAL INCISORS WITH SUPERNUMERARY TEETH: DIAGNOSIS OF A RARE CASE**

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Background. The purpose of this report is to evaluate a dental fusion case focusing on clinical and radiographic examination for the diagnosis. **Method.** Intraoral examination exhibited fusion of left and right maxillary central incisors to supplemental teeth. The maxillary lateral incisors were located at the palatal region. Panoramic and periapical radiographs didn't provide enough information for the precise diagnosis due to the inherent limitations of these techniques. Cone beam computed tomography (CBCT) offers high resolution and three-dimensional views thereby overcoming this limitation. CBCT provides 3D reconstruction imaging and an accurate representation of internal and external dental anatomy. Thus the anatomy of the root canal and the united portion of the teeth were assessed by CBCT. **Results.** CBCT showed that the fused teeth had separate pulp chambers and united root canals. Dental sectioning was unfeasible because of the union structure of a fused tooth below the cemento-enamel junction. The treatment plan induced extraction of the fused teeth and orthodontic treatment of the lateral incisor to retain the position of the extracted tooth. Due to the negative effects of the tooth extraction to maxillary development, the treatment was postponed until completion of growth. **Conclusions.** CBCT can be recommended as an effective diagnostic device for identifying dental anomalies including fusion. CBCT examination supports the diagnosis and provides a major contribution to the determination of treatment options.

OP – 41**EVALUATION OF DEPRESSION IN CHILDREN AND ADOLESCENT WITH DENTAL TRAUMA**

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AIM: Depression is common but serious mood disorder. It causes severe symptoms that affect how feel, think and handle daily activities, such as sleeping, eating or working. Dental trauma is

most common emergencies at young population. The aim of this study was determine relationship between depression and dental trauma on pediatric population. MATERIAL AND METHODS: The study protocol was reviewed and approved by the Institutional Review Board at Dicle University Dentistry Faculty and Dicle University Medical Faculty. 71 patients (38 male and 33 female) mean age was 13,42 years, who administered Dicle University Dentistry Faculty Department of Pediatric Dentistry Clinic cause of dental trauma, participated to this study. After detailed oral and radiographic examination children filled "Children Depression Questionnaire" before and after treatment. This questionnaire prepared from Dicle University Medical Faculty, Department of Pediatric Psychiatry, questions and answers for determining mood of children. Patients were classified according to their trauma type and etiology. All data were collected and statistically evaluated. RESULTS: When compare depression score between before and after treatment was statistically significant ($p=0,00$, $p>0,05$). Depression scores before treatment statistically differences between boys and girls ($p=0,02$, $p>0,05$). The relation between depression scores and trauma etiology were statistically meaningful ($p=0,00$, $p>0,05$), but relation between depression scores and trauma type showed differences ($p=0,00$, $p>0,05$). CONCLUSION: Etiology and trauma type can affect depression at young population. Especially domestic violence and traffic accident can play trigger role in depression at patients with dental trauma.

OP – 42

EFFECTIVENESS OF DIFFERENT METHODS ON DENTIN CARIES REMOVAL: MICRO-CT AND SCANNING ELECTRON MICROSCOPY EVALUATION

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Background: The purpose of this study was to compare the efficacy of six different caries removal techniques on primary molar teeth with dentin caries lesions and to examine the morphological changes on dentine surfaces. **Material and Methods:** 60 human primary molar teeth which have caries were used in this study. The teeth were divided into six groups according to caries removal techniques; with bur (group-I), sono abrasion (group-II), air abrasion (group-III), Carisolv (group-IV), Er:YAG laser (group-V), and manual excavator (group-VI). Initial micro computed tomography (μ CT) screening was done (inorganic-I0, inorganic+organic-total-T0) and repeated after the caries removal process was carried out (inorganic-I1, total-T1). SEM analyzes were performed on 4 teeth in each group which were caries removed (2 of compomers restored). Wilcoxon tests were used for statistical analysis. Also the smear layer were evaluated with SEM. **Results:** For the evaluation of μ CT analysis, inorganic and total median values of teeth were used. There were statistically significant differences between I0 and I1, T0 and T1. SEM analyses showed roughened and irregular dentin surfaces in the group III and group V. The dentin tubules in group IV was determined to be more obvious than the others in SEM analysis. **Conclusion:** Traditional and alternative caries removal techniques were effective on the cleaned dentine surface in terms of radiodensity. Smear layer wasn't occurred after Carisolv applications. Further studies are needed on μ CT in addition to radiodensity. **Keywords:** Caries removal techniques, μ CT, SEM.

OP – 43

IN VIVO EVALUATION OF COLOR OF PRIMARY AND PERMANENT TEETH

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Aim: The aim of the present study was to evaluate color range and distribution of permanent and primary teeth, differences among tooth types in the same arch, differences among corresponding teeth in opposing arches and color distribution between gender groups in a group of children from Kirikkale. **Methods:** Colors values of a total of 750 primary and 750 permanent teeth were evaluated by using a Vita Easyshade intraoral spectrophotometer. Differences among tooth types in the same arch and differences among corresponding teeth in opposing arches were compared by using Wilcoxon test and frequencies of color among groups were compared by using Chi-squared test. **Results:** The mean L*a*b* values were 83.9, 0.8, 20.0 for primary teeth and 81.2, 0.2, 23.2 for permanent teeth, respectively. Primary teeth had more lightness(L*) and chromatic(a*) than permanent teeth, whereas they had lower values of hue(b*) than permanent teeth (p<0.0001). The color frequencies were A1 (41.5%), A2 (25.1%), A3 (8.4%), B2 (8.4%) and B3 (16.7%) for primary teeth and A1 (9.4%), A2 (26.8%), A3 (9.4%), A3.5 (4.7%), A4 (4.6%), B2 (18.6%) and B3 (26.4%) for permanent teeth. There were no statically differences between female and male patients (X²:2.911.4, p=0.57 for primary teeth and X²:3.202.6, p=0.78 for permanent teeth). **Conclusions:** Data on color range and distribution of primary and permanent teeth can be used for development of improved shades of esthetic materials and dental shade guides for teeth.

OP – 44

COMPARATIVE STUDY BETWEEN 3-D PRINTING LASER-SINTERED AND CASTING COBALT-CHROMIUM ALLOY

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Background. Completely new approach of shaping dental alloys has removed a lot of disadvantages. Technology of selective laser melting and sintering the particles of metal powder makes a great step in modern dentistry. This technology makes great break threw in a dental world. In the West European countries, it makes a standard nowadays, and in our region, very easily and shy, it is still searching for its place. **Goal of the study** was to compare the chemical composition, microstructure and mechanical properties of 3-D printing and laser-sintered casting cobalt-chromium alloy. **Methods and materials.** The microstructure of the samples obtained by casting and selective laser sintering technology was examined EDS analysis (Energy Dispersive Spectrometer). Mechanical properties were measured on a universal testing machine according to the standard EN ISO 527-2: 1996. **Results and conclusion.** The advantages of the sintering the particles of metal powder of Co-Cr and other dental alloys over the casting is obvious and big. In short: (1) Precision of fitting of a metal framework. With a digital impression and making a virtual model, the mistakes like shrinkage of the impression material, expansion of a dental stone, expansion of an investment materials and shrinkage of a cast object by cooling, are avoided. (2) Sintered metal framework has bigger density and it is more compacted which

gives the same or better mechanical and physical properties of the alloy. (3) 3-D printing laser-sintered is ecologically clean technology.

OP – 45 – This approved paper is a part of BaSS Award 2016 Contest

OP – 46

HPLC ANALYSIS OF RESIDUAL MONOMER RELEASING AFTER COMBINED ARTIFICIAL AGING FROM DIFFERENT COMPOSITE MATERIALS

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Background: The aim of this study was to measure effect of thermal cycling on amount of monomer releasing from three different composite materials by HPLC analyzing method. **Methods and Materials:** Three different composite materials, which are inlay composite, posterior composite and micro-hybrid composite were used. Sixty cylinder specimens which have dimensions approximately 1 cm wide and 3 mm depth were prepared. Inlay composite material was polymerized according to manufacturers' instructions. Thermal cycling device was used for simulating thermal differences intraoral cavity. As monomer amount of Bisphenol A ethoxylate dimethacrylate (Bis-EMA) and urethane dimethacrylate (UDMA) in inlay composite material, amount of Bis-EMA in posterior composite material, amount of Bis-EMA and triethyleneglycol dimethacrylate (TEGDMA) in micro-hybrid composite material were analyzed using HPLC device after thermal cycling. **Results:** In terms of monomer release of thermal cycles levels showed a linear increase in UDMA and TEGDMA ($p < 0.05$). In terms of thermal cycles levels, Bis-EMA released from posterior composite was showed a cubic change ($p < 0.001$). **Conclusion:** When compared to the amount of residual monomer of composite resins, we observed that using additional polymerization process in the indirect method reduced release of residual monomer and release of residual monomer was increased with effect of artificial aging.

OP – 47

EVALUATION OF TRANSLUCENCY AND COLOR STABILITY OF ESTHETIC CAD/CAM RESTORATIVE MATERIALS

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Background: Adequately information is not available about the translucency and color stability of esthetic restorative CAD/CAM composite (LAVA Ultimate, 3M ESPE, StPaul, MN) and hybrid material (VITA Enamic, Vita Zahnfabrik, Germany). The purpose of this study was to investigate the translucency and color differences of restorative CAD/CAM materials. **Materials and methods:** Two groups consist of 10 specimens, were prepared with 1 mm thickness of hybrid ceramic and resin nano ceramic composite resin monolithic blocks. 2M2 HT blocks were chosen for all tested materials. Surface finishing was performed with Sof-Lex (3M ESPE, StPaul, MN) discs for Lava Ultimate specimens and Vita Enamic polishing set (VITA Enamic, Vita Zahnfabrik, Germany) was used for Vita Enamic. The polishing procedures were performed on both sides of the specimens. Translucency parameter (TP) and color

differences were measured in the CIELab system by spectrophotometer (Vita Easy Shade, Vita Zahnfabrik, Germany) before and after 48 hours of immersion in a coffee solution. Data were analyzed with Mann-Whitney U test ($p < 0,05$). Results: There was no significant difference between the Lava control group and Vita Enamic control group ($p = 1.000$). After immersion of coffee solution, TP values of CAD/CAM materials were decreased. Significant differences were found among coffee groups for all specimens tested ($P < 0,001$). After coffee immersion, Lava Ultimate showed higher TP value ($10,98 \pm 1,01$) than Vita Enamic ($9,07 \pm 0,72$). Conclusions: Lava Ultimate showed more TP value in our study. Also correlation between surface roughness and stainability should be investigate.

OP – 48

ANTIMICROBIAL AND MECHANICAL PROPERTIES OF RESIN COMPOSITE CONTAINING BIOACTIVE GLASS

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Purpose: To evaluate the antimicrobial efficacy and mechanical properties of resin composites containing different amounts of microparticulate bioactive glass (BAG). **Methods:** Experimental resin composites were prepared by mixing of resin matrix (70% BisGMA and 30% TEGDMA) and inorganic filler with various fractions of BAG to achieve final BAG concentrations of 5 wt%, 10 wt%, and 30 wt%. Antimicrobial efficacy was assessed in aqueous suspension against *Escherichia coli* and *Staphylococcus aureus* and in biofilm against *Streptococcus mutans*. The effect of incorporation of BAG on the mechanical properties of resin composite was evaluated by measuring the surface roughness, compressive strength and flexural strength. **Results and Discussion:** Under the dynamic contact condition, viable counts of *E. coli* and *S. aureus* in suspensions were reduced up to 78% and 57% after 90 min of exposure to discshaped composite specimens depending on the BAG contents, respectively. Incorporation of BAG into composite at 10% and 30% resulted 0.8 log and 1.4 log reductions in the viable cell counts in two-day old *S. mutans* biofilm compared to the BAG-free composite, respectively. The surface roughness values of composite specimens did not show significant ($p > 0.05$) difference at any concentration of BAG. However, compressive and flexural strengths of composite were decreased significantly ($p < 0.05$) with addition of 30% BAG.

OP – 49

FRACTURE STRENGTH AND PHASE TRANSFORMATION OF MONOLITHIC ZIRCONIA SUBMITTED TO DIFFERENT SINTERING AND AGING PROTOCOLS

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Background. The purpose of this study is to determine what kind of changes are examined on the final product in terms of mechanical properties and phase structure caused by the changes in the sintering time and application of thermal aging process. **Material and methods.** In this research used to 2 monolithic zirconia ceramic systems produced by 2 different commercial firms. Sintering temperature was determined to be 1500 °C. 3 different sintering time periods were chosen as 1 hour, 2 hours (standard time proposed by manufacturer) and 3 hours. There were prepared totally 132 samples for

these sintering time periods 5 000 cycles of thermal aging process was applied on half of the samples. Biaxial flexural strength is calculated. In order to determine the level of the phase transformations the samples were tested in X-ray diffractometer. Fisher's LSD Test (Post-hoc) was applied to determine biaxial flexural test results, Two-Way ANOVA with 95% confidence interval and comparison of multiple groups. Results. It was observed that 2 hours of sintering time was advantageous in case of resistance. It was also determined that biaxial flexural strength of NexxZr ceramic system was significantly higher compared to Katana ceramic system. Tetragonal-monoclinic phase transformation was not found for both ceramic system according to the XRD analysis results. Conclusions. It was observed that 2 hours of sintering time was advantageous in case of biaxial flexural strength. Tetragonal-monoclinic phase transformation was not found for both ceramic system according to the XRD analysis results.

OP – 50**EVALUATION OF EFFECTS OF DIFFERENT SURFACE FINISHING TECHNIQUES ON THE TRANSLUCENCY OF DIFFERENT ALL-CERAMIC SYSTEMS**

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Background: The translucency of all-ceramic systems has been identified as one of the significant and critical factors for esthetic considerations in the material selection, because it is the key factor for the natural look restorations. The purpose of this study was to evaluate translucency of different all-ceramic systems that treated with different surface finishing techniques. **Materials/Methods:** Forty samples including 20 specimens of machinable feldspathic blocks (CEREC Blocs) and 20 specimens of machinable leucit-reinforced glass-ceramic blocks (IPS Empress CAD) were evaluated. Dimensions of specimens were 14 mm of length, 12 mm of wide, 1 mm of thickness. All of the specimens were roughened using 600-grit abrasive paper and were divided in to 4 subgroup (n= 10) according to surface finishing techniques as manufacturer's recommendation: group EP, Empress CAD with polished surface finish; group EG, Empress CAD with glazed surface finish; group CP, CEREC Blocs with polished surface finish; group CG, CEREC Blocs with glazed surface finish. L*a*b values was measured using a spectrophotometer according to the CIE L*a*b* color system and the translucency of the specimens was calculated. The data were analyzed with 2-way ANOVA and the Tukey HSD multiple comparison test (p<0.05). **Results:** In generally, IPS Empress CAD Blocs showed higher translucency than Cerec Blocs. EP showed higher translucency values than EG which were not statistically significant. CP showed significantly higher translucency values compared to CG. **Conclusion:** According to results of this study, translucency values of all-ceramic systems altered depending on material structure and different surface finishing techniques.

OP – 51**EFFECTS OF DIFFERENT SURFACE FINISHING TECHNIQUES ON THE SURFACE ROUGHNESS OF DIFFERENT ALL CERAMIC SYSTEMS**

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Background: To provide a smooth surface for all-ceramic restorations is necessary for the patient's comfort, esthetic and biological requirements. Roughened ceramic surface may increase plaque

accumulation, gingival inflammation, secondary caries and discoloration. The purpose of this study was to evaluate effects of different surface finishing techniques on the surface roughness of different all-ceramic systems. **Materials/Methods:** Forty specimens were prepared from two different structural all-ceramic system as follows; 20 specimens of feldspathic blocks (CEREC Blocs) and 20 specimens of leucit-reinforced glass-ceramic blocks (IPS Empress CAD) in dimension 14 mm of length, 12 mm of wide, 1 mm of thickness. All specimens were roughened using 600-grit abrasive paper and divided in to 4 subgroup (n= 10) according to surface finishing techniques as manufacturer's recommendation: group EP, Empress CAD with polished surface; group EG, Empress CAD with glazed surface; group CP, CEREC Blocs with polished surface; group CG, CEREC Blocs with glazed surface. Surface roughness values (Ra) were measured with a profilometer. The data were analyzed with 2-way ANOVA and the Tukey HSD multiple comparison test ($p < 0.05$). **Results:** The specimens treated with polishing techniques showed statistically significantly lower Ra values than the specimens treated with glazing techniques, group CP showed least surface roughness and group CG showed highest surface roughness values. Differences between group EG and CG, between group EP and CP were not statistically significant. **Conclusion:** Different surface finishing techniques have affect on surface roughness of the all-ceramic systems. Polishing techniques that applied manually were found more effective than the glazing method.

OP – 52

DENSITOMETRIC ANALYSES OF DIFFERENT ALL-CERAMIC SYSTEMS TREATED WITH DIFFERENT SURFACE FINISHING TECHNIQUES

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Background: Radiopacity of all-ceramic restorations is an important property that allows the clinicians to examine success of the restoration's marginal adaptation and, notice secondary caries. The aim of this study was to evaluate radiopacity of different all-ceramic systems which treated with different surface finishing techniques. **Materials/Methods:** Forty specimens were obtained from two different commercial all ceramic system as follows; 20 specimens of machinable feldspathic blocks (CEREC Blocs) and 20 specimens of machinable leucit-reinforced glass-ceramic blocks (IPS Empress CAD). Dimensions of specimens were 14 mm of length, 12 mm of wide, 1 mm of thickness. All of the specimens were roughened using 600-grit abrasive paper and were divided in to 4 subgroup (n= 10) according to surface finishing procedures as manufacturer's recommendation: group A, Empress CAD with glazed surface finish; group B, Empress CAD with polished surface finish; group C, CEREC Blocs with glazed surface finish; group D, CEREC Blocs with polished surface finish. The radiopacity of each group was assessed using a densitometer and the data were analyzed with 2-way ANOVA and the Tukey HSD multiple comparison test ($p < 0.05$). **Results:** According to the results of densitometric analysis, radiopacity values of the specimens, from highest to least, were found as; group C group D, group A, group B respectively. **Conclusion:** Regarding to results of this study, density of all-ceramic systems may be affected with different surface procedures.

OP – 53**THE EVALUATION OF RESIDUAL MONOMER RELEASED AFTER POLIMERISATION OF DIFFERENT COLOURED FLOWABLE COMPOMERS**

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BACKGROUND: The purpose of this in vitro study was to evaluate amounts of residual monomers after polimerisation of different colored flowable compomers. Five different measurement time (10th minute, 1st hour, 1st, 7th and 14th day) and 3 different colour of flowable compomer were used for investigation. **MATERIALS AND METHODS:** Three experimental groups were formed: Group 1: white flowable compomer (Dyract flow, Dentsply, GERMANY), Group 2: blue colored compomer (Twinky star, VOCO, GERMANY), Group 3: pink colored flowable compomer (Twinky star, VOCO, GERMANY). For each group 10 spacement were prepared with using standart cylindrical teflon molds (n=10) and the compomers curing using a LED light source in accordance with the manufacturer's recommendations. Each sample was put in ethanol solvent (%75) after polymerisation. In the time periods, amount of residual monomers (HEMA, BIS-GMA, TEGDMA, UDMA) were determined with high performed liquid cromathography (HPLC). Statistical analysis was performed with Wilcoxon and Mann-Whitney U tests. **RESULTS:** Amount of residual BIS-GMA and UDMA monomers were increasing with the progress of time period for all groups. The most released residual monomer from compomers is BIS-GMA at the end of 14 days. Maximum residual BIS-GMA and UDMA monomers were found in group 3. **CONCLUSION:** As a result, color and time factors were effective on residual monomer releasing at flowable compomers. **KEY WORDS:** Residual monomer, colored flowable compomer, HPLC

OP – 54**SEALER PENETRATION AND GUTTA-PERCHA/SEALER RATIO IN DIFFERENT FILLING TECHNIQUES: A CLSM ANALYSIS**

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Background: This study aims to evaluate, using confocal laser scanning microscopy (CLSM), the penetration of an endodontic sealer into dentinal tubules and the gutta percha/sealer ratio (GP/SR) in root canals after four obturation techniques. **Methods and Materials:** Fifty human maxillary central incisors were mechanically prepared with ProTaper treatment files up to file F5. Thereafter, they were filled with an epoxy-resin sealer (AH26) mixed with Rhodamine B dye (0.1 %) and divided into five groups: Group 1, continuous wave condensation; Group 2, lateral condensation; Group 3, single master cone; Group 4, Thermafill®; Group 5, negative control group. Using CLSM, the specimens were transversely sectioned at 3, 6, and 10 mm from the apex. **Results:** No significant differences in sealer penetration were found between the experimental groups, except for the single cone group. The single master cone technique demonstrated the lowest

sealer penetration. Therafill® demonstrated superior GP adaptation with a mean overall sealer cement thickness followed by continuous wave condensation, lateral condensation, and single master cone. Conclusions: Sealer penetration was not significantly affected by the obturation technique used, except for the single cone technique, which resulted in the worst outcome. However, sealer thickness was significantly dependent on obturation technique.

OP – 55**THE EFFECT OF ULTRASONIC ACTIVATION ON BOND STRENGTH OF EPOXY-AMINE RESIN BASED SEALER**

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Background: The aim of this study was to evaluate the effect of ultrasonic activation of a sealer on the bond strength of an epoxy-amine resin based sealer (2Seal; VDW GmbH, Munich, Germany) to the root canal dentin. **Materials methods:** A total of 24 single-rooted, maxillary anterior teeth roots were used. Root canal shaping procedures were performed with ProTaper rotary instruments (Dentsply Maillefer, Ballaigues, Switzerland). The prepared samples were then randomly assembled into two groups (n=12). In the non-activated sealer group, a size 40 gutta-percha was coated with an epoxy-amine resin based sealer and applied into the canal by coating the canal walls with gutta-percha. In the ultrasonically-activated sealer group, an ultrasonic tip was also coated with an epoxy-amine resin based sealer and placed 2 mm shorter than the working length. The sealer was then activated for 10 s. A push-out test was used to measure the bond strength between the root canal dentin and the sealer. The data were analysed using the one-way analysis of variance (ANOVA) tests to detect the effect on the push-out bond strength of the root canal filling material to the root dentin ($P = 0.05$). The failure mode data were statistically analysed using a chi-square test ($P = 0.05$). **Results:** The one-way ANOVA indicated that the push-out bond strength values were not significantly different between the ultrasonically-activated and the non-activated groups ($P > 0.05$). **Conclusion:** The ultrasonic activation of epoxy-amine resin based sealer was similar effect of the push-out bond strength.

OP – 56**THE EFFECT OF RECIPROC INSTRUMENTS WITH DIFFERENT KINEMATICS ON ROOT CANAL TRANSPORTATION**

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Background: The purpose of the present study was to assess the effect of reciproc system instruments with different kinematics (150° counterclockwise (CCW)-30° clockwise (CW), 270° CCW-30° CW, 360° CCW-30° CW and continuous rotation) on canal transportation and the centering ability in the canal. **Materials methods:** Forty mesial root canals of mandibular first molars with curvature angles of 35-70° and radii of 2-6 mm were included in the study. Root canal instrumentation was performed using R25 instruments with different kinematics (150 ccw-30 cw,

270 ccw-30 cw, 360 ccw-30 cw and continuous rotation) according to the manufacturer's instructions (n = 10). Cone beam computed tomography scanning was performed both pre-and post-instrumentation. Root canal transportation and the centering ratio were calculated for both groups. Variables were analysed by two-way repeated measures ANOVA. The means compared with Bonferroni post-hoc test. The alpha level was set at 5%. All calculations were performed with SPSS 22 statistical software. Results: There were no significant differences in centering ratio between the groups. There were no significant differences in the root canal transportation between the groups. Conclusion: Reciproc system instruments with different kinematics (150 ccw-30 cw, 270 ccw-30 cw, 360 ccw-30 cw and continuous rotation) have not effect on canal transportation and the centering ability in the root canal.

OP – 57**CBCT AIDED TREATMENT OF ENDODONTIC CASES**

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Although intraoral radiographs still remain the imaging method of choice for the evaluation of endodontic patients, in recent years, the utilization of CBCT in endodontics showed a significant jump. This case series presentation shows the importance of CBCT aided diagnosis and treatment of complex endodontic cases such as; root resorption, missed extra canal, fusion, oblique root fracture, non-diagnosed periapical pathology and horizontal root fracture. CBCT may be a useful diagnostic method in several endodontic cases where intraoral radiography and clinical examination alone are unable to provide sufficient information.

OP – 58**MULTIPLE OR SINGLE USE OF ENDODONTIC FILES: GUIDELINES BASED ON CLINICAL RATIONALE**

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Introduction: The purpose of endodontic treatment is to prevent the disease, restore and maintain the health of periradicular tissues. The core method for eradication of endodontic infection is mechanical instrumentation. Endodontic files are characterized as critical patient care instruments, therefore, concerns were raised over disease transmission as well as about their proper and repeated use. **Aim:** To outline the factors which promote or discourage the single or multiple use of endodontic files and propose basic guidelines of file disposal. **Methods and Materials:** A comprehensive review of the dental literature was conducted, using textbooks of endodontics and three electronic databases. **Results:** The possibilities of instrument separation and inadequate cross-contamination control are the major clinical concerns. To counteract these concerns, acceptable cleaning and sterilization methods as well as visual inspection of the files for signs of mechanical fatigue should be implemented. To date, there is no scientific evidence to

suggest cross-infection, related to contaminated endodontic files. The single use of files has been adopted by some clinicians and techniques involving the use of only one file were developed, in order to be cost-efficient and clinically faster. Conclusion: Single use of endodontic files in most countries and jurisdictions is currently not suggested. Choice over multiple or single use of endodontic files is multifactorial and involves taking into consideration instrument sterility and integrity as well as the manufacturer's recommendations.

OP – 59**SHEAR BOND STRENGTH OF DIFFERENT ROOT CANAL SEALERS TO WMTA AND BIODENTINE**

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Background: The aim of the study was to evaluate the shear bond strength of the AH Plus, Tubli-Seal, MTA Fillapex, and Sealapex root canal sealers when used with WMTA (White Mineral Trioxide Aggregate) and Biodentine. **Materials and Methods:** WMTA and Biodentine were prepared and placed into central holes of cylindrical acrylic blocks. After setting process, the samples were then divided into 4 subgroups of 10 blocks each to be tested with the four root canal sealers, Sealapex, AH Plus, MTA Fillapex, and Tubli-Seal. The sealers in cylindrical plastic tubes were placed in the center of the WMTA and Biodentine surface. After the setting process, the samples were stored at 37 °C and 100% humidity for 48 hours. The chisel edge of a stainless steel plunger was inserted into the cement/sealer interface to measure the shear bond strength and the data were statistically evaluated by One-way analysis and post hoc Tukey tests ($p < 0.05$). **Results:** The highest and lowest bond strength values were recorded for AH Plus and Tubli-Seal to Biodentine, respectively. Tubli-Seal and MTA Fillapex demonstrated similar SBS values. Sealapex showed significantly higher bond strength than Tubli-Seal and MTA Fillapex. No significant differences were found between WMTA and Biodentine in all root canal sealer groups. **Conclusions:** MTA and Biodentine demonstrated similar shear bond scores with all root canal sealers. AH Plus had the highest bonding values to MTA and Biodentine when compared with the other sealers. **Key words:** Calcium silicate based materials, root canal sealer, shear bond.

OP – 60**CAN ORTHODONTIC TREATMENT TYPE EFFECT EXTERNAL APICAL ROOT RESORPTION?**

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Background: External apical root resorption (EARR) is one of the major problems caused by orthodontic treatment. The aim of this clinical study was to evaluate the external root resorption with comparing extraction and non-extraction cases on panoramic radiographs. **Materials and Methods:** A total of 50 patients (52% males, 48% females, average age was 16,5 years) records were included for this retrospective study. Twenty five of patients were extraction cases (four premolar extraction) and other twenty five patients were non-extraction group. A total of 200

canine tooth were evaluated for EARR on panoramic radiographs before and after treatment. Apical resorption was scored according to an index described by Goldson and Henrikson et al.(1975) Total treatment time was 1 year for non-extraction group and 2,5 year for extraction group. Results: External apical root resorption was obtained only 2 of 200 canine teeth. One tooth was in extraction group and the another one was in non-extraction group. Both EARR was seen in male patients. Conclusion: Although the treatment time in extraction group was longer than non-extraction group, EARR results were similar for both groups. With the limitations of this study we can conclude that the males are more prone to root resorption than females and treatment type or treatment time does not effect on EARR.

OP – 61**ADVANCED ENDODONTIC TREATMENTS OF TEETH WITH RARE ANATOMIES: MULTIPLE CASE REPORT**

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Presence of extra roots and canals should be considered before initiation of root canal treatment for the success of endodontic treatment. Advanced endodontic treatments performed in presented cases with very rare anatomies such as mid mesial canals, deep bifurcations, mesotauradontism, Dens-in dente, five-canal molars. Cone beam computed tomography were taken before treatments. Contemporary enlargement systems and obturation techniques were used in cases under magnification. All clinical and X-ray details were recorded in followed-up periods until successful healing was observed. Close attention to anatomic difficulties, thorough X-ray examinations, thorough examination of the pulp chamber floor, and use of dental magnifying devices have been recommended for the success of endodontic treatment of teeth with complicated root canal system anatomy.

OP – 62**EVALUATION OF THE RELATIONSHIP BETWEEN DIFFERENT ROTARY SYSTEMS AND POSTOPERATIVE PAIN**

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Aim: The aim of the present study was to evaluate postoperative pain and tenderness to percussion after endodontic treatment of premolar teeth with vital pulps using five different nickel-titanium instrumentation techniques: ProTaper Universal (PTU), ProTaperNext (PTN), Reciproc (R), Hyflex CM (HCM) and HyFlex EDM (HEDM). **Material and Methods:** A hundred patients requiring endodontic treatment on permanent premolar with vital pulps preoperatively were included in the study. The patients were assigned into five groups of 20 patients each. Single visit root canal treatment was performed with PTU (SX-S1-S2-F1-F2-F3-F4), PTN (X1-X2-X3-X4), R (R25-R40), HCM (08/25-06/25-06/30-04/40), HEDM (12/25-OneFile25/~ - 40/.04). All techniques were performed following manufacturers' instructions and all canals were shaped, cleaned and

obtured by the same operator. The assessment of the intensity of spontaneous postoperative pain and tenderness to percussion by using visual analog scale (VAS) after 6-24-48 hours. The statistical analyses were done with Kruskal-Wallis and Mann Whitney-U. Results: According to study results, no statistically significant difference was found among the 5 groups in relation to spontaneous postoperative pain and tenderness to percussion at the 3 time points assessed ($P < .05$, Kruskal-Wallis test). Conclusion: From the results of this study, five different nickel-titanium instrumentation techniques were found to be equivalent in regard to the incidence of postoperative pain and tenderness to percussion at the time points assessed. Key Words: Postoperative pain, Nickel-titanium instruments, Rotary file systems, HyFlex CM, HyFlex EDM, ProTaper Universal, ProTaper Next, Reciproc

OP – 63**IMPACT ASSESSMENT OF CONSERVATIVE ACCESS CAVITIES ON THE MECHANICAL RESISTANCE OF ENDODONTICALLY TREATED TEETH**

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Background: To compare the fracture resistance of endodontically treated teeth with traditional and conservative access cavity preparations. **Methodology:** 30 maxillary and 30 mandibular first molars and 30 maxillary and 30 mandibular premolars were selected based on similar dimensions. The specimens were subsequently assigned to 3 subgroups (n=10) for each tooth type: Group A, negative control group included teeth that were left intact; Group B, a traditional access cavity was prepared on the occlusal surface; Group C, a conservative access cavity was prepared on the occlusal surface. After cleaning, shaping and filling of the root canals, all access cavities were restored with adhesive direct resin composite restorations (EsthetX; Dentsply-Italia, Rome, Italy). The specimens were subjected to compressive force until fracture occurred. The fracture load was measured (N) and the obtained data were statistically analyzed with one-way analysis of variance (ANOVA) and Bonferroni tests ($P < 0.05$). **Results:** No statistically significant differences were found among groups ($P < 0.05$). Fracture resistance was similar among intact teeth, teeth with standard access cavity and conservative access cavity in all specimens analyzed: maxillary molars (Group A: 1172N±598; Group B: 1143N±506; Group C: 1170N±432); mandibular molars (Group A: 1572N±639; Group B: 1401N±495; Group C: 1459N±278); maxillary premolars (Group A: 913N±188; Group B: 821N±324; Group C: 784N±204); mandibular premolars (Group A: 1006N±310; Group B: 929N±384; Group C: 945N±267). **Conclusions:** An extreme conservative access cavity in intact teeth does not increase the fracture resistance of maxillary and mandibular molars and premolars compared to a traditional access cavity, when occlusal restoration was performed.

OP – 64**EFFECT OF ROOT CANAL INSTRUMENTATION WITH DIFFERENT APICAL ENLARGEMENT ON CRACK FORMATION: A MCT STUDY**

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Background: The aim of this study was to evaluate the formation of dentinal cracks observed after root canal preparation with ProTaper Universal (PTU), One Shape (OS) and Reciproc (R) systems through micro-CT analysis. **Material and Methods:** Thirty freshly extracted mandibular mesial roots with two separate canals and foramina were used. The roots were randomly divided into three groups (n=10). The roots were scanned with micro-CT three times; before procedures, after enlargement with size 25 and 40 instruments (except OS; size 37) to identify the presence of dentinal cracks. Differences between first and second instrumentation analyzed statistically using Paired sample T-test and between shaping methods using MANOVA test ($p = .05$). **Results:** From the initial images, crack formation was observed in 0.07%, 0.03% and 1.1% of the cross-sectional images for P, R, OS respectively. After enlargement with size 25, crack formation was observed in 27.3%, 10.2% and 27.2% of the cross-sectional images for P, R, OS respectively. After size 40 it was as follows 45.7%, 27.9 and 37.9 for P, R, OS respectively. No significant differences were observed among groups ($p > .05$). Intra group observation showed that increment of the number of new cracks between the first and second instrumentation was significant in all groups ($p < .05$). **Conclusions:** Apical enlargement with size 25 and 40 significantly increased the number of new cracks in all instrumentation systems. All the instrumentation systems caused similar crack formation.

OP – 65**OUTCOME OF ENDODONTIC TREATMENT USING TWO DIFFERENT FORMULATIONS OF CHLORHEXIDINE AS INTRACANAL DRESSING**

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Outcome of endodontic treatment using two different formulations of chlorhexidine as intracanal dressing **Background** To evaluate the 12 months clinical and radiographic periapical healing of teeth with apical periodontitis treated with different formulations of chlorhexidine (CHX): gel (CHX-gel) and gutta-percha points (CHX-GP). **Methods and materials** Forty patients requiring primary endodontic treatment of apical periodontitis were included. Patients were randomly assigned according to the intracanal medicament used to either CHX-gel group or CHX-GP group. Thirty nine patients were evaluated clinically and radiographically at 12 months. The Periapical index (PAI) scoring system was used for radiographic evaluation of treatment success. **Results** As

clinical success was observed in all patients overall outcome was classified according to radiographic evaluation only. A statistical significant reduction in PAI scores was observed ($p < 0.01$) in both groups. The proportions of healed ($PAI \leq 2$) teeth were 68.4%, and 65.0% in CHX-gel and CHX-GP group, respectively, with no statistical significant difference between the groups. Conclusion The results suggested that both delivery system of CHX exhibited equally favorable periapical healing at 12 months.

OP – 66**EFFECT OF DIFFERENT CALCIUM HYDROXIDE-BASED INTRACANAL MEDICATIONS ON ENDODONTIC TREATMENT OUTCOME**

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Effect of different calcium hydroxide-based intracanal medications on endodontic treatment outcome Background The study was aimed to assess healing one year after endodontic treatment of apical periodontitis using calcium hydroxide medicated gutta percha points (CH-GP) or calcium hydroxide paste (CH) as intracanal medicaments. Methods and materials Forty teeth with a single root and a single canal showing apical periodontitis were selected for this study. Teeth were randomly divided into 2 groups; one group was treated with CH-GP and the other was medicated with CH. Treatment results were evaluated clinically and radiographically by means of periapical index (PAI). Results At the end of evaluation period, none of patients had any clinical symptoms and/or abnormal clinical findings. Complete radiographic healing was observed in 60%, and 73% of cases in CH-GP and CH group, respectively. In both groups significant reduction in mean PAI scores were observed ($p < 0.01$) with no significant difference in treatment outcome between medicament tested. Conclusion The present study revealed that comparable healing results might be obtained through treatment of apical periodontitis with either CH-GP or CH paste.

OP – 67**CONSERVATIVELY TREATED CASES OF ENDODONTIC AND PERIODONTAL LESIONS**

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Background: The interrelationships between pulpal and periodontal disease, primarily, occur by way of the intimate anatomic and vascular connections between the pulp and the periodontium. Endodontic and periodontal problems are responsible for more than the 50% of tooth loss. Correct diagnosis and treatment planning, despite the difficulties, is of vital importance. The management and prognosis of endodontic – periodontal disease type varies. Methods and Materials: The aim of this presentation is to emphasize the role of conservative endodontic and periodontal techniques in managing endo – perio lesions. Online research was conducted at the platform

PubMed using the key words: Endo - perio lesions, diagnosis, endo-perio treatment, root canal treatment. Additionally, clinical cases will be presented in which bone healing is achieved after conservative endo - perio treatment. Results: A great amount of endo – perio lesions can be successfully treated with traditional endodontic and periodontal therapy. Depending on the primary disease, it is decided which treatment should be applied first. It is important that the larger the part of the lesion caused by the root canal infection, the more favourable the prognosis is for regeneration of the attachment. Conclusion: A perio-endo lesion can have a varied pathogenesis which ranges from quite simple to relatively complex one. Having enough knowledge of these disease processes is essential in coming to the appropriate diagnosis and treatment. Traditional endodontic and periodontal therapy is often sufficient to stabilize an affected tooth, after a careful dental history, clinical and radiographic examination.

OP – 68**PARTICULARITIES IN THE TREATMENT PLANNING OF APICAL INFLAMMATORY ROOT RESORPTIONS**

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Introduction: Our presentation aims to outline the particularities of the diagnosis and treatment planning of apical inflammatory root resorptions. The right approach can overcome the limitations of endodontic treatment even though the large apical foramina, the shortening of the root and the modified anatomy of the root canal system are the current challenges due to this pathology. **Case reports:** The multiple presented clinical cases demonstrate the efficiency of early detecting the loss of hard dental tissue in the apical area using radiograph performed at different angulations but especially the scanning of the tooth with CBCT. Treatment in one session (single-visit treatment) was our first option in solving these particular clinical cases, establishing the accurate working length and the endodontic irrigation protocol having a decisive role. Eradication of the root canal bacterial load and achieving a tight canal fillings by sealing of an enlarged, atypical apical foramina are the premises for the remineralization of the apical periodontal bone defect. Currently achieving an apical barrier using MTA determines a favorable prognosis. **Conclusions:** The existence of a localized inflammatory apical root resorption should be considered in case of long lasting chronic apical periodontitis, even if it is not visible on preoperative radiographs. CBCT is the method of choice for detecting this type of resorption. In addressing clinical cases, it is sometimes necessary to apply calcium hydroxide or Ledermix™ to annihilate dentinoclast action. Monitoring teeth for longer periods of one year is absolutely necessary to follow the evolution of apical inflammatory root resorption.

OP – 69**EFFECTS OF VARIOUS IRRIGATION PROTOCOLS ON DOUBLE ANTIBIOTIC PASTE REMOVAL FROM ROOT CANAL SURFACES**

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Background: The purpose of this study was to investigate the effect of different irrigation systems in removing double antibiotic paste (DAP) from root canals. **Methods and materials:** A total of 90 single roots were prepared with Reciproc rotary files till R40, double antibiotic paste was applied, and left in for 14 days. The specimens were randomly divided into 6 experimental groups (n=15). DAP was removed as follows: Group 1: Conventional syringe irrigation; Group 2: CanalBrush; Group 3: XP-endo Finisher; Group 4: Vibringe; Group 5: Passive ultrasonic irrigation; Group 6: Er:YAG laser-activated irrigation. 2.5% sodium hypochlorite was used as an irrigant. The roots were split into two and the amount of remaining DAP was evaluated under a microscope with 30X magnification using a five-grade scoring system. Statistical evaluation was performed using Kruskal–Wallis and Bonferroni–Correction Mann–Whitney U tests at a significance level of 0.05. **Results:** There were no significant difference between all groups on the removal of DAP in the coronal thirds (p>0.05). Group 5 and group 6 removed significantly more DAP than other protocols in the middle thirds (p<0.05), except for the group 2 and group 3. Group 6 removed significantly more DAP than the other protocols in the apical region (p<0.05), except for the group 2 and group 5. **Conclusion:** None of the investigated techniques could completely remove all traces of DAP. PUI, laser activated irrigation, and CanalBrush facilitated removal of more of the DAP from root canals.

OP – 70**COMPARISON OF DIFFERENT IRRIGATION TECHNIQUES ON THE REMOVAL OF CALCIUM HYDROXIDE FROM ROOT CANALS**

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Background: The aim of this study was to compare the efficacy of irrigation protocols on the removal of calcium hydroxide (CH) from root canals. **Methods and materials:** The root canals of 90 extracted single-rooted teeth were prepared using Reciproc rotary files till R40. CH was placed into the root canals. After 14 days, the specimens were randomly divided into 6 experimental groups (n=15). CH was removed as follows: Group 1: Needle irrigation; Group 2: CanalBrush; Group 3: XP-endo Finisher; Group 4: Vibringe; Group 5: Passive ultrasonic irrigation; Group 6: Er:YAG laser-activated irrigation. 2.5% sodium hypochlorite was used as an irrigant. The roots were split into two and the amount of remaining CH was evaluated under a microscope with 30X magnification using a five-grade scoring system. Statistical evaluation was performed using

Kruskal–Wallis and Bonferroni-Correction Mann–Whitney U tests. A p-value < .05 was considered significant. Results: Group 5 and group 6 removed significantly more CH than group 1 at the apical region ($p < .05$). Group 5 removed significantly more CH than the other protocols at the middle region ($p < .05$), except for the group 6 and group 3. There were no significant differences between all groups at the coronal region ($p > .05$). Conclusion: The activation of NaOCl with different instruments enhanced CH removal. None of the investigated protocols were able to completely remove all CH from the root canals.

OP – 71**MICRO-COMPUTED TOMOGRAPHY ANALYSIS OF POROSITY IN ROOT CANALS FILLED WITH GUTTA-PERCHA AND CALCIUM SILICATE-BASED SEALERS**

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Background: Root canal sealers should (in conjunction with gutta-percha) provide a hermetic seal of the root canal space. The aim of this study was to assess the porosity in root canals filled with gutta-percha and different calcium silicate-based sealers. Material and method: Sixteen single-rooted-teeth were cleaned, shaped and randomly allocated into four groups (n=4). Canals were filled with gutta-percha (GP) and different root canal sealers: (1) GP and BioRoot RCS (Septodont), (2) GP and EndoSequence BC (Brassler), (3) GP and MTAFillapex (Angelus) and (4) GP and AH Plus (Dentsply). Obturated roots were stored at 37°C in Hank's balanced salt solution for 7 days. Following sealer setting, roots were scanned with a micro-computed tomography system at an isotropic resolution of 9.9 µm. Total, open and closed porosity were calculated and data were statistically analyzed using one-way ANOVA and paired t-test ($\alpha=0.05$). Results: Means \pm standard deviations of percentage values of total porosity in groups 1, 2, 3 and 4 were 3.694 ± 0.697 , 3.753 ± 2.159 , 6.101 ± 1.966 and 3.203 ± 0.795 , respectively. There were no significant differences in total porosity among different sealers ($p>0.05$). There was a significant difference between percentage values of open and closed porosity within every root canal sealer ($p<0.05$) with predominance of open pores. Conclusions: Although all sealers showed to be very homogenous, there were no void free root fillings.

OP – 72**EFFECT OF VARIOUS MEDICAMENTS ON THE PUSH OUT BOND STRENGTH OF A NOVEL SEALER**

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Medicaments used in root canal disinfection may deteriorate the bond strength of root canal sealers to dentin. The aim of this study was to evaluate the effect of different intracanal medicaments on the push-out bond strength of a new BioRoot RCS. Twenty extracted maxillary anterior teeth were collected and decoronated. Root canals instrumented with Protaper files

(Dentsply Tulsa Dental, Tulsa USA) up to size F4 and irrigation with 2,5% NaOCl. All the specimens were irrigated with 5mL 2,5% NaOCl and 5mL 17% EDTA to remove smear layer. Teeth were randomly assigned five groups (n:4) and intracanal medicaments were applied: Group 1: calcium hydroxide mixed with distilled water; Group 2: chlorhexidine gluconate Group 3 : a mixture of metronidazole, ciprofloxacin. Group 4: a mixture of metronidazol, cefaclor, and ciprofloxacin. Group 5: no medicament (control). All specimens were stored for 1 week in 100% humidity at 37°C. Medicaments removed with instrumentation and irrigation with 2.5% NaOCl (5mL). Root canals were filled with gutta percha and BioRoot RCS and a push-out test was used to measure the bond strength between the root dentin and the sealer. Data were analysed using two-way ANOVA and Tukey HSD tests. Medicaments containing antibiotics decreased the bond strength of BioRootRCS sealer statistically significantly ($P < 0.05$). Push-out bond strength of this new silicate based sealer was not affected when root canal medicated with calcium hydroxide and chlorhexidine gluconate ($P > 0.05$). Instead of antibiotic containing medicaments, calcium hydroxide or chlorhexidine should be preferred prior to the application of silicate based sealers.

OP – 73

THE EFFECT OF NITI FILES WITH DIFFERENT MOTION TYPES ON DEBRIS FORMATION IN ROOT CANALS

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Background: Nickel titanium (NiTi) file systems have been continually developed to improve the quality of root canal shaping. To optimize the efficiency and to provide ease of use, manufacturers produced different NiTi files with different cross sectional geometry and motion types. The aim of this study is to evaluate debris formation on root canal walls after shaping with four different NiTi files those have different motion types by using scanning electron microscope (SEM). **Methods and Materials:** Forty eight single-rooted, recently extracted human mandibular incisors were used in this study. The teeth were randomly divided into four equal groups (n=12). The root canals were instrumented according to the manufacturers' instructions with one of ProTaper Next (group P), One Shape (group O), Reciproc (group R) and Twisted File Adaptive (TFa) (group T) instruments. All samples were irrigated with 5.25% NaOCl followed by saline. The roots were split out into 2 halves longitudinally and examined under scanning electron microscope (SEM). The amount of debris was evaluated using a five step scoring scale. **Results:** Group P lead to significantly more debris compared to all other groups ($P < 0.05$). No significant difference was noted between the Group O, Group R and Group T ($P > 0.05$). **Conclusions:** Under the condition of this study, none of the NiTi file systems provided completely clean root canals. The use of Reciproc, One shape and TFa instruments resulted in better canal cleanliness compared with ProTaper Next.

OP – 74**MANAGEMENT OF ORTHOKERATINIZED ODONTOGENIC CYST IN THE SUBCORONOID REGION PLANNED WITH CBCT**

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Introduction: The orthokeratinized odontogenic cyst (OOC) which is seen relatively rare is one of the developmental odontogenic cyst of the jaws. In this article, we reported an ectopic third molar case with infected OOC on the left mandibular subcoronoid region. **Case Report:** A 47-year-old man with mild asthma was referred to the our faculty, for the evaluation of a mandibular cyst with an impacted third molar. Extraoral examination revealed presence of diffuse, hard, tender swelling over left subcondyler region and extra discharging sinus was at the left angle of the mandible. Intraoral examination revealed absence of the lower left third molar. Pus discharge was evident from angulus area, on application of pressure with finger in extra oral angulus area. The panoramic radiograph revealed a third molar displaced to the left subcoronoid region, associated with a unilocular radiolucent lesion. With the help of a CBCT, we were able to determine the precise position of the tooth and thereby effectively plain surgical treatment including the route of approach. In CBCT images, close relation of the impacted teeth to the inferior alveolar nerve was determined. The tooth and associated cyst were removed. The histological specimen sent was reported as an OOC. **Comments:** The case highlights that the OOC is a detached from clinical, radiological and pathological presence of the keratocystic odontogenic tumor with a different prognosis. OCC should be included in differential diagnosis that particularly mandibular radiolucent lesions with an impacted tooth.

OP – 75**SOCIO-DEMOGRAPHIC AND BEHAVIORAL PROFILE OF PATIENTS WITH ORAL LICHEN PLANUS IN VOJVODINA**

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Introduction: Oral lichen planus (OLP) is a still poorly understood and relatively common chronic inflammatory disease of oral mucosa around the globe. **Aim:** The aim of the study was to evaluate socio-demographic and behavioral features in OLP patients and compare them with healthy individuals. **Materials and Methods:** A total of 40 patients with clinically and histopathological proven cases of OLP, along with 31 age, sex, enrollment time and residence matched healthy controls without oral lesions were included in the study. All patients were reviewed, information regarding age, gender, education level, employment, monthly income, marriage and children status, habits regarding tobacco and/or alcohol consumption, BMI and use of anti hypertensive drugs, was obtained. **Results:** Of the 40 patients, 67.7% females and 32.3% males were identified. The mean age was 52,12±13.41 years (range of 25-78). Most of OLP patients were married with two or three children, working or retired with income about 350 Euro per month. There were quite equal prevalence in regarding education level

between patients with OLP. No evidence suggesting a connection between OLP and tobacco or alcohol use was found. In OLP group 40.6% of patients used anti hypertensive drugs on daily base, and the average BMI was 27.56 ± 6.02 . There were no significant differences in all tested variables between OLP patients and healthy controls. Conclusion: The patient profile of OLP in Vojvodina were generally very similar to those described in other populations.

OP – 76**ASSESSMENT OF VIT D AND CYTOKINE LEVELS IN PATIENTS WITH RHEUMATOID ARTHRITIS AND PERIODONTITIS**

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Background: Chronic periodontitis is a world-wide infectious and inflammatory disease and may have a relationship with other inflammatory disease such as rheumatoid arthritis. The aim of this study is to determine whether vitamin d is related to alveolar bone loss and bone resorption markers in patients with rheumatoid arthritis and chronic periodontitis. **Methods:** 16 systemically healthy chronic periodontitis patients (CP), 14 rheumatoid arthritis with chronic periodontitis patients (RA+CP) and 16 healthy controls (C) were included. Clinical periodontal measurements were recorded and GCF and blood samples were taken at baseline and 6-week of study. CP and RA+CP patients received non-surgical periodontal treatment. serum and GCF Vit D and cytokine levels were determined. **Results:** There were no significant differences in demographic data among groups ($p > 0.05$). Baseline clinical attachments levels (CAL), plaque index (PI) and gingival index (GI) scores were similar in RA+CP and CP groups ($p > 0.05$) but were higher than control ($p < 0.05$). Significant improvements were observed in clinical parameters in both CP and RA+CP groups after periodontal treatment ($p < 0.05$). Baseline GCF Vit D levels were higher in RA+CP and CP groups than healthy individuals and GCF Vit D levels were decreased in RA+CP group after periodontal treatment ($p < 0.05$) while baseline and 6th week serum Vit D levels were similar among groups ($p > 0.05$). **Conclusions:** Within limits of this study, we found that GCF Vit D levels were increased in RA patients and decreased after periodontal treatment and we may conclude that local Vit D level might be an indicator for periodontal bone loss.

OP – 77**TREATMENT OF PERIODONTAL POCKET IN THE MAXILLARY LATERAL TEETH DUE TO ACCESSORY ROOT-LIKE STRUCTURE**

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Tooth-related factors, such as cervical enamel projections, enamel pearls and palatal grooves are contributing factors to periodontal disease. Accessory root formation anomalies are rarely seen. This report is a case presentation of a 63-year-old male with chronic periodontitis. An accessory root-like structure with a 7mm probing depth on the mesio-palatinal surface of the root of maxillar left lateral

incisor was identified. The accessory root-like structure was surgically excised after phase I periodontal therapy and endodontic treatment. Periodontal healing was uneventful and periodontal pocket reduced from 7 mm to 4 mm 3 months after surgery. Early recognition of these dental abnormalities has a great clinical significance in effectively treating periodontitis.

OP – 78**A COMPARATIVE CLINICAL TRIAL: CONCENTRATED GROWTH FACTOR AND SUBEPITHELIAL CONNECTIVE TISSUE GRAFT**

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Background: Platelet concentrates(PC) are used in the field periodontology and implantology for the content necessary key cells and growth factors to accelerate healing and provide regeneration. Concentrated Growth Factors(CGF) is defined an innovative method or a new generation PC.The purpose of this clinical study was to evaluate clinical effectiveness Concentrated Growth Factor(CGF) membrane with coronally advanced flap(CAF) procedure's and subepithelial connective tissue graft(SCTG) with CAF in treatment of multiple Miller class I gingival recessions(GR). **Material and Methods:** Nine patients and 50 GR were treated in this split-mouth study. Bilaterally GR were randomly treated with either CAF+SCTG(control) or CAF+CGF(test).Plaque and gingival index(PI,GI), recession depth(RD) and keratinized tissue width(KTW), root coverage(RC) were recorded on baseline, 1., 3., 6. months and also probing depth(PD), clinical attachment level(CAL), keratinized tissue thickness(KTT) on baseline, 3rd and 6th months.Recordings of Healing index(HI) were performed in the 1st, 2nd, 3rd week post-surgically. Postoperative pain were assessed for the first 7 days using a horizontal scale(VAS). CGF were prepared according to Sacco's protocol. Two CGF membranes were placed root surfaces above of the enamel-cement junction. **Results:**There was statistically significant decrease in CAL and increase KTT in all groups at 6th months. Control groups were found more effective to increase KTW, KTT and RC.There was no significant difference HI scores. Control groups's pain was found higher than test. **Conclusions:** SCTG+CAF technique is more effective than CGF+CAF procedure for RC, increasing KTT and KTW. At multiple recession defects, CGF+CAF may be preferred because of decreasing patient's post-operative pain.

OP – 79**BIOCHEMICAL ANALYSIS OF INTERLEUKIN-32 LEVELS IN EXPERIMENTAL PERIODONTITIS MODEL**

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Purpose: Interleukin (IL)-32 is a recently discovered proinflammatory cytokine inducing crucial inflammatory cytokines such as IL-6. The aim of this study is to evaluate the analysis of the gingival

tissue and serum levels of IL-6, IL-10 and IL-32 in rats with experimental periodontitis. **Method and materials:** Experimental periodontitis was induced by placing a cotton ligature around the cervix of both sides of mandibular first molars in each male rat. Thirty rats were randomly divided into three groups of ten animals each: ligature-induced experimental periodontitis groups (with ligature for 7 days (Group1) and with ligature for 7 days and then without ligature for 7 days periods (Group2)) and healthy group (Group3). At the end of experimental period, rats were sacrificed, and histomorphometric analyses were performed on the mandibles. IL-32, IL-10 and IL-6 levels were measured in gingival tissue and serum samples using ELISA. **Results:** Alveolar bone and attachment loss was statistically higher in Group 1 than those in group 2 and 3 ($P < 0.001$). The levels of IL-32 and IL-6 in gingival tissue and serum were significantly lower in Group 3 than in group 1 and 2 ($P < 0.01$). Also, the levels of IL-10 in gingival tissue were significantly lower in Group 3 than in group 1 ($P < 0.05$). **Conclusions:** IL-32 seems to be exhibited properties of proinflammatory cytokines and associated with tissue destruction in the inflammatory periodontal disease.

OP – 80**COMPARISON OF DIODE LASER AND CONVENTIONAL TECHNIQUES ON SURGICAL EXCISION OF THE PYOGENIC GRANULOM**

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OBJECTIVE: Pyogenic granuloma (PG) is a lesion similar to reactive inflammatory, benign tumor of skin and mucous membrane. The aim of this study is to compare the bleeding quantity, post-operative healing period's pain levels and relapse observation rates of excisional biopsy performed with a standard surgical technique of pyogenic granuloma and removal with laser biopsy performed with diode laser. **MATERIALS AND METHODS** In this controlled randomized clinic study, 12 patients systematically healthy and with a similar growth to pyogenic granuloma in gingiva. 2 groups were formed for the study, in the 1st group the biopsy procedure of the patients were performed with diode laser (Epic, Biolase, Irvine, CA, USA) (810 nm wave length, 10W power); in the 2nd group as biopsy technique, conventional surgical technique with surgical knife was performed. The bleeding quantities which occurred during the operation was determined according to the criteria defined by the World Health Organizations (WHO). The pain levels, which were felt by the patients after the operation, were evaluated with VAS scale. The patients were evaluated for the possible relapse status which may occur after 6 months. **RESULTS** During the operation, in the 1st group, it was detected that, the bleeding quantities were significantly very low. For the VAS values, significant differences were not observed. In the 2nd group, in two patients recurrence was observed. In the 1st group, recurrence was not observed. **CONCLUSIONS** Regarding the advantages such as, the decrease of bleeding quantity during the operation and the decreased possibility of relapse, diode laser might be an alternative treatment to conventional surgical treatment.

OP – 81**MANAGEMENT OF THE SOFT TISSUES IN THE ENHANCEMENT OF SMILE AESTHETICS**

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BACKGROUND In everyday dental clinical practice, the enhancement of smile aesthetics is considered of great importance and has become a common demand of patients. In order to achieve a natural and pleasing result, both teeth and soft tissues should be taken into account. Accomplishing gingival health, establishing a desirable gingival level, protecting or creating papillae and considering the position of the lips are critical steps for a harmonious smile. **MATERIALS AND METHODS** The aim of this presentation is to introduce conservative and surgical procedures that lead to an effective management of soft and hard tissues in order to optimize smile aesthetics. Depending on the problem, the clinician is able to perform gingivoplasty, crown lengthening techniques, gingival or hard tissue grafts, as well as to guide the result with the use of provisional restorations. Relevant literature and clinical procedures will be presented. **RESULTS** The performance of crown lengthening, in combination with the amendment of provisional restorations lead to a significant improvement in smile aesthetics. Gingivoplasty and soft and hard tissue grafts enhanced the aesthetics of the labial area and created the proper conditions for oral hygiene and preservation of the final outcome. **CONCLUSIONS** The increasing demand for an appealing smile has led to a crescent need for surgical interventions that promote the management of soft tissues in the aesthetic zone. These techniques, cooperatively with a harmonious final restoration can achieve the desired result for both the patient and the clinician.

OP – 82 This approved paper is a part of BaSS Award 2016 Contest

OP – 83**LOCAL OXIDATIVE STRESS MARKERS AND CLINICAL RESPONSE IN PATIENTS WITH OBESITY AFTER PERIODONTAL THERAPY**

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Background: Oxidative stress (OS) is implicated in the pathogenesis of both obesity and chronic periodontitis (CP). The aim of this study was to examine the levels of adipokines and oxidative stress (OS) markers in gingival crevicular fluid (GCF) in patients with obesity and CP. The effects of non-surgical periodontal therapy on these parameters and clinical periodontal status were also evaluated. **Methods and Materials:** The study included 20 obese patients with CP and 19 non-obese patients with CP. Clinical parameters were assessed and GCF levels of TNF- α , leptin, myeloperoxidase, superoxide dismutase, nitric oxide, total antioxidant status and total oxidant

status were evaluated, using enzyme-linked immunosorbent assay at baseline and 3 months after therapy. Results: Both groups responded well to the periodontal treatment in terms of periodontal parameters. Leptin and superoxide dismutase levels in GCF were higher in patients with obesity than in patients without obesity ($p < 0.01$) and there were no differences among the groups in terms of other markers ($P > 0.05$) at baseline. All of the OS markers improved significantly in obese patients with CP after periodontal therapy ($p < 0.01$, $p < 0.05$). Conclusion: The results of this study showed that non-surgical periodontal therapy was effective and has provided significant improvements in local OS markers both in obese and non-obese patients with CP. It was detected that obesity has no effect on periodontal healing.

OP – 84**EFFECT OF CHRONIC PERIODONTITIS ON OXIDATIVE STATUS IN PATIENTS WITH FAMILIAL MEDITERRANEAN FEVER**

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Background: The aim of this study was to evaluate the impact of chronic periodontitis (CP) on oxidative status in patient with familial Mediterranean fever (FMF) during acute attack (AP) and attack-free periods (AFP). **Methods:** A total of 90 individuals were divided into six groups of 15 each: FMF-AP with CP (AP-CP), FMF-AP-periodontally healthy (AP-C), FMF-AFP with CP (AFP-CP), FMF-AFP-periodontally healthy (AFP-C), systemically healthy with CP (CP) and both systemically and periodontally healthy (C). Clinical periodontal parameters were measured and salivary-serum oxidative parameters in terms of total antioxidant status (TAS), total oxidant status (TOS) and oxidative stress index (OSI) were assessed. Demographic and rheumatologic variables were recorded. **Results:** Serum OSI values of the AP-C and AP-CP groups were significantly higher than those of the AFP-C, AFP-CP, C and CP groups ($P < 0.001$); there were no differences between any of the FMF-AFP and systemically healthy groups. Serum TAS values of the CP group were higher than the AP-C group ($P < 0.05$). Serum TOS values of both AP-C and AP-CP groups were significantly higher than the other groups ($P < 0.001$). There were no differences among the groups in terms of salivary TAS, TOS and OSI values. **Conclusion:** Acute attack period may have a critical role to increase the serum levels of oxidative stress in patients with FMF. The contribution of CP on oxidative status seems limited for FMF patients during neither AP nor AFP. In addition, FMF did not show any periodontal destructive effect on its own. **Keywords:** Periodontitis; familial Mediterranean fever; oxidative stress; attack period.

OP – 85**SNPS AND LEVELS OF PROINFLAMMATORY CYTOKINES IN PATIENTS WITH CHRONIC PERIODONTITIS AND TYPE 2 DIABETES**

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The aims of our study were to determine if the single nucleotide polymorphisms (SNPs) -308 G/A TNF , +252 A/G LT , +36 A/G and +676T/G are associated with clinical features of chronic periodontitis (CP) and Type 2 diabetes (T2D) and if the serum levels of TNF α , LT α , TNFR1 and TNFR2 are influenced by genetic variants and periodontal inflammation. Subjects were divided into three groups: T2D+Chronic Periodontitis/CP (group T2D), nondiabetics+CP (Group PD) and healthy controls (group HC). SNPs were assessed using PCR-RFLP methods and serum levels of cytokines/receptors were measured using ELISA. Both +252 A/G LT α AA genotype and the carriers of TG genotype and allele G of +676T/G SNP showed higher risk for periodontitis. AA genotype of +36 A/G was associated with periodontal destruction in PD group, which was not a case in T2D group. sTNFR2 and R2/R1 ratio negatively correlated with periodontal parameters in PD group. These correlations were positive in diabetics. According to our results, parameters of periodontal destruction in periodontitis patients were determined by genetic variants of +36 A/G TNFR1 , but in diabetics with periodontal disease, tissue destruction is probably consequence of changes caused by diabetes. Serum levels of cytokines/receptors were not influenced by SNPs. The correlations between sTNFR2 and periodontal parameters are changed at diabetics compared to patients with diagnosed chronic periodontitis.

OP – 86**EFFECT OF PH CYCLING AND MECHANICAL ABRASION ON SURFACE ROUGHNESS OF GLASS IONOMERS&GLASS CARBOMER**

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Background: The aim of this study is to evaluate the effect of pH cycling and tooth brushing on the surface roughness of two conventional glass ionomer(Ionofil U and GC Equia Fil), resin-modified glass ionomer(Riva Self Cure),and glass carbomer(Glass Carbomer). **Materials and Methods:** Ten specimens were prepared for each material using Teflon molds. The surface roughness was measured to obtain Ra as baseline values. The specimens were submitted to pH cycling for 10 days and were stored in a demineralization solution for six hours and then in a remineralization

solution for 18 hours. After that, the surface roughness was remeasured. Specimens were brushed with 2 ml toothpaste for two minutes, with 120 brush strokes/minute. Final surface roughness values were recorded. Results: When comparing the surface roughness values of each material after pH cycling and tooth brushing, only Ionofil U showed a statistically significant increase ($0.6835 \pm 0.1719 \mu\text{m}$ at baseline; $0.8764 \pm 0.1602 \mu\text{m}$ after pH cycling, $1.0919 \pm 0.1915 \mu\text{m}$ after tooth brushing). For GC Equia Fil, Riva Self Cure, and Glass Carbomer, a statistically significant increase in roughness was only found between the baseline ($0.3260 \pm 0.1120 \mu\text{m}$, $0.4401 \pm 0.1593 \mu\text{m}$, $0.487 \pm 0.1120 \mu\text{m}$) and after tooth brushing ($0.8885 \pm 0.2374 \mu\text{m}$, $0.6636 \pm 0.1279 \mu\text{m}$, $0.7996 \pm 0.1616 \mu\text{m}$). Conclusions: pH cycling and tooth brushing mostly influenced the surface roughness of conventional glass ionomer.

OP – 87

DIGITAL MARGINAL ADAPTATION COMPARISON OF SECTIONAL VERSUS CONVENTIONAL COMPOSITE VENEERS

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Objectives: Conventional laminate veneer (CLV) preparations require tooth substance removal to avoid overcontouring while least invasive, prepress, small pieces of thin (sectional) veneers (SLV) could be adhered to superficial enamel. Marginal adaptation (MA) can be determined by, cross-sectioning or non-destructive silicone replica and digital software. The objective of this study was to compare the MAs of composite CLV and SLV by using digital measurement. The null hypothesis was that there would be no differences in MA between two preparations. **Methods:** Two typodont central incisor teeth were used for CLV (middle:0.8, incisal:0.8, cervical:0.5, facial:0.6mm) and SLV (no preparation) designs. Twenty polyvinyl-siloxane impressions of the preparations were made and epoxy resin (base:7/cataylst:3;48 hrs) was poured to obtain specimens (N=20; n=10/group). Two wax-ups of CLV and SLV were made on the master dies and silicone moulds were prepared for achieving standard thicknesses. All LVs were fabricated from a high silicone-dioxide containing composite (SR Nexco, Ivoclar Vivadent); light-cured, finished and fixed with a spot bonding agent on the dies and thin laboratory contrast spray was applied before scanning. Images were transferred to a software for MA measurements (10 calculations/distal(d), mesial(m), incisal(i), cervical(cer)). Statistical analysis was made (Mann-Whitney U, $\alpha=0.05$). **Results:** Mean MA ($\mu\text{m} \pm \text{SD}$) for SLV and CLV, respectively were (d: $111,2 \pm 16$; 157 ± 32 ($P=0,001$); m: $113,3 \pm 27$; 140 ± 22 ($P=0,016$); i: $124,3 \pm 32,7$; $171,4 \pm 42$ ($P=0,01$); cer: $113,3 \pm 27$; $102 \pm 38,9$ ($P=0,112$); overall: $115,5 \pm 16,9$; $142,6 \pm 18$ ($P=0,004$). Sectional veneers demonstrated significantly lower values overall and for all regions excluding the cervical part, thus the hypothesis was rejected. **Conclusions:** Sectional veneers exhibited higher marginal adaptation, but further clinical research should be conducted.

OP – 88**EFFECT OF DIGLUCONATE CHLORHEXIDINE ON BOND STRENGTH BETWEEN DENTAL ADHESIVE SYSTEMS AND DENTIN**

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Aim: to systematically review the literature for the effect of digluconate chlorhexidine on bond strength between dental adhesive systems and dentin of composite restorations. **Methods:** The electronic databases which were searched to identify manuscripts that could be included were the Medline via PubMed and Google search engine. The search strategies were computer search of the database and review of reference lists of the related articles. Search words/terms were as follows: (digluconate chlorhexidine*) AND (dentin* OR adhesive system* OR bond strength*). **Results:** Bond strength reduction after chlorhexidine treatments varied among the studies ranging from 0% to 84.9%. In most of the studies chlorhexidine pre-treatment exhibited lower bond strength reduction than the control experimental groups. Previous researchers, which investigated the effect of chlorhexidine on bond strength of dental adhesive systems on dentin, have reported contrary results, which may be attributed to different experimental methods, different design of the experiments and different materials investigated. **Conclusions:** Further investigations, in particular clinical studies, would be necessary to clarify the effect of chlorhexidine on the longevity of dentin bond.

OP – 89**ORAL REHABILITATION OF POST-RADIOTHERAPY PATIENTS WITH DENTAL NANO-MATERIALS: THREE YEAR FOLLOW-UP**

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Background: Use of radiotherapy in nasopharyngeal cancers, could severely damage the salivary glands, oral soft tissues and teeth. **Aim** of this study was to evaluate the oral rehabilitation with conservative approaches of patients who received radiotherapy after nasopharyngeal carcinoma, and follow-up for three years. **Material & Methods:** Ten patients with an average 33 ± 2 years old who suffered from nasopharyngeal cancer and applied for dental treatments were included in this study. After the periodontal treatments, 3 patients (9 teeth) received root-canal therapy and 274 teeth restored with nano-composite and nano glass-ionomer cement materials. First and third year follow-ups of the treatments were performed with visual and radiographic examinations. **Results:** While 12 nano-ionomer restoration had marginal adaptation problem, 49 composite restorations had secondary caries and 9 fractured restoration were detected at follow-ups. All the

teeth treated endodontically were asymptomatic, and there were no signs of failure in root filling and / or restorations. According to the Ritch criteria; 72 restorations took Alpha (excellent), 143 restorations took Bravo (acceptable) and 59 restorations took Charlie score (unacceptable). Conclusion: Dehydrated oral environment causes secondary caries, failures in restorations and periodontal diseases. Fluoride releasing dental materials can be used in such cases to prevent secondary caries and nanocomposites are appropriate both in anterior regions for esthetic reasons and in posterior areas for improved wear and fracture resistance.

OP – 90

EFFECT OF ER,Cr:YSGG LASER ON THE SURFACE OF COMPOSITE RESTORATIVES DURING IN-OFFICE TOOTH BLEACHING

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The aim of this in vitro study was to investigate the effect of Er,Cr:YSGG laser on the surface roughness and microhardness of various composite restoratives during in-office tooth bleaching. Five highly-viscous composite restoratives and three flowable composite restoratives were investigated. Thirty cylindrical specimens of each material were made using Teflon molds. The specimens of each composite were randomly divided into 3 groups (n=10). Group 1 specimens did not receive bleaching treatment, group 2 received a conventional in-office bleaching treatment, and group 3 received a laser-assisted in-office bleaching treatment using an Er,Cr:YSGG laser. Two-way ANOVA was used to determine significant interactions between materials and bleaching methods. One-way ANOVA and Tukey's post-hoc test were used to compare the mean surface microhardness and roughness between materials for each treatment group ($\alpha=0.05$). There were no significant differences in surface microhardness between the two bleached experimental groups for all the tested composites ($p>0.05$). The reduction of surface microhardness after bleaching procedures ranged from 0.72% to 16.93% for the specimens received conventional treatment and from 1.30% to 11.51% for those received laser-assisted treatment. Moreover, there were no significant differences in Ra values between the experimental groups ($p>0.05$) in all cases. The increase of surface roughness after the bleaching treatments was negligible and was between 0.43 to 4.78%. The use of Er,Cr:YSGG laser during in-office tooth bleaching treatment did not affect the surface microhardness and roughness of the tested composite restorative materials.

OP – 91

SMART MATERIALS IN DENTISTRY

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Materials used in dentistry can be classified as bioinert or passive, bioactive and bioresponsive or smart materials based on their interactions with the environment. Most dental materials are

designed to be bioinert in the mouth and it is considered that if they are bioinert and do not react with the oral environment they will be more stable and have greater durability. Smart materials can be defined as materials that have one or more properties that can significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, and electric or magnetic fields. A key feature of smart behavior includes an ability to return to the original state after the stimulus has been removed. An example of materials which have smart behavior exist with structures which have phases or zones with significant water content. These materials can react to changes in environment to bring about advantageous changes in properties, either within the material itself or in the material –tooth complex. Other materials, such as certain alloys, composites or ceramics, can display smart behavior by undergoing predictable changes in structure in response to applied mechanical or thermal stimuli. Many researchers tried to develop smart materials which can repair by themselves. It can be expected that dental composites and ceramics using this new technology would have a significantly longer duty and enhanced clinical performance. The aim of this review was to inform the dental practitioner about the contemporary smart materials and their clinical use.

OP – 92**FRACTURE STRENGTH OF CAD/CAM POLYMER AND DIRECT COMPOSITE RESINS FOR ENDODONTICALLY TREATED MOLARS**

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OBJECTIVES: The aim of this study was to investigate the effect of different fabrication techniques such as the computer-aided design/computer-aided manufacturing (CAD/CAM) and manual build-up techniques on the fracture strength of the composite resin-based inlay restorations of endodontically treated molars. **METHODS:** Sixty mandibular molars were divided into six groups (n=10) designated according to the treatment as: Group-1: intact teeth; Group-2: Filtek Ultimate Universal restorative with incremental technique; Group-3: Filtek Bulk Fill Posterior restorative; Group-4: Biodentine with Filtek Ultimate Universal restorative; Group-5: everX Posterior with Filtek Ultimate Universal restorative; and Group-6: Lava Ultimate CAD/CAM restorative. The standard mesio-occluso-distal (MOD) cavities were prepared and the roots filled for all of the teeth, except those of the control group. Following the placement of the restorations, the specimens were subjected to the thermocycling procedure (5–55°C, 5000x), after which the fracture resistance of the specimens was measured. The data were analyzed by the one-way analysis of variance and Tukey's post-hoc test. **RESULTS:** While Group-1 (2815.80N) presented significantly higher fracture strength than the other groups (p<0.05), Group-2 (2062.20N), Group-3 (2166.00N), Group-5 (2355.60N), and Group-6 (2340.70N) exhibited statistically similar results (p>0.05). The Biodentine group (1480.50N) exhibited significantly lower fracture strength than the rest of the groups (p<0.05). **CONCLUSION:** The CAD/CAM and manual build-up techniques exhibited statistically similar results, with the exception of Biodentine, which exhibited a significantly lower in vitro performance compared to the other composites used in the study. The

fiber-supported composite everX Posterior increased the fracture strength of the endodontically treated teeth.

OP – 93**THE EVALUATION OF EFFECTIVENESS OF ADHESIVE SYSTEMS IN RESTORATIVE TREATMENTS ON DENTAL AMALGAM RESTORATIONS**

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Aim: The aim of this in vitro study was to evaluate the effect on the microleakage of using adhesive systems on preventive restorative treatments with amalgam Materials and Method: : In this study 100 caries-free human permanent molar teeth extracted because of orthodontic or surgery reasons were used. Teeth were randomly assigned to five groups (n=20) and standardized class I cavities. Then the teeth were randomly divided into five groups (n=20). First group is control which is no adhesive system applied under amalgam restoration (Tytin, Kerr,). Amalgam Liner (VOCO) Group II, Clearfil SE-Bond (Kuraray) Group III, Panavia F 2.0 (Kuraray) Group IV, Amalgambond Plus (Parkell Inc.) Group V were applied to prepared cavities, amalgam restorations were placed, according to manufacturers' recommendations. teeth were sectioned bucco-palatinally/lingually and, microleakage scores of occlusal walls were evaluated with a standardized scala from 0 to 4 under stereomicroscope at 15X magnification. And also SEM LEO EVO 40 (LEO Ltd.) photographs of amalgam-tooth hard tissue interfaces were taken at different magnifications after microleakage assessment. Results of microleakage test were statistically analyzed by Cruskall-Wallis and Mann Whitney-U tests. Results: In terms of microleakage among groups, differences were determined significant ($p < 0.05$). Microleakage of control group was determined as the highest, statistically difference was observed between the other groups. Conclusion: In our study oral conditions were tried to be simulated by thermocycling. In prepared class I cavities occlusal microleakage of amalgam adhesive systems are effective in preventing but wasn't completely obstruct.

OP – 94**THE EFFECT OF CAVITY GEOMETRY AND THERMAL LOAD ON STRESS DISTRIBUTION IN A MOLAR TOOTH**

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Background: The aim of this study was to evaluate the effect of cavity geometry, restorative material, thermal and mechanical load factors on stress distribution of a maxillary molar tooth. **Methods:** The models of maxillary first molar was created by CT scanning, Mimics and SolidWorks

software. Twelve experimental groups were created according to cavity geometry (class I and II cavity), restorative material (resin composite, amalgam and glass ionomer cement), thermal load (5 and 55°C) and mechanical load (mechanical singular load-perpendicular and mechanical distributed load-perpendicular) factors. The stress distribution was analyzed using finite element analysis (FEA). The obtained data were evaluated statistically with Kruskal-Wallis and Mann-Whitney U tests. Results: No statistically significant difference was found the effect of restorative material and mechanical load factors on stress distribution ($P>0.05$). However, statistically significant difference was detected the effects of cavity geometry and thermal load factors on stress distribution ($P<0.05$). The higher stress distribution was found in class I cavity than class II. The higher stress distribution was found in 5°C than 55°C. Conclusion: Within the limitations of this study, cavity geometry and thermal load factors on stress distribution in a maxillary molar tooth were more affected than restorative material and mechanical load factors.

OP – 95**MARGINAL LEAKAGE OF SELF-ADHESIVE COMPOSITES IN CLASS II RESTORATIONS: A MICRO-CT STUDY**

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Background: Self-adhesive flowable composites have been introduced as a new class of restorative material in adhesive dentistry. The aim of this study to evaluate the effect of two different self-adhesive composites on the marginal adaptation. **Methods and materials:** Thirty standardised Class II(box only) cavities were randomly divided into three groups: (1) Control: Two-step etch-and-rinse adhesive (SoloBond M - Voco, Cuxhaven Germany)/ flowable composite Grandio flow and Grandio, (Voco, Cuxhaven Germany) (2) Fusio Liquid Dentin (Pentron Clinical, Orange, USA) and Grandio (Voco, Cuxhaven Germany) (3) Vertise Flow (Kerr, Orange, USA) and Grandio (Voco, Cuxhaven Germany) After thermocycling and immersion in a 50% silver nitrate, the restorations were evaluated by micro-ct images with software(Skyscan Bruker company). The data were statistically analysed ($\alpha = 0.05$). **Results and conclusion:** Results of our study showed that there were no statistically significant difference between control and self adhesive groups.

OP – 96**REATTACHMENT OF CORONAL FRAGMENT USING FIBER-REINFORCED POST:A CASE REPORT**

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OBJECTIVES:Coronal fractures of permanent dentition are the most frequent type of dental injury.If the original tooth fragment is retained following fracture,the natural tooth structures can

be reattached using adhesive protocols. The development and use of fiber-reinforced composite posts make possible of the reattachment of the crown esthetically. This case report presents a clinical technique to reattachment maxillary lateral incisor tooth after trauma using direct fiber-reinforced post systems and present the 1 year follow-up. **METHODS:** In this case report, a 46-year-old woman referred to clinic, because of fracture of the crown in the left maxillary lateral incisor. Clinical and radiographic examination revealed that there was a horizontal fracture between the cervical and mid region of the crown. The patient had percussion and night pain; so endodontic treatment was applied. After this, the post space was prepared on the root canal and crown fragment. The fiber post was placed into the root canal and then crown fragment was attached. Dual-cure adhesive resin cement was used for cementation. Finally, fracture line restored with flowable composite and the residual composites was finished and polished with finishing burs and discs. **RESULTS:** Posttreatment, and short-term follow-up records of this patient showed successful and acceptable results. **CONCLUSION:** This case presents the progress in adhesive technology. Fiber reinforced resins allow not only creation esthetic restoration but also for the preservation and reinforcement to tooth structure. At the 1 year follow-up, the resultant appearance was acceptable to the patient. However, before recommending a similar treatment on a regular basis, a longer follow-up period is required.

OP – 97

BONDING EFFECTIVENESS OF NEW UNIVERSAL ADHESIVES TO ENAMEL

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Objective: The aim of this study was to evaluate the shear bond strength of four universal adhesives to enamel compared to a two-step self-etch adhesive. **Methods:** One hundred human third molars were sectioned into two fragments (buccal and lingual) and randomly assigned to five groups according to adhesive agents (OptiBond XTR [Kerr], Clearfil Universal Bond [Kuraray], All Bond Universal [Bisco], Scotchbond Universal [3M ESPE], and Clearfil SE Bond [Kuraray]). Each adhesive agent was applied to a flattened enamel surface by using the self-etch or etch-and-rinse strategy, and the composite resin was constructed onto the bonded enamel surface. The specimens were stored for 24 h in 37°C distilled water or were thermocycled for 5,000 cycles at 5°C /55°C to simulate an aging process. Shear bond strengths were measured by using a universal testing machine. Data were analyzed using three-way analysis of variance and the Tukey post-hoc test ($p = 0.05$). **Results:** The type of adhesive agent and application strategy had a significant effect on the enamel bond strength ($p < 0.001$). The thermocycling process did not significantly affect the shear bond strength to enamel ($p > 0.05$). The pre-etching treatment of enamel significantly improved the shear bond strength of all of the adhesives tested. **Conclusions:** After thermocycling, the Clearfil SE Bond had significantly higher shear bond strength to enamel than did the universal adhesives. No significant differences were found among the enamel bond strengths of studied universal adhesives.

OP – 98**TURKISH DENTAL PRACTITIONERS' AWARENESS, REGARDING DENTAL LASER SYSTEMS AND THEIR ORAL APPLICATIONS PARTICULARLY CARIES REMOVAL**

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Introduction The word LASER is an acronym for Light Amplification by Stimulated Emission of Radiation. and used in dentistry since 1960. The aim of this study was to evaluate the awareness of Turkish Professional dental practitioners regarding the use of dental laser systems in oral interventions. Since to have information about this subject would be important in terms of the requirements of further education of dentists and especially of dental students. One hundred and fifty six(156) dental practitioners were surveyed for the study using questionnaire. **Material and Method:** Qualitative data was collected on the basis of structured schedule questionnaire method. **Statistics:** The data were entered into a spreadsheet (Excel ver. 2013, Microsoft, Seattle, WA, USA) for the calculation of descriptive statistics. Chi-square tests were applied to assess the significance of the differences among the groups. Data were analyzed using statistical program software (SPSS ver.20, Chicago, IL, USA). The level of significance was 5% ($p < 0.05$). **Results:** Replies were received from 156 dentists following the mailing and overall response rate %80. Fifty percent (n=78) of responses were male. Table 1 shows the percentage of respondents regarding years since graduation. Regarding dental practitioners' laser system knowledge, Table 2 shows the dental practitioners' responses of each item in each section. **Conclusion:** It is observed that dentists' information about laser system methods and the level of the awareness and usage is low in our country. Especially increase with the active working years, this level falls further.

OP – 99**TURKISH DENTAL PRACTITIONERS' AWARENESS, REGARDING CHEMOMECHANICAL CARIES REMOVAL SYSTEM, THEIR ORAL APPLICATIONS PARTICULARLY CARIES REMOVAL**

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The aim of this study was to evaluate the awareness of Turkish Professional dental practitioners regarding the use of chemomechanical caries removal in oral interventions. Since to have information about this subject would be important in terms of the requirements of further education of dentists and especially of dental students. One hundred and fifty six(156) dental practitioners were surveyed for the study using questionnaire. **Material and Method:** Qualitative data was collected on the basis of structured schedule questionnaire method. **Statistics:** The data were entered into a spreadsheet (Excel ver. 2013, Microsoft, Seattle, WA, USA) for the calculation of descriptive statistics. Chi-square tests were applied to assess the significance of the differences among the groups. Data were analyzed using statistical program software (SPSS ver.20, Chicago,

IL, USA). The level of significance was 5% ($p < 0.05$). Results: It is observed that 66,67's% of the doctors surveyed (104) that have no information about chemomechanical caries removal system (CCRS) methods; and %83,33 (130) of participants did not use CCRS previously. The highest level of knowledge about CCRS was observed in physicians actively working with 5-10 years' experience. The lowest knowledge was observed in physicians actively working with 20 years and more. Conclusion: It is observed that dentists' information about chemomechanical caries removal system methods, the level of the awareness and usage is low in our country. Especially increase with the active working years, this level falls further.

OP – 100

EFFECTS OF ER:YAG, ND:YAG LASERS ON REPAIR STRENGTH OF AGED ORMOCER AND NANOCERAMICS COMPOSITE

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Bonding protocol between the aged and the fresh composite usually requires roughening of aged composite. The aim of this study was to evaluate the effects of different surface treatments and different restoration materials on repair bond strength of thermally aged ormocer and nanoceramic based composites. Methods and materials: Thermally aged, blocks (6x6x5mm) of both nanoceramic and ormocer based resin composites were roughened with either bur, Er:YAG or Nd:YAG laser. In each group half of the roughened samples were repaired with composite of their respective brand; other half was repaired with composite of the other brand. Half of the restorations were thermally aged. All samples were subjected to microtensile bond strength test. Data were analyzed with ANOVA and Tukey's multiple comparisons test ($p=0.05$). Results: Between G1(Ormocer-Ormocer-bur-thermal aging) and G5(Ormocer-Ormocer- Nd:YAG-thermal aging), G4(Ormocer-Nanoceramic-bur-control) and G8(Ormocer-Nanoceramic-Nd:YAG-control), G8(Ormocer-Nanoceramic-Nd:YAG-control) and G12(Ormocer-Nanoceramic-Er:YAG-control), G13(Nanoceramic-Ormocer-bur-thermal aging) and G17(Nanoceramic-Ormocer-Nd:YAG-thermal aging) statistically significant differences were found ($p<0.05$). Conclusion: Surface roughening with bur, Nd:YAG and Er:YAG laser may be used for the repair of aged composite restorations. Key Words: Laser, thermal aging, micro-tensile bond strength, nanoceramic, ormocer, repair

OP – 101

EVALUATION OF POLYMERIZATION SHRINKAGE OF NEW GENERATION FLOWABLE COMPOSITE WITH MICRO COMPUTED TOMOGRAPHY (MICRO-CT)

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Background: The objective of this study is to evaluate the polymerization shrinkage of 8 different flowable composite resins using a new generation Micro-CT. Material and Methods: 8 different

flowable composites were used in this study (Surefil SDR Flow (SDR), Charisma Flow (CHF), Clearfil Majesty Flow (CMF), Vertise Flow (VF), Grandio Flow (GF), Filtek Supreme Ultimate Flow (3MEFU), Filtek Bulk Flow (3MBF), X-Tra Base Flow (XTB)). For bulk fill composites that could be applied up to 4 mm thickness on the cavities, 4x6 mm teflon molds; for universal flowable composite resins, 2x6 teflon molds were utilized. Composite materials were placed in standard molds and these were scanned for 1 hour using Micro-CT Skyscan 1172 before they were polymerized with LED light. During scanning no polymerization was observed since the internal chamber of the equipment was completely dark. When the scanning was complete, materials were polymerized with LED light as per producer recommendations and rescanned with Skyscan 1172 equipment using the same parameters. A total of 80 test materials, 10 for each group, were scanned. After the scanning process was over, test material were analyzed using Micro CT SkyScan 1172 CTAn software. Results: The percentage variation on the post-polymerization parameters for the material demonstrated that the maximum polymerization shrinkage was observed in CHF group, while the least polymerization was observed in XTB group. Conclusion: Type of material, matrix content and filler content can affect the shrinkage of the materials. Keywords: Flowable Composites, Micro-CT Skyscan 1172, Polymerization Shrinkage

OP – 102**ELUTION OF MONOMER FROM INDIRECT DENTAL COMPOSITE RESINS**

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Elution of monomer from Indirect dental composite resins Objective. The purpose of this study was to evaluate the elution of Bis-GMA, TEGDMA, HEMA and UDMA monomers from three indirect composite resins over five different time periods using HPLC. Methods. Four different composite resin materials were used in the present study: three of these indirect composites Signum (Heraeus Kulzer), Solidex® (Shofu) and GRADIA (GC) and one of these universal composite (Filtek Ultimate; 3M ESPE) used as a control material. The samples (2 mm thick-ness, 5 mm diameter) were prepared and polymerized according manufacturer instruction. After fabrication, each sample was immediately immersed in 75 wt% ethanol/water solution used as extraction fluid and stored in the amber colored bottles at room temperature. Ethanol/water samples were taken (0.5 mL) at predefined time intervals:10 m (T1), 1 h (T2), 24 h (T3), 1 week (T4) and 30 days (T5). These samples were analyzed by HPLC. The obtained data were analyzed with one-way ANOVA and Tukey HSD at significance level of $p < 0.05$ Results. Amount of eluted Bis-GMA from Filtek Ultimate and amount of eluted TEGDMA from Signum higher than others composites ($p < 0.05$). Conclusion. Residual monomers were eluted from indirect and universal composite resins in all time periods and the amount of eluted monomers was increased with time.

OP – 103**EFFECTS OF PHOTODYNAMIC THERAPY WITH A NOVEL PHOTOSENSITIZING AGENT ON STREPTOCOCCUS MUTANS BIOFILM**

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Background: Photodynamic therapy (PDT) is an alternative option to eliminate residual bacteria remaining in the cavity. Indocyanine green (ICG) is a photosensitizing agents introduced in recent years. The aim of the study to investigate the antibacterial activity of the PDT using diode laser with ICG on *S.mutans* biofilm. **Methods and Materials:** Ninety freshly extracted human third molar teeth were used. Two cylindrical cavities were prepared on each tooth (2x2mm). After sterilization, the teeth were left in Mueller Hinton broth of *S.mutans* (105 CFU ml⁻¹) at 37°C for 72h. The teeth were randomly divided into 9 groups according to treatments; Group 1:Negative control, Group 2: Positive control, Group 3: CHX, Group 4: NaOCl, Group 5: Gaseous ozone, Group 6: ErYAG laser, Group 7: Diode laser, Group 8: ICG, Group 9: PDT (ICG+Diode laser). The cavities were sealed with a sterile cotton sponge and temporary filler, and were incubated at 37°C for 72h in order to establish an infected cavity. Then dentin chips (25±5mg) were collected from the cavity walls and transferred to Mueller Hinton growth medium. *S.mutans* colonies were incubated and counted. **Results:** All the treatments significantly reduced the number of *S.mutans* compared with the control group (p<0.05). The antimicrobial effectiveness to all tested methods can be ranked from the strongest to the weakest as follows: CHX, NaOCl, Ozone, PDT, ErYAG laser, Diode laser, ICG, Positive control group. **Conclusion:** PDT using diode laser with ICG may be suggested on the cavity disinfection after caries excavation as an alternative to conventional methods.

OP – 104**FRACTURE RESISTANCE OF ENDODONTICALLY TREATED TEETH RESTORATED WITH BULK FILL COMPOSITE RESINS AND FIBER BUNDLE**

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Background: The choice of materials and techniques are important for restoration of endodontically treated teeth with loss of excess material. The purpose of this study was to evaluate the fracture resistance of endodontically treated teeth restored with bulk fill composite resins and fiber insertion. **Methods and Materials:** One hundred forty four maxillary premolar teeth were used and randomly divided into twelve groups (n:12). G1 were considered as negative control(without endodontic treatment and restoration). MOD cavities were prepared in standard sizes. Access cavities were prepared, the root canals were shaped with Ni-Ti Files and

obturerated with gutta percha and epoxy resin based root canal sealer. Canal entires were sealed with glass ionomer cement. For positive control(G2), the teeth were kept unrestored. And the other groups were restored as follows; G3:Filtek Z-250, G4:Filtek Z-250+Fiber, G5:SDR, G6:SDR+Fiber, G7:SonicFill 2, G8:SonicFill 2+Fiber, G9:Tetric Evo Ceram Bulk Fill, G10:Tetric Evo Ceram Bulk Fill+Fiber, G11:Filtek Bulk Fill Posterior, G12:Filtek Bulk Fill Posterior+Fiber. The teeth were subjected to a compressive fracture test in a universal testing machine. One-way ANOVA and post hoc Tukey HSD test were used for statistical analysis. Results: Teeth restored with bulk fill composites showed higher fracture resistance and the difference was statistically significant (excluding the G5) when compared with conventional resin. Fiber insertion caused a decrease in fracture resistance values but the difference was not statistically significant (except for G4 and G12). Conclusions: Endodontically treated teeth require more support and different types of restoration. The newly developed composite resins reinforces teeth against fractures.

OP – 105

IMPACT OF DENTAL FEAR ON A DENTAL STATUS AND ORAL-HEALTH RELATED QUALITY OF LIFE

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BACKGROUND: The aim of this study was to investigate the influence of dental fear on the dental status and Oral Health related Quality of Life using Oral Impact of Daily Performance (OIDP) in an adult Bosnian population. **METHODS AND MATERIALS:** The study included 151 subjects aged 24 to 54 (mean age 31.6±5.9). Data concerning sociodemographic characteristics, dental fear, use of dental service, and OIDP were collected using a questionnaire. According to dental fear subjects were divided into two groups: patients with dental fear and patients without dental fear. Clinical examination was performed to assess dental status (decay, missing and filled teeth, DMFT). **RESULTS:** A total of 57.6%% of the sample reported fear about dental visits. Those with dental fear had a statistically significantly higher number of decayed teeth (DT) ($p=0.045$) and DMFT ($p=0.022$). OIDP score was not related with dental fear. **CONCLUSIONS:** Dental fear influenced caries experience but not OIDP in an adult Bosnian population.

OP – 106

FRACTURE RESISTANCE OF ENDODONTICALLY TREATED YOUNG PERMANENT PREMOLARS RESTORED WITH DIFFERENT BULK FILL SYSTEMS

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Background: Restoration type has an important role on survey of the endodontically treated teeth. The aim of this study was to evaluate the fracture resistance of the young permanent teeth

after endodontic treatment and restoration with different new restorative materials with the acid etching or not. **Methods and Materials:** Sixty freshly extracted because of orthodontic reasons non carious young human mandibular premolars were prepared with MOD cavity and endodontic treatment was completed. The specimens were divided into main two groups according to acid etching (n=10). After endodontic treatment all of the walls etched and bonded in first group and divided to three sub groups according to restorative material. At the another group teeth bonded and restored by three different materials. All teeth were subjected to a compressive force at a crosshead speed of 1mm/min. The fracture forces were recorded for each teeth in Newtons(N). Statistical analyses performed by one way analysis of variance (ANOVA). Then all of the specimens were evaluated by an operator whether the fractured teeth restorable or unrestorable. **Results and Conclusions:** There were no significant difference between the groups that were not acid etched ($p>0.05$). However acid etched teeth restored with ultrasonic bulk fill composite had significantly higher fracture values than the other groups ($p<0.05$). Acid etching and ultrasonic bulk fill restorative material may increase the fracture resistance of endodontically treated teeth .

OP – 107

THE EFFECT OF DIFFERENT TECHNIQUES OF ENAMEL ETCHING ON SHEAR BOND STRENGTH OF SELF-ETCHING ADHESIVES

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Background: This in vitro study was performed to evaluate the effects of phosphoric acid and laser etching on enamel shear bond strengths (ESBS) of current self-etching adhesives. **Methods and Materials:** Two-step (Clearfil SE Bond) and one-step (Single Bond Universal Adhesive, Bond Force II, Nova Compo-B Plus Adhesive) self-etching adhesives were tested. Flat enamel surfaces were created on 192 extracted human molars. The teeth were embedded in cylindrical molds with acrylic resin leaving flat enamel surfaces uncovered. Enamel surfaces were assigned into 3 groups: (1) acid etching using 37% phosphoric acid, (2) thermal etching with the Er:YAG laser, (3) no pretreatment (Control). In each group the specimens were randomly allocated to 4 groups to receive the self-etching adhesives (n=16). Resin blocks were created by packing a nano hybrid composite (Filtek Z 550) into plastic matrices. Specimens were stored in distilled water for 24 h at 37 °C before ESBS testing. Data were calculated as MPa and analyzed with one-way ANOVA and Tukey's HSD tests. **Results and Conclusion:** Compared with the non-etched controls, etching with the Er:YAG laser did not increase the ESBSs of self-etching adhesives ($p > 0.05$), but etching with phosphoric acid significantly increased the ESBSs of the self-etching adhesives with the exception of Clearfil SE Bond ($p < 0.05$). Considering the ESBS results, the phosphoric acid etching showed better performance than did laser etching for one step self-etching adhesives. Enamel etching approaches could not improve the enamel bonding performance of the tested two step self-etching adhesive.

OP – 108**FABRICATION OF CERAMIC SINGLE CROWN FOR TWO DIFFERENT IMPLANT SYSTEMS**

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The aim of the study was to show the diversity of prosthetic components in making ceramic single crown in 2 different implant systems. After scanning by the method of 3D panoramic radiography (Scanora3D), as well as assessing of sufficient quantity and weight of the remaining bone substance in the upper jaw of two male patients and one female patient in edentulous spaces between the first premolars and first molars single implant (SICACI 3.4 x 11.5 mm., SIC invent AG, Switzerland, and Astra implant 3x11, 5mm, USA;) was surgically embedded. After implants' insertion, sulcus formers were placed. In order to fabricate master casts appropriate transmitters were used during impressing of a jaws by addition silicones. Casts with the abutment replicas were set to semiadjustable articulator at the appropriate vertical dimension of occlusion. After the rehearsal caps on abutments in each case was assessed for the appropriate color (C3 Vita Shade). A single metal-ceramic crown (Vita, Germany) was fabricated for two patients. In the third patient ceramic crown (CAD/CAM, Sirona, CEREC MC XL) was made. Each crown was articulated, then glazed and fixed to the abutment using dental cement. Recalls were after 6 months and 1 year after cementing. Conclusion. All of the examined implants systems have proved as the successful ones for setting metal-ceramic or metal-free ceramic crown. Fabrication of a single metal-ceramic as well as metal-free ceramic single crown on the implant is up-to dated and permanent solution in the rehabilitation of lost teeth of the upper jaw.

OP – 109**CLINICAL ASSESSMENT OF GINGIVAL INDEX GI AND GINGIVAL MARGINS IN FIXED PARTIAL DENTURES**

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The aim of this study is to evaluate fixed partial dentures applied for more than a year and their impact on periodontal health. The margins of fixe partial dentures are appropriate places for plaque accumulation causing periodontal disease. The current study aims to evaluate the margins of these restorations and the periodontal health on the abutment teeth and compare it with control contralateral teeth. Data about gingival index, bleeding on probing and plaque indices were collected for both groups of teeth. Manual periodontal probes were used for the screening. 53.3 % of the total test group resulted with none to light gingival inflammation and 44,7 % with mild to severe gingival inflammation. In the control group the 110 was the number of teeth with a score of 0 for GI, 98%. Bleeding index with a score of 0 was reported for 16 cases in the control group and the other part of the group scored from 1 to 4. In the control group the bleeding index 106 reported a score of 0 and 6 reported a score of 1. The pocket depth were more deep in the

test group than that in the control group reporting a significant statistical difference between the two groups ($p < 0.05$)

OP – 110**PROSTHETIC REHABILITATION OF PARTIAL EDENTULISM ACCORDING TO KENNEDY CLASSIFICATION**

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The lack of teeth provides structural and functional changes in the stomatognathic apparatus. These changes should be taken in to consideration by the dentist. Different classifications of the jaws with lost teeth exist. Kennedy classification is the most suitable one in the clinical practice. Aim: The aim of our study is the prosthetic rehabilitation of lost teeth according to Kennedy's classification with different prosthesis. Methods: We treated 88 patients from 40-70 who are divided into two groups: Treatment and Control. We treated patients with lost teeth and different atrophy in the alveolar process belonging two different classes of Kennedy. The treatment was based on the skeletal and fixed prosthesis. Results: Prosthetic rehabilitation was based on two principles: localism and morphology of the environment that is going to be treated and the damaged level of the rest of the teeth. According to Kennedy's classification, in our patients predominate the first class defect in 40% of the cases and the second class defect in 23% of the cases. The results of the prosthetic rehabilitation were valued not only from the subjective and clinical date but also from the radiological one. In the group of treatment, the recovery was faced with 61.70% of the cases, in comparison to the control group with 75.60% of cases (chi square test, $P < 0.01$). Conclusion: Prosthetic rehabilitation of the lost teeth with different prosthesis avoids different complications in the mouth.

OP – 111**EVALUATION OF MARGINAL AND INTERNAL ADAPTATION OF HYBRID AND NANO-CERAMIC SYSTEMS WITH MICRO-COMPUTED TOMOGRAPHY**

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Purpose: The aim of this study was to evaluate the marginal integrity and internal adaptation of hybrid and nano-ceramics with micro-computerized tomography (micro-CT). Material and Methods: Marginal integrity and internal adaptation of three nano- and hybrid ceramics (Vita Enamic; VE, Lava Ultimate; LU and Vita Suprinity; VS) were compared with lithium disilicate (IPS e.max.CAD; IPS). Ninety-six specimens (48 dies and 48 crowns) were prepared ($n=12$ each group) with CAD/CAM methods. Restorations were scanned with micro-CT. One hundred and sixty measurements were made with software program from each crown for 2-D analysis. Cement volumes were also determined by software program. The marginal integrity (Marginal gap,

absolute marginal discrepancy, shoulder area, axial gap, occlusal gap) and volumes were compared with appropriate statistical analysis methods. Results: Evaluations of IPS blocks' marginal gap ($129,98 \pm 52,25 \mu\text{m}$), absolute marginal discrepancy ($155,52 \pm 33,09 \mu\text{m}$), shoulder area ($111,21 \pm 22,18 \mu\text{m}$), axial gap ($51,77 \pm 8,70 \mu\text{m}$) and occlusal gap ($191,58 \pm 29,13 \mu\text{m}$) were found to be the lowest. Adaptation values of VS were lower than the IPS blocks. The LU and VE blocks' adaptation values were lower than those of others. However, there were no significant differences between LU and VE. IPS had also the most voluminous cement space with $18,26 \pm 2,06 \text{ mm}^3$. Conclusions: The geometry and cervical curvature lines during the crown preparation affected the marginal integrity and internal adaptation of the crowns. Keywords: Hybrid ceramic, nano-ceramic, marginal adaptation, internal adaptation, micro- CT.

OP – 112**PREDICTABLE RESTORATION FOR EXTENSIVE CROWN LOSS: FIBER POST-CORE SUPPORTED HIGH STRENGTH FULL CERAMIC CROWN RESTORATIONS**

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In case of an evident horizontal loss of clinical crown, most of the teeth could be able to retain the final restoration without some additional support. If only a ferrule of minimal thickness can be achieved from remaining coronal tooth structure, a post and core build up following endodontic treatment could be of great assistance for retaining and supporting the future restoration. The aim of this presentation is to present step by step fiber post and composite core application before cementing high strength full ceramic restoration utilising with self adhesive resin cement. First, fiber post preparation was achieved by relevant drill with the depth of 2/3 root canal. Prepared root canal was irrigated by sodium hypochloride and washed distilled water and dried by air flow. Adhesive cementation technique was used for bonding the fiber post to the canal dentine. As an adhesive system two step etch and dry other means total etch system and dual cure composite resin luting cement were used. For core material composite resin core material was chosen. Both anterior and posterior teeth, fiber post-core supported high strength full ceramic crown restorations are successful treatment modality for extensive crown loss.

OP – 113**EFFECT OF DIFFERENT SURFACE TREATMENTS ON BOND STRENGTH OF RESIN COMPOSITE TO DIFFERENT CERAMIC TYPES**

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The aim of this study was to evaluate the effect of surface treatments on shear bond strength of resin composites to three different CAD/CAM blocks (lithium disilicate glass ceramic, yttrium stabilized zirconia ceramic and zirconia reinforced lithium silicate glass ceramic) following thermocycling. The tested materials were divided into eight subgroups according to the surface treatment technique (Group 1: hydrofluoric acid + silane + bond, Group 2: sandblasting + silane +

bond, Group 3: laser + silane + bond, Group 4: hydrofluoric acid + silane, Group 5: sandblasting + silane, Group: 6: laser + silane, Group 7: silane +bond, Group 8: silane). In addition, two different adhesive systems were used (Ultradent Silane, Clearfil Ceramic Primer). Then resin composite was applied to the surfaces of all specimens. Afterwards, they were stored in distilled water for 24 hours at 37°C. The half of specimens were subjected to thermocycling procedure (5000 cycles, 5-55 °C) and the other half were stored in distilled water at 37°C. Then specimens were subjected to universal testing machine for shear bond strength test. Failure modes were examined using an optical microscope and SEM. The data were analyzed with Mann Whitney U, Kruskal Wallis and post-hoc tests ($p < 0,05$). Statistical analysis revealed that the surface treatment technique had significant effects on shear bond strength values. However ceramic type, thermocycling and veneering procedure had not affected the shear bond strength values. To improve the repair bonding ability of resin composites to CAD/CAM ceramics, use of appropriate surface treatment method is suggested.

OP – 114

EFFECT OF SURFACE TREATMENTS AND ARTIFICIAL AGING ON THE PHASE TRANSFORMATION OF Y-TZP ZIRCONIA CERAMICS

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Background: The aim of this study was to evaluate the influence of different surface treatments and artificial aging on the phase transformation of Y-TZP ceramics. **Methods and materials:** Two hundred eighty bar-shaped specimens from four type Y-TZP ceramics (Prettau, IPS e.max ZirCAD, Vita In-Ceram YZ, Lava) were prepared and divided into seven groups (n=10) according to the surface treatments and aging used: Control, sandblasting, sandblasting+aging, grinding, grinding+aging, Er:YAG laser, Er:YAG laser+aging. Aging procedure was carried out by applying 10000 thermal cycles (5-55 °C) and 100000 mechanical loading (50 N). All of the specimens subjected to XRD analysis to determine phase transformation. Relative amount of transformed monoclinic zirconia (X_m), monoclinic volume content (V_m) and transformation zone depth (TZD) values were calculated. Data were analyzed using ANOVA, Kruskal-Wallis, Tukey HSD and Dunn's/Bonferroni tests ($p < 0,05$). **Results:** According to XRD analysis for all materials, the highest amount of monoclinic phase and transformation zone depth was found after sandblasting. Grinding groups showed higher values of monoclinic phase compared with laser and control groups ($p < 0,05$). Aged and non-aged groups of Lava and ZirCAD materials were not significantly different ($p > 0,05$). Prettau and Vita aged laser groups showed significantly higher monoclinic phase compared with non-aged laser groups ($p < 0,05$). **Conclusion:** External stresses such as sandblasting, grinding and aging can trigger tetragonal to monoclinic phase transformation. Laser treatment used in this study was not effective on phase transformation.

OP – 115**MULTIDISCIPLINARY APPROACH TO THE THERAPY OF THE PATIENT WITH COMPROMISED ESTHETICS IN FRONTAL AREA**

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Esthetics has been more and more present in our everyday life, beautiful smile has become a trend and imperative. Highly demanding patients with compromised esthetics in frontal area are great challenge.

Aim of the study is: Present one of the approaches in solving the compromised esthetics in frontal area with highly demanding patients.

Patient S.L. (age 19) with hypodony upper left lateral incisor, with multiple diastemas and strongly developed labial frenulum. Patient is declining orthodontic way of treatment. After the wax up and the mock up, parodontal surgery is done, emergency profile of the future clinical crown is made as well as temporary crown's that guided gingival healing and the labial frenulum is removed. After three months the definite prosthodontics is done with the core ZrO₂ made by CAD-CAM, layered by Vita VM 9.

Conclusion: Using the multidisciplinary approach satisfying results can be achieved in the therapy of a highly demanding patient with compromised esthetics in frontal region.

OP – 116**EFFECTS OF SURFACE TREATMENTS ON THE SHEAR BOND STRENGTH OF INDIRECT COMPOSITE MATERIAL TO MONOLITHIC ZIRCONIA**

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This study aimed to evaluate the effect of surface treatments on bond strength of indirect composite material (Tescera Indirect Composite System) to monolithic zirconia (inCoris TZI). Partially stabilized monolithic zirconia blocks were cut into with 2.0 mm thickness. Sintered zirconia specimens were divided into different surface treatment groups: no treatment (control), sandblasting, glaze layer & hydrofluoric acid application, and sandblasting + glaze layer & hydrofluoric acid application. The indirect composite material was applied to the surface of the monolithic zirconia specimens. Shear bond strength value of each specimen was evaluated after thermocycling. The fractured surface of each specimen was examined with a stereomicroscope and a scanning electron microscope to assess the failure types. The data were analyzed using one-way analysis of variance (ANOVA) and Tukey LSD tests ($\alpha=0.05$). Results: Bond strength was significantly lower in untreated specimens than in sandblasted specimens ($p<0.05$). There was no difference between the glaze layer & hydrofluoric acid application treated groups. However, bond strength for these groups were significantly higher as compared with the other two groups ($p<0.05$). Conclusion: Combined using of glaze layer & hydrofluoric acid application and

silanization are reliable for strong and durable bonding between indirect composite material and monolithic zirconia.

OP – 117**EFFECTS OF THREE-UNIT RESTORATION RETRIEVAL ON IMPLANTS AND THE SURROUNDING BONE: A FINITE ELEMENT ANALYSIS**

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Purpose: Implant retained restorations may be retrieved due to many reasons. However, implant retained restorations have many components which may be damaged during removal. The aim of this study is to observe stress concentrations in the surrounding bone, implant and other components, under pull out force during a three-unit restoration removal. **Methods:** One three dimensional digital model of a implant-supported three-unit restoration was constructed. The implants' dimensions were 3.7 mm x 10mm. A pull out force of 40 N was applied on a single support and on the connectors with a loop device. The stress values were calculated within the dental implant, abutment, abutment screw and surrounding bone. **Results:** The highest stress concentration was observed at the collar of the abutment during loading on a single support (16.246 MPa). The stress concentrations at the cortical bone were lower than the implants and maximum stress concentration in bone structure was 1.175 MPa. At the abutment screws, the stress concentration levels were similar but the localizations were different. The loop device was enabled to share the load to both implants and reduce the stress concentration levels. **Conclusion:** The pull out force, which was applied during a crown removal, did not show a great effect in bone structure. The highest stress concentrations were mostly observed at the implant and abutment collar. Besides, the abutment screw, which is the weakest part of an implant system, also showed stress concentrations. Loading on the connectors simultaneously helps to reduce the stress concentrations.

OP – 118**EFFECTS OF CAD/CAM MATERIALS AND PREPARATION DEPTH ON THE FRACTURE STRENGTH OF ENDOCROWN RESTORATIONS**

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Background: the objective of this study was to compare the fracture strength of endocrown restorations which were fabricated by using various CAD/CAM blocks with different preparation depth. **Methods and materials:** one hundred extracted human permanent maxillary centrals were sectioned 1 mm above the cement-enamel junction and endodontically treated. The roots were divided into two groups according to post lengths as short (S:3mm) and long (L:6 mm). Each

preparation group was divided into five subgroups depending on CAD/CAM materials: feldspathic ceramic (M) (mark II), lithium disilicate glass-ceramic (EM) (IPS E.MAX CAD), resin nano-ceramic (U) (ultimate), hybrid ceramic (EN) (enamic) and monoblock zirconia (Z) (INCORIS TZI) (N=10/subgroup). Following the preparations of inner part of endocrowns, digital impressions were taken by CAD/CAM. The restorations were standardized by using biogeneric reference in right first incisor and then were milled. Crowns were cemented with resin cement (RELYX U200) and teeth were thermally cycled (5000). Periodontal ligaments were simulated with polyether impression material. Mechanical test was performed at 45° to long axis until fracture and data were statistically analyzed (Kruskal Wallis, Mann Whitney U). Results: the highest values(n±sd) were obtained in Z groups whereas the M groups showed the lowest values for both of the S (Z: 533,61±189,05, EM: 244,11±119,77, EN: 172,12±135,64, U: 81,49±37,47, M: 47,29±14,79) (p<0.002) and L (Z: 610,54±214,04, EM: 225,08±125,36, EN: 182,38±106,52, U: 99,80±33,62, M: 71,38±23,56) (p:0,001). The ceramic subgroups between S and L groups did not found statistically significant (p>0.05). Conclusion: the preparation depth has no effect on the fracture strength of endocrown restorations.

OP – 119

THE SINGLE-VISIT CHAIRSIDE CAD/CAM RESTORATIONS: CASE REPORTS

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Background: Over the past two decades, the combination of advancements in new all-ceramic restorative dental materials as well as in computer technology has made computer-assisted design/computer-assisted manufacturing (CAD/CAM) fabricated restorations possible in dental clinics on the same day. As a result, all-ceramic restorations have become preferred alternative to metal–ceramic systems. **Case Report:** The following case report series describe the replacement of lithium-disilicate CAD/CAM fabricated crowns and laminate veneers for both anterior and posterior regions. Six patients were referred to our clinic with the demand of prosthetic rehabilitation because of the esthetic or functional complaints. After intraoral and radiographic evaluations endodontic treatment was performed on 5 patients. Two of these patients were additionally treated using fiber posts. Laminate restorations were planned to another patient who have esthetical deficiency due to diastema between maxillary central incisors. After tooth preparation and digital scanning (Trios 3Shape, Copenhagen, Denmark), computer aided designs were performed by using a computer software. Designed restorations were milled from high or low translucency lithium-disilicate blocks (Rosetta, Hass, Kangneng, Korea) by using a milling machine. A porcelain furnace was used for crystallization and glaze process of the restorations. Finally, restorations were cemented with a light-cured resin cement (Panavia, Kuraray, Osaka, Japan). **Conclusion:** CAD/CAM fabricated all-ceramic systems offer a promising alternative for the restoration of teeth in different clinical needs. Clinical evaluations have demonstrated that high success rates can be achieved on the same day visit using this technique.

OP – 120**OVATE PONTIC DENTAL BRIDGE - PRO ET CONTRA**

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Introduction: The ovate pontic design of frontal bridge in the area of pontic/tissue contact is recommended as an esthetic alternative over the ridge lap or modified ridge lap. **Aim:** The presentation summarizes the advantages and disadvantages of ovate pontic bridge including simple methods for postextraction socket shaping appropriate for this pontic type. **Material and method:** Several cases with single tooth extraction indication were selected for rehabilitation with ovate pontic fixed construction. The collapse of the postextraction alveolus was prevented with temporary construction (removable single tooth denture or temporary bridge) with small false root (4-5 mm high) inserted in the postextraction socket. This pseudo-root was periodically corrected and decreased in height every 2-3 weeks during the final healing and concave shaping of the alveolar ridge. Finally, the definite ovate pontic bridge was fabricated. No signs of irritation and inflammation of the ridge mucosa in the area of contact with the pseudo root were observed. **Results:** The esthetic and hygiene superiority are the main benefit of this pontic design. The best result can be obtained in cases where only 1 frontal tooth is planned to be extracted. The necessity for frequent readjustments of the temporary construction and long period (10-12 weeks) for proper remodeling of the edentulous area are the disadvantages of the ovate pontic dental bridge. **Conclusion:** Ovate pontic frontal bridge construction is esthetic solution for frontal area but the indication, benefits and disadvantages have to be individually estimated for every single case.

OP – 121**HYBRID BRIDGE AS ESTETIC SOLUTION IN THE EDENTULOUS UPPER JAW PATIENT TREATMENT**

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In the "era of the beauty and beautiful smiles", edentulous patients are looking for estetic solution for themselves and in the everyday practice, they are great challenge, because of the, beside teeth, the bone loss, as well.

Aim of the study: Present hybrid bridge as Estetic solution in the edentulous upper jaw treatment. Patient with edentulous upper jaw; eight implants had been placed, seven Branemark Mark II and one Nobel Replace).

After osteointegration, impression is made for the Procera titanium frame fabrication.

After fabrication and the fitting check, the titanium frame was layered with the composite in the gingival area and the "pink estetics" task is accomplished. Lithium dislocate crowns were made as a definitive prosthodontics and fixed in laboratory (all but one) on the layered titanium frame. The construction was screw retained and the last crown (positioned on the one screw's exit) was cemented on the frame atrer fixation.

Conclusion: The hybrid bridge is proved and recommended as a simple, safe and highly esthetic solution in the edentulous upper jaw patients.

OP – 122**FUNCTIONAL AND ESTHETICAL RECONSTRUCTION OF SEVERELY HANDICAPPED OCCLUSION OF A CLEFT-PALATE PATIENT**

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Introduction: Cleft lip and/or palate patients, commonly exhibit various degrees of occlusal disorders due to the various dental irregularities such as the displacement, malformation, crowding or congenital absence of the teeth. Centric and eccentric relations and also vertical dimension of occlusion are generally affected. Unsuitable development of maxilla and mandible may lead craniofacial disharmony. **Purpose :** Interdisciplinary treatment approach to the reconstruction of severely handicapped occlusal relations of a 19 years-old male patient with cleft palate were described in this presentation. **Materials and Methods:** Most suitable vertical dimension of occlusion was estimated by employing the classical approach of Niswonger. Cephalometric analyses were performed on the lateral cephalometric X-ray projections for the patient. Required vertical dimension of occlusion calculated by cephalometric analyses and the obtained value was compared with the clinical measurements. An interocclusal splint was made by self-cure clear acrylic resin and employed to keep interocclusal distance in forthcoming vertical dimension of occlusion. Patient was followed with provisional fixed protheses for eight weeks because of TMJ disorders may appear. Definitive fixed partial dentures were then performed and luted according to the new occlusal relations. **Results:** Anterior and posterior cross-bites were corrected. Vertical dimension of occlusion was increased. Amount of heightening was calculated, compared and checked preoperatively by using cephalometric and clinical measurements and analyses. Proportions of the face were improved and a pleasant appearance was established.

OP – 123**INFLUENCE OF DIFFERENT MUCOSAL THICKNESS AND RESILIENCY ON THE STRESS DISTRIBUTION IN MANDIBULAR BONE**

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Background: The aim of this study was to evaluate the influence of mucosal thickness and resiliency on the stress distribution in mandibular bone during masticatory function with a complete denture and an implant-supported overdenture through a three-dimensional finite element analysis (3D FEA). **Methods and Materials:** FEA models of a mandible were constructed for two types of dentures: complete denture (CD) and two implants supported overdenture (IO).

A edentulous mandible with complete denture and overdenture was digitized and converted into 3-D numerical models by an advanced topometric sensor digitizer (ATOS). After virtual reconstruction, in both group the 3D model was exported to the CAD software and divided into three subgroups based on the thickness of the mucosa (1, 3 and 5 mm). Solid models of the implant systems with ball abutments were constructed using a CAD system and imported into the FE program and placed in the canine position. Evaluation was performed on ANSYS software (Swanson Analysis Systems, Houston) with 100N vertical load applied on the first molar. Results: Group IO showed higher stress values than group CD regardless of mucosal thickness and resiliency. For group CD, there was a decrease on maximum stress values when the thickness and resiliency of mucosa increased, while for group IO the 3 mm thickness of mucosa showed lower values of stress concentration in mandible. Conclusion: Considering influence of mucosal thickness and resiliency on the stress distribution in mandibular bone with CT and IO, remarkable differences in stress values were found between the models.

OP – 124**MAXILLOFACIAL PROSTHESIS PREPARING TO A SQUAMOUS CELL CARCINOMA PATIENT WITH NEW TECHNIQUE**

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Patient that whom orbitas base with inner side of nose in right side of maxilla and at Le forte 1 level in left side of maxilla without tuberosita had been resected due to squamos cell carcinoma, was referred to our clinic to obtain maxillofacial prosthesis. First of all, in patient, zygomatic dental implant placement was planned for prosthesis retention due to presence of only a part of tuberositas maxilla. Nevertheless, principally to construct a conventional style maxillofacial prosthesis with different new technique was planned in patient because of either age of patient or lack of bone in zygomatic dental implant placement region. Pain was a problem in maxillectomy patients and reduced their quality of life. Because of this problem the denture base resin was covered with soft lining material at the defect region. During the preparing maxillofacial prosthesis, two pieces of spring style wire was placed into the soft lining material. These wires let the prosthesis to place to the undercut region by springing and after placement of the denture to its original place; it had been obtained better retention of denture as becoming to springs' original position. The patient is still under control session with satisfaction.

OP – 125**PREDICTABLE APPROACHES IN REHABILITATION OF MAXIMAL PARTIALLY EDENTULOUS PATIENTS**

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Rehabilitation of maximal partially edentulous arches can be a real challenge for restorative dentist, having in mind stability and retention of dentures, adjacent teeth, remaining teeth structure, tooth vitality, envelope of function and type of restoration. The aim of this study is to evaluate the elected therapeutical solutions during the rehabilitation of maximal partially

edentulous patients. The clinical cases selected from classic therapy offer rehabilitations from the simplest solutions to complex dentures. The use of stud and bar attachments as a part of removable partial overdentures and telescopic crowns made of different kind of materials approve biomechanical quality of dentures. An accurate treatment planning, interdisciplinary team work and communication with laboratory technicians are also key points for successful result. The ultimate goal to rehabilitation of maximal partially edentulous patients should be biological and functional outcome which will harmoniously integrate the facial, functional and oral demands of patients.

OP – 126**COMPARISON OF GOHAI AND OHIPEDENT 19 AMONG ELDERLY ACRYLIC DENTURE WEARERS IN CENTRAL BOSNIA**

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The purpose of this study was to validate OHIP and GOHAI questions and to compare the discriminative abilities of the OHIP-14 and the GOHAI in selected elderly geriatric acrylic denture wearers in Central Bosnian population. Methods. After pilot testing, minor modifications and retesting, OHIP edent 19 and GOHAI versions of tests were administrated to a group of geriatric acrylic denture wearing patients (n=49,56-89years) The internal consistency, reproducibility and concurrent validity were verified. To test their discriminative abilities, the ADD (GOHAI and OHIP) and SC (GOHAI and OHIP) scores were dichotomized according to the 25th and 75th percentile respectively, and synchronization of questions according to scale of 1-5 points has been done. Results. Very good psychometric properties were observed for both questionnaires for internal consistency (Cronbach's alpha>0.87and<0.96 for the both of the groups), reproducibility (ICC>0.88) and concurrent validity of the investigation methods. Strong correlations were found between GOHAI and OHIP-19 scores but a higher prevalence of subjects with low impacts was observed using the OHIP-14 indicating that the total prevalence of frequently occurring responses of the individual items was up to 52% in denture wearing patients. Main problems were regarded to denture's retention and stability (mean score was 3.4). Conclusion. Two of items had poor stability. Denture's retention and stability were doubtful in examined patients. Bosnian elderly with high dental care needs and impaired oral health were identified more simple by the GOHAI.

OP – 127**THE EFFECT OF YTTERBIUM-DOPED FIBER LASER TREATMENT WITH DIFFERENT PARAMETERS ON ZIRCONIA SURFACE**

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The aim of this study was to evaluate the effects of YbPL on zirconia surface. Material and Methods: The zirconia discs were prepared and divided into four groups according to the power

of laser irradiation (25W, 60W, 85 W and 100W). These groups then divided into 5 sub-groups according to the frequency (25 kHz, 40 kHz, 60 kHz, 80 kHz and 100 kHz). The surface roughnesses are measured with non-contact profilometer and the mean Ra values were calculated. The wettability was measured with a goniometer. The surface morphology was observed with SEM. The changes in the surface crystalline structure were analyzed with XRD. Results: The Ra values of the all groups were higher than the control group. Value of surface roughness was highest at 100 W, 100 kHz. However, the best wettability characteristic was shown at 25W, 60 kHz. The correlations of the Ra and wettability were low but significant. SEM examination of 25 W with different frequencies showed no micro-cracks, however melted areas were observed. In all other groups, microcracks and melted layers were observed. A significantly lower T/M-phase transformation was observed for specimens at some groups. The monoclinic phase was not detected specimens of other groups. Conclusions: YbPL laser irradiation was effective on roughening the zirconia surface. Although laser treatment affected zirconia surfaces and provided surface roughness, the power and the frequency should be adjusted in order to achieve optimum results.

OP – 128**EFFECT OF DIFFERENT SURFACE TREATMENTS ON THE SHEAR BOND STRENGTH OF TWO DIFFERENT BONDING SYSTEMS**

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The aim of this study was to evaluate the effect of different surface treatments on the shear bond strength of two different bonding systems to bracket. Specimens were randomly assigned to four groups; G1: 37% phosphoric acid + orthosolo, G2: Er:YAG (MSP mode) + Orthosolo ; G3: Er:YAG (QSP mode) + orthosolo; G4: 37% phosphoric acid + Assure. The brackets were then bonded with Transbond XT. After 24 hours storage in distilled water, shear bond strength of samples were tested in a universal testing machine. Statistical analysis using Kruskal-Wallis and Mann-Whitney U test was used to compare the respective groups. There were significant differences amongs the groups respectively; G1,G4>G2>G3 (p < 0.05). Assure Adhesive booster has superior effect on shear bond strength of bracket to enamel.

OP – 129**INVESTIGATION OF SHEAR BOND STRENGTH OF COMPOSITE APPLIED TO DIFFERENTS LASER ETCHED PERMANENT DENTIN SURFACE**

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Aim The aim of this study was investigation of shear bond strength of composite applied to different laser etched permanent tooth dentin surface Material and Methods 72 new permanent

teeth was taken for the study will be used. A total of 6 groups were created. Group 1: Er:YAG laser+acid etched+total-etch bonding agent (Adper™ Single Bond 2 Total-Etch Adhesive)+composite material (Filtek™ Z350) Group 2: Er:YAG laser+self-etch bonding agent (Single Bond Universal)+composite material Group 3: Femtosecond laser+acid etched+total-etch bonding agent+composite Group 4: FL+self-etch bonding agent+composite Group 5: Acid etched+total-etch bonding agent+composite Group 6:Self-etch bonding agent+composite 1 of the groups will be evaluated for SEM sample after etching and surface profilometer. Judging from the shear bond strength and post-restoration application forms will be considered breaking streomikroskop. The results will be analyzed by SPSS 20.0 software. Results: Tukey HSD Post hoc tests showed that the SBS values of Er-YAG laser group was statistically higher than the other groups ($p<.05$) for total etch technique. However, the SBS values of Control group was statistically higher than the Er-YAG group ($p<.05$) and there were no statistically differences between Er-YAG and FL groups ($p>.05$) for self etch technique. Conclusion: Er-YAG laser treatment with total etch technique of permanent tooth dentin surface provided higher bond strength than other laser and conventional methods. The present study suggests that combination with laser treatment is not required for self etch technique.

OP – 130**TRANSMISSION OF ER:YAG LASER THROUGH DIFFERENT DENTAL CERAMICS**

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All-ceramic restorations provide excellent esthetic results and especially for anterior zone when compared metal supported restorations. Cementation of all-ceramic restoration process is done with adhesive resin cements. However after cementation of the restoration, debonding of the restoration is very difficult when any reason occurred, because of bond strength and material properties of resin cements. This study was planned to evaluate the effect of different ceramic materials in different thicknesses during removal of the ceramic restorations using Er:YAG laser. Specimens prepared from six different CAD/CAM ceramics, 2 different thicknesses (0.5 and 1 mm) and 1x1 cm sizes. Transmission rates of Er:YAG laser (2940 nm, 10 Hz, 100 ms and 133 mJ/pulse) through all ceramic materials measured by powermeter. Data analysed by using two way variance analysis (ANOVA) and LSD tests. The highest transmission ratio was determined for lithium disilicate reinforced glass ceramic and zirconia reinforced lithium silicate ceramic with 0.5 mm thickness (70%) and the lowest was determined for zirconium oxide core ceramic with 1 mm thickness (32%). The differences among the different ceramics and between the different thicknesses were significant ($p<0.05$). Ceramic type and thickness should be taken into consideration to adjust the laser irradiation parameters during laser debonding of adhesively luted all ceramic restorations.

OP – 131**THE EFFICACY OF LASER, SAF IN REMOVING SMEAR LAYER FROM OVAL ROOT CANALS FOLLOWING RETREATMENT**

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Background, the effectiveness of different irrigation activation methods, used in the removal of debris and smear layer in the oval-shaped channel, compared with conventional irrigation methods. So, the methods are more effective for root canal have been identified. Materials and methods: 90 oval-shaped lower canine teeth root canals were prepared and filled with warm vertical compaction technique. Retreatment was performed with rotary files. Samples were divided randomly into 6 groups and different agitation techniques were applied each group with the same irrigation protocols: R-Endo retreatment files, R-Endo + Er: YAG laser, R-Endo + PIPS laser, R-Endo + Nd: YAG laser, R-Endo + SAF, R-Endo + Ultrasonic. Then all root canals were divided longitudinally. The number of open dentinal tubules and surface area covered with debris were assessed using SEM images. Results: Between-group comparisons of variables Kruskal Wallis test and differences in the determination of the cause must be modified Bonferroni Mann-Whitney U test was used. The parameters of intragroup comparisons should be modified Bonferroni at the Friedman test and Wilcoxon signed rank test was used for pairwise comparisons. Wilcoxon Sign Test was used for intergroup comparison of two points. Significance of $p < 0.05$ was considered. Conclusion: It was determined that the smear layer from the coronal to the apical region progressed towards reduced. Particularly in the coronal region: the smear layer obtained Er: YAG laser group were significantly lower than the other groups. In our study was observed to be more successful than traditional methods of each group.

OP – 132**ORTOPANTOMOGRAPHIC EVALUATION OF SOME MORPHOLOGICAL PROPERTIES AFFECTING THE IMPACTION OF MANDIBULAR THIRD MOLARS**

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Background: Investigation of the reasons for impaction of wisdom teeth is one of the important research fields of dentistry. There are so many factors effecting the impaction of third molars, especially mandibular third molars. The aim of this study was to investigate the effects of gonial angle, ganss ratio (crown width/retromolar space) and alfa angle (angle between third molar's long axes and base of mandible bone) to mandibular third molar eruption. Methods and Materials: For the present study 147 panoramic radiographs (79 females and 68 males) and 207 mandibular third molars of the patients were evaluated, who referred to Oral and Maxillofacial Radiology Department for routine dental procedures. The participants aged between 19 to 30 years. The selected radiographs were grouped according to genders and impaction (erupted and

impacted as mesioangular). The radiographs were evaluated by two observers. Inter-observer reliability was very high for all parameters and mean measurements of the observers were used for statistical analysis. Results: According to the statistical analysis of the data there was no significant difference for gonial angle within erupted and impacted teeth groups ($p=0.588$). However for gonss ratio and alfa angle the difference between erupted and impacted mandibular third molars were statistically significant ($p<0,05$). The difference between the sexes was statistically significant for only gonial angle ($p=0,034$). Conclusion: To predict the impaction of a mandibular third molar, the gonss ratio and alfa angle may be used as a predictor, but gonial angle is not a decisive criterion.

OP – 133**PREVALANCE OF PONTICULUS POSTICUS AMONG PATIENTS WITH DENTAL MALOCCLUSIONS, A LATERAL CEPHALOMETRIC STUDY**

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Background: The aim of the present study was to investigate the prevalence of ponticulus posticus (PP) among patients with dental Angle Class I, II, and III malocclusions in Middle Anatolian population. **Methods and Materials:** Total of 1246 cephalometric radiographs were examined in a six months period. Each patient was assigned an identification number, and demographic information (age, age group and sex), absence/presence of PP, if present, type of PP (complete or incomplete) and type of dental malocclusion were recorded by two observers. In cases where there was any disagreement, a third observer was consulted. Distributions of obtained values were analysed using pearson chi-square test. **Results:** The mean age of subjects was $20.98 \pm 6,95$ years (range:10-40). In the analysed sample, PP had a prevalence of 18.8 % (complete form 9.6 %, incomplete form 9,2 %). There were significant differences between age groups ($p = 0,048$), (more prevalent in 10-19 years: 131/614; 21 %) and genders ($p = 0,002$), (more prevalent in male patients: 119/522; 23%). PP was most frequently detected in Angle class III patients (78/351; 22,2 %) but there was no significant differences between malocclusion groups ($p > 0,05$). **Conclusion:** In the present study PP is found to be a relatively common anomaly in patients with dental malocclusions, however there was no significant difference in frequency among malocclusion groups. Health care professionals, who perform clinical procedures on the upper cervical spine, should be aware of this entity in malocclusion patients.

OP – 134**THE EVALUATING VARIED ANGLES IN TRANSCRANIAL IMAGING OF THE TEMPOROMANDIBULAR JOINT: IN VITRO STUDY**

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Background: The aim of our study is to evaluate optimum angle in transcranial imaging of the temporomandibular joint. **Materials and Methods:** The study have been made in left temporomandibular joint region on the skull. Gutta percha pieces have been placed on condylar

head and articular fossa as markers. The actual size of seven different parameters were determined with measuring the distance between the markers on the skull with digital calipers. Radiographs were taken with 15 different angles from left temporomandibular joint region by using periapical X-ray device. 15 varied angles were obtained as a result of 3 in vertical, 5 in horizontal different angles combination. The data obtained from the measurements taken during the study was evaluated by using SPSS (SPSS Statistics 17.0, Chicago, USA) on Windows. Results: Parameter sizes on the radiographs were evaluated by using statistical Two-way Anova tests ($p < 0.05$). The obtained data if homogeneously dispersed or not was evaluated by Kolmogorov-Smirnov ve Shapiro-Wilk test and it was found that normal distribution of data. When all the angles evaluated, there were no significant differences between Metapacs Viewer and Image J measurement methods ($p > 0.05$). Conclusions: When all parameters are considered together, farthest angle from the actual size: 25V +20H, optimum angles: 20V -20H and 25V -10H were determined.

OP – 135

IN VIVO PERFORMANCE OF NEAR-INFRARED LIGHT TRANSILLUMINATION FOR PROXIMAL CARIES DETECTION

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Objectives: The objective of this in vivo research was to endorse approximal caries detection by the newly developed near-infrared light trans illumination (NILTI) (DIAGNOcam) device and compare it to other diagnostic methods such as visual inspection with ICDAS, bitewing radiography (BW), Midwest Caries I.D. (LED-based device), and Diagnodent Pen (LFpen). **Methods:** For this purpose a total of 174 untreated proximal surfaces of posterior teeth with varying degrees of interproximal carious dentin lesions were included. Each proximal surface was clinically evaluated and coded according to the ICDAS and immediately afterwards with BW, the NILTI, LED fluorescence, and LFpen. Included lesions were opened and validated. The statistical analyses included descriptive analyses and calculation of sensitivity, specificity and area under ROC curve. **Results:** The highest specificity values were recorded from NILTI readings following BW scores. The best AUC (ROC curve) values were found from NILTI readings following BW and ICDAS. **Conclusions:** NILTI device exhibited the best performance for the detection of approximal dentin caries.

OP – 136**EVALUATION OF THE EFFECTS OF OSTEOPOROSIS ON JAWS USING CBCT AND DUAL –ENERGY X-RAY ABSORPTIOMETRY**

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Background : The aim of this study was to evaluate changes in jaw bones due to osteoporosis on cone beam computed tomography (CBCT) images. **Methods and materials :** Subjects that had undergone CBCT for various oral conditions and demonstrating clinical findings of osteoporosis were invited to participate in the study. Dual X-ray absorptiometry (DXA) was performed on 90 patients over 30 years who underwent CBCT. The study groups were based on DXA results, and included 26 osteoporosis patients (mean age \pm standard deviation; 58.5 ± 5.91), 33 osteopenia patients (52.67 ± 8.6) and 31 healthy controls (49.81 ± 10.47). CBCT images of jaw bones were evaluated using radiomorphometric indexes, CT value measurements, histogram analysis (HA), and fractal dimension (FD) analysis. **Results :** Right and left mandibular radiomorphometric indexes, CT value and HA measurements in osteoporosis patients were significantly lower than measurements in osteopenia patients and control subjects ($p \leq 0.05$). Positive correlations were detected between measurements of spine bone mineral density (BMD) and right and left mandibular CT value ($p \leq 0.01$) and HA ($p \leq 0.01$) measurements. Left maxilla FD measurements in osteoporosis patients were significantly lower than the control ($p \leq 0.05$) and osteopenia ($p \leq 0.05$) groups. **Conclusions :** Osteoporosis caused significant changes in radiomorphometric indexes, CT value, HA and FD measurements of the jaw bones.

OP – 137**TWO CASES OF SUBMANDIBULAR SIALOLITHIASIS DEDECTED BY CONE BEAM COMPUTED TOMOGRAPHY**

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Introduction: Sialolithiasis is a disease characterized by the occurrence of sialoliths in the different parts of the salivary glands. It is the most common disease of the salivary glands and is a major cause of salivary gland dysfunction. Sialoliths are hard formations, with round or oval shape and a variety of sizes. They are most common in Wharton's duct and the submandibular gland, probably because of its more viscous saliva, longer duct, and higher mineral content in the saliva. The aim of this report was to present clinical and radiological features of submandibular sialolithiasis. **Case 1:** A 48-year-old female patient came with a complaint of pain in the maxillar anterior implant site. Additionally, there was history of increase of the pain and swelling during mealtimes on the left side of mandible for approximately two years. Cone beam CT confirmed the

presence of the submandibular sialolith (5.15 x 5,13 x 2,8 mm size) and also demonstrated maxillary anterior implant penetration to the maxillary nasopalatine canal. Case 2:A 64-year-old female patient was referred to our clinic for tooth loss and prosthetic requirement. Intraoral bimanual examination of the related area revealed a swelling localized in the left side of the floor of mouth, solid to touch and not adherent to any deeper structure. The diagnosis of salivary calculus of the Warton's duct was confirmed by CBCT scan. Discussion / Conclusion: Although it cannot demonstrate relationship between sialolith and surrounding soft tissue, CBCT provides useful information for the measurement and location of submandibular sialolithiasis.

OP – 138**COMPARISON OF DIAGNOSTIC METHODS FOR EARLY INTERPROXIMAL CARIES WITH NEAR-INFRARED LIGHT TRANSILLUMINATION**

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Background: Photo-optical method for caries detection and diagnosis was first described in 1995. Since that year, modifications have improved imaging quality of near-infrared light transillumination technique. Nowadays, several studies reported that near-infrared light transillumination technique may help to avoid bitewing radiographs for diagnosis of caries in everyday clinical practice. **Methods and materials:** A total of 50 early interproximal dentin caries lesions without any cavity within visible in posterior teeth from 28 consecutively selected patients were included. Visual and bite-wing phosphor plate radiographic diagnoses and near-infrared light transillumination images were obtained. Two observer examined the data and a dentin lesion was predicted if a demineralisation involved the enamel-dentin junction or a shadow in dentin was detectable. Included lesions were opened and validated for gold standard. The statistical analyses included descriptive analyses and calculations of sensitivity, specificity and Az values. **Results and conclusion:** Results of our study showed that there were no statistically significant difference between both techniques to detect early interproximal caries lesions. The study suggests that photooptical method may help to avoid bitewing radiographs for diagnosis of caries in everyday clinical practice

OP – 139**PSORIATIC ARTHRITIS AND TEMPOROMANDIBULAR JOINT INVOLVEMENT – LITERATURE REVIEW WITH A REPORTED CASE**

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Background: Psoriasis is a chronic, papulosquamous, inflammatory skin disease. Between 5% and 24% of patients will develop psoriatic arthritis (PA) at the same time after or even prior to skin findings. PA is defined as chronic, erosive inflammatory arthritis characterised by the noises in the joint, pain on function, morning stiffness, crepitus, muscle tenderness and limited movement. This paper aims to report of case with PA and define a review of the relevant literature describing different

epidemiological, clinical, and radiological characteristics of psoriasis and PA. **Methods and materials:** A-46-year-old male patient referred to our clinic with complaint of pain in the bilateral TMJs and limited jaw movement. Medical anamnesis revealed the patient had psoriasis for 21 years and developed a seronegative polyarthritis with destructive changes for 8 years. On extra-oral examination, crepitation at TMJs and limitation of jaw movements was detected. Panoramic radiograph revealed bilaterally decreased joint spaces. CBCT images were obtained for advanced imaging of TMJs. **Results:** Tomographic images detected erosion and the loss of cortical edge of the functional surface of the joint on the condylar heads. In addition erosive and osteoporotic changes on the subchondral bone and surface of the temporal bone were observed. Definitive diagnosis of PA was made with the help of patient's history and radiological findings. **Conclusion:** The involvement of TMJ in the general clinical picture of psoriasis is rare and atypical condition. Collaboration between the dentist and rheumatologist it is very important for early diagnosis of PA to avoid severe complications in TMJs.

OP – 140

PREVALENCE OF MANDIBULAR ASYMMETRIES BY USING LEMOS ASYMMETRY ANALYSIS IN TURKISH ADOLESCENTS

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BACKGROUND: The aim of this study was to determine the prevalence of mandibular asymmetries by using Lemos Asymmetry Analysis which was designed where various measurements were performed on the right and left sides of the mandible on panoramic radiographs. **MATERIALS AND METHODS:** For this retrospective study, 154 adolescents between 14 and 18 years old were randomly selected whom a panoramic radiograph was taken for diagnostic purposes before dental treatments. Lemos Asymmetry Analysis is based on linear and angular measurements taken from nine anatomic points on digital panoramic radiographs using public domain image processing software (ImageJ). The percentage of the asymmetries were calculated and the asymmetry between the right and left sides were compared using paired sample t- test. **RESULTS:** Statistically significant difference ($P=0,001$) was found between the right and left sides in the measurements of corpus length. The total prevalence of moderate and severe corpus length was % 23,3 and it was % 16,9 for ramus height + condyle. **CONCLUSION:** The results of the present study showed that the prevalence of both dimensional and angular mandibular asymmetries were not high in the population studied. As it is clear from this study, Lemos Asymmetry Analysis can be an important resource for planning early orthodontic treatment in adolescents.

OP – 141

EVALUATION OF THE MAXILLARY SINUS FLOOR POSITION USING CONE BEAM COMPUTED TOMOGRAPHY

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Objectives: The purpose of this study was to evaluate the vertical and horizontal position of the maxillary sinus floor using cone beam computed tomography. **Methods:** The age, gender,

maxillary sinus abnormalities and the vertical and horizontal relationship between tooth roots and sinus were recorded. The 136 maxillary sinuses of the 68 patients were considered. The vertical relationship was classified as; type 1, the roots extended below the sinus floor; type 2, the roots contacted the sinus floor; and type 3, the roots penetrated into the sinus floor. The horizontal relationship was classified as; type 1, Maxillary sinus floor positioned toward the buccal side ;type 2, sinus floor positioned above the buccal and palatinal roots of the maxillary molar teeth; type 3, maxillary sinus floor positioned toward the palatinal side The variables were analyzed using the chi-square test. Results: In this study, 136 maxillary sinuses were classified according to the vertical and horizontal relationship to the tooth root. In the vertical relation; type III > type II > type I, respectively. In the horizontal relation, type III> type I > type II. No significant differences were found between the gender and location. However significant relationship was found with maxillary sinus abnormalities and both vertical and horizontal sinus floor position. Conclusions: Evaluation of the both vertical and horizontal position of the maxillary sinus floor is essential for dental implant applications and sinus augmentation procedures

OP – 142**EVALUATION OF EFFECTS OF CBCT ARTIFACTS ON APPROXIMAL CARIES DIAGNOSIS CAUSED BY AMALGAM RESTORATIONS**

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Background: Visual, tactile and radiographic examinations are commonly used for detecting proximal carious lesions however; increasing usage of cone-beam tomography (CBCT) show that tomography can take part in caries diagnosis. Nevertheless metallic restorations can lead to artifacts in the CBCT images. The first purpose of this in vitro study was to evaluate the diagnostic accuracy of CBCT to detect non-cavitated approximal carious lesions in the presence of amalgam restorations. Second purpose is to evaluate the effects of artifacts of different CBCT units and their different image modes to this process. Methods&materials: A total of extracted 161 permanent premolar and molar teeth were included in this study. One molar tooth filled with an amalgam material. Two premolars, one molar tooth with amalgam filling and two molar teeth were placed in blocks of silicone with approximal contacts. Amalgam-filled tooth replaced in all 40 sets in turn. The sets were radiographed using two different CBCT units and different scanning modes. Then all samples were scanned with a molar tooth without restoration instead of restored molar by again two CBCT devices and with different modes. The resulting images were analyzed for gold standart. Findings were evaluated statistically. Results: Sensitivities, accuracy and Az (ROC) curve values decreased near the amalgam restorations. A comparison of the Az values showed that differences between the CBCT units and their modes were not significant($p>0.05$). Conclusion: CBCT images performed for other diagnostic tasks can be used in caries diagnosis at distant surfaces from amalgam restorations. Keywords: approximal, caries, artifact, CBCT.

OP – 143**VALIDITY OF TWO HAND-WRIST BONE MATURATION METHODS FOR PREDICTION OF AGE IN TURKISH ADOLESCENTS**

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BACKGROUND: Hand-wrist radiographs have been used for determination of skeletal age for many years. The ossification and development of the carpal bones of the wrist, the metacarpals of the hands and the phalanges of the fingers are used for prediction of skeletal age. The aim of the present study is to compare the skeletal age and chronological age of the Turkish adolescents by using Fishman method and Bjork, Grave and Brown's method. **MATERIALS AND METHODS:** Digital hand-wrist radiographs of 140 individuals (70 males and 70 females) aged 7-19 years were evaluated and the skeletal maturity stages of the objects were assessed according to two hand-wrist bone maturation methods. The correlation between the chronological age and predicted skeletal ages were analyzed statistically. Data was analyzed using SPSS version 16.0. Kolmogorov-Smirnov test was performed to test the normality of the data. Since the results of the test showed normal distribution, parametric tests were performed. The chronological and skeletal ages were compared using the paired t-test. **RESULTS:** The difference between chronological age and skeletal age is statistically significant in females and non-significant in males for both methods in Turkish adolescents. **CONCLUSION:** Both of the methods can be used as a reliable choice for prediction of chronological age in males. However, chronological age is lower than skeletal age in Fishman method and it is slightly higher in females in Bjork, Grave and Brown's method.

OP – 144**AGE INFLUENCE ON CLINICAL AND RADIOLOGICAL EVALUATION OF SYMPTOMATIC MANDIBULAR THIRD MOLARS**

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Background: One of the most common problems seen in oral health services occurred from impacted mandibular third molars (MTMs). Although most impacted MTMs are symptomatic, some can cause pain, swelling or other reasons. We present the symptomatic MTMs according to the different age groups. **Methods and Materials:** The prospective study consists of 749 patients suffering from impacted MTMs. The patients collected from two separate oral health services (Abant Izzet Baysal University, Erciyes University). Patients' complaints, clinical findings, and the impaction types were presented according to the age groups (15-20, 21-25, 26-30, 31-40, >40). Data were analyzed using a Pearson chi-square test, performed using the SPSS (version 18.0). **Results:** Among 749 patients, 426 (56.8%) were male and 323 (43.2%) were female. The age was range from 15 to 94 years (mean age \pm SD = 26.4 \pm 8.9). Considering the five age groups, patients

were equal to 163 (21.8%), 247 (33%), 159 (21.2%), 126 (16.8%) and 54 (7.2%) for the 15-20, 21-25, 26-30, 31-40 and >40, respectively. A total of 192 patients had bilateral and 557 patients had unilateral Symptomatic third molars. The most common ramus relationship classification was Class II, while the prevalence of Class A was most frequent. No significant differences were observed between age groups, gender and the left and right sides of the mandible. Conclusion: Although 15-30 age group has the majority, symptoms occurring from MTMs can emerge at different ages. When considering the complaints, pain was the most common complaint in all age groups and both gender.

OP – 145**DENTURE-RELATED ORAL MUCOSAL LESIONS**

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Background: Dentures can increase the quality of life of edentulous patients however it was reported that denture wearers exhibited a higher prevalence of oral mucosal lesions than subjects who had no dentures. The aim of this study was to examine the effects of denture type, age, sex, systemic diseases, and medication use to the denture related oral mucosal lesions (DROML) in a group of denture wearers. **Methods and Materials:** This study was conducted at the Hacettepe University Faculty of Dentistry Department of Dentomaxillofacial Radiology in a group of 199 patients. Participants' age, systemic conditions, medication use, denture type, DROML and their locations were recorded. **Results and Conclusion:** Among 199 patients (77 males (38.7%), 122 females (61.3%)), 96 (48.2%) of them exhibited one or more DROML and 103 (51.8%) had no DROML. Forty-two (43.7%) of DROML were in complete denture wearers and 54 (56.3%) were in partial denture wearers. The most commonly detected DROML were denture stomatitis (34.7%), flabby ridge (7%), traumatic ulcer (5.5%) and epulis fissuratum (5.5%). While denture stomatitis was more frequent in partial dentures, epulis fissuratum and flabby ridge were more frequent in complete dentures. There was a significant relation between traumatic ulcer and mandibular denture type, it was more frequently found in mandibular complete dentures. There were no significant relation among age, sex, systemic diseases, medication use and DROML. The most (57.3%) of the DROML patients were not aware of these lesions. Therefore periodic controls and to raise awareness is important to denture wearers.

OP – 146**MISDIAGNOSIS OF FLORID OSSEOUS DYSPLASIA LEADING TO UNNECESSARY SURGERY: A CASE REPORT**

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Florid osseous dysplasia (FOD) is a common fibrous osseous lesion which involves replacement of the normal bone with a poorly cementum-like material and cellular fibrous connective tissue. It is an extensive form of periapical cemental dysplasia affecting 3 or more quadrants of jaws. It commonly occurs in the tooth-bearing areas epicentered at the tooth apices. At initial stages, it

looks like a periapical inflammatory lesion therefore teeth vitality should be tested to differentiate early lesions from inflamatur disease. The patient was a 40 years old female who had an unnecessary surgery for her lesion due to misdiagnosis. Panoramic radiograph revealed mixed and radiolucent lesions associated with periapical regions of the teeth and also a radiolucent lesion which superimposed on the mandibular canal. Cone beam computerized imaging was requested for further evaluation, and the diagnosis was as FOD. This case shows the importance of correct diagnosis to avoid unnecessary treatments.

OP – 147**THE PREVALENCE AND POSSIBLE ETIOLOGY OF ORAL TORUS : A PILOT STUDY**

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Background: The oral torus (torus mandibularis, torus palatinus) comprised dense cortical bone and insufficient bone marrow, is defined as bony protuberance. Although the etiology of the oral torus is unclear, hereditary and various environmental factors have been considered. The aim of this study was to evaluate the prevalence and possible etiologic factors of oral torus. **Methods and Materials:** Totally 600 patients (221 men and 379 women) were examined. The clinical examination findings of the participants and possible etiologic factors regarding oral torus were recorded to the questionnaires by two examiners. The prevalence and distribution of possible etiologic factors of oral torus (bruxism, other parafunctional activity, eating habits, mandibular shape, calcium-rich diet, snoring, sleep apnea, etc.) were analyzed with descriptive statistics. **Results:** The oral torus was detected in 8% of the patients and it was more common in women (68%) than in men (32%). The most common oral torus was found to be torus mandibularis (84%), whereas torus palatinus was observed in 16% of the patients. The majority of oral torus patients was observed with teeth abrasion (78%) and bruxism (60%) and followed by calcium-rich diet (58%), snoring (36%), temporomandibular joint disorder (26%), eating rigid food (18%), other parafunctional activity (18%) and sleep apnea (4%), respectively. Oval shaped mandible (70%) was commonly observed in the patients with torus mandibularis. **Conclusion:** Mechanical stresses may be a possible etiologic factor for oral torus and patients with teeth abrasion should be considered for possible oral torus. **Keywords:** torus mandibularis, torus palatinus, etiology, mechanical stress

OP – 148**EVALUATION OF TMJ DISORDERS AND MASTICATORY MUSCLE VOLUME ON MRI IN GOUT PATIENTS**

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Background: Gout is a common inflammatory arthritis that is characterized by the deposition of monosodium urate crystals on the surface of the articular cartilage. The aim of this study was to

evaluate gout patients by volumetric measurements of masticatory muscles and TMJ disorders in comparison to a control group on MRI. Materials and methods: 32 (4 Female, 28 Male) gout patients that are diagnosed previously and 30 (3 Female, 27 Male) healthy adult control subjects were included. TMJ and masticatory muscle examination performed. MRI were obtained according to evaluate TMJ disorders and three dimensional volumetric measurements of masseter, medial and lateral pterygoid muscles were calculated with a software programme. Results: We identified disc changes and deformation of bone structures in both gout and control groups by MRI. Condylar erosion was more frequent in gout patients whereas no significant difference was found between the two groups in the frequency of degenerative changes and deformation in disc. Restricted movement of the right condyle was significantly more in gout group. Volumetric measurement of left medial pterygoid muscle was found significantly more in gout group ($p = 0,011$). Conclusion: TMJ symptoms can be seen in healthy individuals but occurrences tend to increase with gout. Radiographic findings such as condylar erosion and a reduced movement pattern are significantly the common signs of gout. The increase in the volume of medial pterygoid muscle may be related with the restricted movement of the condyle in patients, so masticatory muscles should be examined when the TMJ disorders present.

OP – 149**MANDIBULAR ANATOMICAL VARIATIONS: CONE-BEAM COMPUTED TOMOGRAPHY FINDINGS**

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Background: Different multi-planar reformatted cone-beam computed tomography (CBCT) sections can demonstrate the mandibular accessory foramina and canals. Such images reveal the mandibular canal, mental and lingual foramina, and their variations. The aim of this retrospective study was to investigate the incidence of anatomical variations such as genial spinal foramen, mandibular incisive canal, accessory lingual and mental foramina, bifid mandibular canal and retromolar canal in a Turkish subpopulation. Materials and Methods: Routine CBCT images of 67 patients (49 female, 18 male) between the ages 13-79 were retrospectively evaluated according to describe mandibular anatomic variations. CBCT sections and 3D reconstructions were analysed to detect genial spinal foramen, mandibular incisive canal, accessory lingual and mental foramina, bifid mandibular canal and retromolar canal. Results: The genial spinal foramen visualized in 28 (41.7%) patients. The mandibular incisive canal was determined in 3 (4.47%) cases. The accessory lingual foramen was visualized in 19 (28.3%) cases and two of these cases demonstrated multiple accessory lingual foramen. Accessory mental foramen was detected in 5 (7.46%) cases. 9 (13.43%) bifid mandibular canal cases were visualised and 16 (23.8%) retromolar canal cases detected that one of them was bilateral. Conclusion: Genial spinal foramen, accessory lingual foramen and retromolar canal were the most frequent anatomical variations in this study group. The occurrence of incidentally found mandibular anatomic variations should be an important component of CBCT reports. The pre-operative evaluation of anatomical variations is of great importance in defining safe areas during surgical procedures of the mandible.

OP – 150**CLINICAL AND RADIOLOGICAL COMPARISON OF POROUS TITANIUM GRANULES AND XENOGRAFT IN SURGICAL TREATMENT OF PERI-IMPLANTITIS**

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Background: The aim of this study is comparing the effect of porous titanium granule (PTG) with rotary titanium brush and the use of xenograft (XGF) and collagen membrane clinically and radiographically in the treatment of intra-bony peri-implant defects. **Methods:** Twenty-four patients between ages 24 and 64 (nine men and fifteen women; mean age, 45.36±14.1 years), suffering peri-implantitis defects were included in this study. Patients were divided into two groups: PTG that used porous titanium granule and rotary titanium brush and XGF using xenograft and collagen membrane. The following clinical measurements: plaque index (PI), gingival index (GI), probing depth (PD), clinical attachment level (CAL), bleeding on probing (BOP), height of peri-implant keratinized gingiva and mucosal recession (MR) and CBCT per region were recorded as baseline and sixth month after surgery. **Results:** The mean CAL values were improved from 5.29±1.06 mm to 3.59±0.88 mm in PTG group, while in XGF group, these values were improved from 4.77±1.05 mm to 3.30±0.58 mm. Although CAL values in PTG group displayed a greater increase in difference, these values did not reveal a statistically significant difference between the groups at baseline and sixth month. Vestibular, lingual, mesial and distal radiographic bone filling values displayed a statistically significant difference between the groups. In PTG groups, these radiological values increased more than the XGF group. **Conclusions:** Porous titanium granule may be more appropriate for peri-implantitis surgery than xenograft due to its inert structure and comfortable use of PTG to provide mechanical support for enlarging the surface area of the implant.

OP – 151**STRESS DISTRIBUTION IN PERIIMPLANT BONE IN THREE DIFFERENT ANGLED LOADING:FINITE ELEMENT METHOD STUDY**

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Finite element method is a practical method in determining the stress caused by mechanical loading on the bone-implant surface in dental implant technology. The aim of this study is the examination of stress distributions with three different loads in dental implant system by finite

element analysis. For this purpose implant model which are currently being used in clinical cases and mandible from tomography images constructed by using ANSYS Workbench 12.1. The stress distributions on components of implant system under 3 different static loading were analyzed. The maximum stress values that occurred in all components happen in the case of loading in FIII, the occurred lowest stress values happen in the case of FI loading. In all loading, the maximum tensions have occurred in the neck region of the implants. Cortical bone tissue carries the majority of the load exerted on the implant. The implant neck stress accumulation and oblique loads is the important factors for the long term implant neck bone loss.

OP – 152**ORAL REHABILITATION OF TOTAL TOOTHLESSNESS WITH SEVERE ATROPHY ON LOWER JAW (IMPLANTOLOGY AND IMPLANTOPROSTHETICS)**

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INTRODUCTION: The long-term use of total dentures, lead to atrophy of processus alveolaris in both jaws, more evident in the lower jaw. There are few types of atrophy: horizontal, vertical and combined. Making total dentures in patients with severe atrophy is a major challenge that usually ends up with instability and lack of adhesion of the denture to the soft tissues. **AIM:** The aim of this article is to use the remaining bone tissue to make a new base which will provide stability and reliability of the new prosthetic device. Endosteal implants are ideal functional solution for bridging this problem. We present two cases with severe atrophy of the lower jaw with two types of solutions. **METHODS AND MATERIALS:** Placing Schutz Impla implants in the lower jaw using physiodispenser. Case 1: Tapered implants (4,5x8mm) (two phases) Case 2: mini BallTop implants (one phase) **RESULTS:** Been placed 4 implants in the lower jaw connected with bar made by dental technician, following the alveolar ridge. The bar is connected to titan bases of the implants with composite cement. Been made total denture that is attaching with the arms of the bar. Been placed 4 one stage mini implants with small diameter – BallTop, that are attaching with the attachments placed in the denture. **CONCLUSIONS:** Endosteal implants contribute to better function with physiological (bone) pressure. Making of mobile prosthetic device and placing implants, that are excellent functional and esthetic solution, although significantly increase the patients confidence.

OP – 153**3D-FEA OF DIFFERENT PROSTHESIS DESIGNS SUPPORTED BY TWO ANTERIORLY LOCATED IMPLANTS IN EDENTULOUS MANDIBULA**

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Background: Implant prosthesis improve the quality of life of edentulous patients. Several treatment options with implants have been described for mandibular edentulous patients. Proper selection of prosthesis type supported by implants is of crucial importance for oral health.

Methods and Materials: In this study, a 3D FEA model of 2 implants with abutments, an edentulous mandible, and 4 different types of prosthesis (Type I & II: anterior splinted implant supported fixed restoration with bar clasp or precision attachment retained posterior partial denture; Type III: locator retained mandibular overdenture; Type IV: bar retained mandibular overdenture) were simulated. The material properties for the implant components, tissues and boundary conditions used were based on the literature. An oblique force of 100 N was applied on the first molar region bilaterally. The Ansys Workbench software (a three-dimensional finite element method) was used for stress analysis of each model. **Results:** It was found that the stress on peri-implant bone in Type I prosthesis was lower than any other prosthesis design. **Conclusion:** It can be concluded that Type I prosthesis could represent a viable restoration alternative. However, further experimental studies seem to be necessary, mainly to minimize the stress amount on the implants and the surrounding tissues.

OP – 154 This approved paper is a part of BaSS Award 2016 Contest

OP – 155

EVALUATION OF NSAIDS ON FACIAL SWELLING FOLLOWING THIRD MOLAR SURGERY USING SUBJECTIVE AND OBJECTIVE METHODS

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Background: Comparison of objective (Ultrasonography,USG) and subjective measurements of effectiveness of etodolac, naproxen sodium and diclofenac potassium on facial swelling was aimed following third molar surgery. **Methods and materials:** The study is included 42 patients with impacted third molars with bone retention. In the study patients were randomly divided into 3 groups as etodolac, naproxen sodium and diclofenac potassium. Impacted third molars surgically extracted under local anaesthesia. Facial swelling was examined with ultrasonography and VAS at pre and post operatively 2nd and 7th days respectively. Collected data evaluated statistically with SPSS 15.0 package program. **Results:** As regards facial swelling, the difference was determined between the drugs according to the ultrasonographical measurements that the swelling values in postoperative second day were diclofenac potassium>etodolac>naproxen sodium. VAS results of swelling, diclofenac sodium was higher than other two drug groups while they were same. The difference was statistically significant ($p<0.05$). **Conclusion:** Diclofenac potassium more effective for reducing the facial swelling following the third molar surgery than the others. Besides that with being an objective method of ultrasonography for evaluation of swelling, VAS data has shown the compatible with ultrasonography result hence it has been concluded that VAS was the reliable method for evaluation swelling.

OP – 156**INTRASEPTAL AND PERIODONTAL LIGAMENT ANESTHESIA FOR TEETH EXTRACTIONS IN PATIENTS WITH DIABETES MELLITUS**

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Introduction Intraseptal (ISA) and periodontal ligament anesthesia (PLA), as intraosseous anesthesia, provide successful pulpal, bone and soft tissue anesthesia in restricted area. Articaine as a local anesthetic with significant penetration through bone and soft tissue presents anesthetic of choice for ISA and PLA. Complications of diabetes mellitus, such as microangiopathy, neuropathy and concomitant gingival inflammation, may reduce anesthetic success rate. The aim of this study was to compare clinical efficacy of ISA and PLA for routine extractions of upper lateral incisors and lower first premolars, achieved by articaine with epinephrine in patients with diabetes mellitus. **Material and methods** One hundred and twenty patients with diabetes mellitus type 2 participated in this study. Patients were randomly divided into two groups for ISA and PLA. Anesthesia was considered successful when patient felt no pain during extraction of upper lateral incisor or lower first premolar, measured on visual analog (VAS) and verbal rating scale (VRS). Duration of soft-tissue anesthesia was measured by pinprick test (27 gauge needle). The total volume of 4% articaine with epinephrine 1:100 000 was 0.6 ml per tooth. **Results** Duration of soft-tissue anesthesia was significantly longer with ISA compared to PLA, both for upper lateral incisor and lower first premolar. Although success rate of ISA was higher than PLA, there was no statistical difference. No side effects were registered at injection area. **Conclusion** This study demonstrate similar and clinically acceptable success rate of ISA and PLA and longer duration of soft-tissue anesthesia with ISA for routine teeth extractions.

OP – 157**THE INVESTIGATION OF EFFECT OF LOW LEVEL LASER TREATMENT ON THE OXIDANT AND ANTIOXIDANT STATUS**

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Background: Low-level laser therapy (LLLT) has been used in the treatment of inflammatory diseases and injuries. Considering that LLLT reduces the inflammatory process, the aim of our study was to evaluate the effect of LLLT on parameters of oxidative stress in rats experimentally mandibular fracture. **Methods and Materials:** Wistar rats were randomly divided into 4 groups: control-7th day, control-21st day and laser- 7th day, laser- 21st day. Vertical osteotomies were

performed on the mandible in all rats. In laser groups, LLLT was applied to the L7 group for 7 days and to the L21 group for 14 days with 48 hour intervals on 2 different points along the fracture line at a dose of 23 J/cm². But it did not have any application to the control groups. After the sacrifice, blood samples were collected by cardiac puncture and total oxidant (TOS), total antioxidant (TAS) levels and oxidative stress index (OSI) was measured biochemically. Results: The biochemical analysis revealed that the only significant difference between the groups was in TAS values. The total antioxidant levels were significantly decreased in the laser-treated group on the 21st day unlike the 7th day. Conclusion: This study suggested that the laser therapy increased regeneration and decreased inflammatory response and oxidative stress. Moreover these findings indicated that LLLT showed positive effect on antioxidant system in the long term.

OP – 158**GORLIN-GOLTZ SYNDROME**

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Gorlin-Goltz syndrome is an autosomal dominant disease linked to a mutation in the Drosophila segment polarity gene Patched. The clinical features of the syndrome are classically grouped within five categories; skeletal, cutaneous, ophthalmologic, neurologic, and sexual abnormality. The multiple odontogenic cysts and the basal cell nevi constitute frequently and are significant clinical expressions of the syndrome. Here we report a case of 10 year-old male with history of hydrocephalus who administered to our clinic with swelling in the upper jaw and unerupted incisor teeth in 2007. Our patient presented arachnoid cyst in the left temporal pole and localized hypopigmentation in his hair. Panoramic radiography revealed radiolucent lesions in the maxilla. Lesions were surgically enucleated with diagnosis of dentigerous cyst. Patient was operated multiple times for new dentigerous cyst formations in the lower and upper jaw and ameloblastoma in the lower jaw. The last surgical procedure was done in 2014. Up to date no recurrence has been observed in follow up visits.

OP – 159**EVALUATION OF THYROID HORMONE (FT3, FT4) IN RATS ADMINISTERED BISPHOSPHONATES: AN ANIMAL STUDY**

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Bisphosphonates are used in some bone-related diseases, such as metastatic cancer, multiple myeloma, Paget disease, hypercalcemia, and osteoporosis. Ft3 and Ft4 hormones secreted from the thyroid gland, which are necessary for the formation and maintenance of vital functions.

Excessive secretion of these hormones is called hyperthyroidism; inadequate secretion of these is called hypothyroidism. The purpose of this study was to investigate the evaluation of thyroid hormones (Ft3 and Ft4) in rats administered bisphosphonates (BPs). Rats divided two groups (experimental group and control group). In the experimental group had been injected intraperitoneally with zoledronic acid for 7 weeks were used. In the control group (C) did not apply any drug. Three subgroups were created from the experimental group according to the time of sacrifice (E-10 week 10, E-15 week 15, E-17 week 17). A statistically significant difference at weeks 10, 15, and 17; In the Ft3 was detected between the experimental groups and control group (between E-10 and C; E-15 and C; E-17 and C $p = 0.000$). In the Ft4 was detected between the experimental groups and control group (between E-17 and C $p = 0.007$). ($p < 0.05$) BPs are found to be effective on thyroid hormones. Especially, the BPs increased the levels Ft3. As a result of this increase can occur hyperthyroidism, but this is not literally hyperthyroidism. This condition is called NTIS (non-thyroidal illness syndrome), therefore the BPs can cause NTIS. Consequently there might be changes in thyroid hormone levels while taking BPs.

OP – 160**QOL QUESTIONNAIRE SCORES IN A GROUP OF ACQUIRED AND CONGENITAL DEFECTS PATIENTS**

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Facial defects is due to a result of trauma, congenital anomaly and tumor surgery. Patients with facial defects may express unhappiness with their body image, post traumatic stress disorder symptoms and social isolation. The evaluation of patients' QOL related to prosthetic rehabilitation may provide valuable information to assist the maxillofacial prosthodontic team with treatment planning, monitoring, and outcome assessment. Health-related QOL is a multi-dimensional global construct, defined as an individual's perception of his or her position in life, in the context of the culture and value systems in which the person lives and in relation to that individual's goals, expectations, standards and concerns. The aim of this study was evaluate the perception of QOL in a group of adult patients with facial defect. 14 patients, who were divided into two groups according to defect; the congenital or trauma. Patients with post traumatic defect had lower scores in overall QOL.

OP – 161**ASSOCIATION OF CATECHOL-O-METHYLTRANSFERASE GENE VARIANTS WITH PAIN RELATED TMD DIAGNOSES**

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Background: Temporomandibular disorders (TMD) are a set of conditions affecting masticatory muscles and joints and their primary characteristic is pain manifestation. TMD are influenced by

both genetic polymorphisms and diverse environmental factors. Catechol-O-methyltransferase (COMT) is an important enzyme involved in catecholamine catabolism. COMT gene polymorphisms may induce a decrease of COMT enzyme activity, elevated level of catecholamines, and ultimately decreased tolerance to pain. Single nucleotide polymorphisms (SNPs) in the COMT have been previously investigated in relation to TMD, yielding diverging results. Aim: To evaluate the association of COMT polymorphisms with pain related TMD diagnoses. Material and methods: A total of 90 patients with pain-related TMD diagnosis and 92 matched controls were involved. TMD diagnosis was assessed by Research Diagnostic Criteria for TMD. DNA extracted from peripheral blood was genotyped for three COMT SNPs (rs4680, rs6269, and rs165774) by Real-time Taq-Man method. Results: According to the obtained results, the rs165774 polymorphism showed significant difference in the distribution of the variant A allele and A allele carrier genotypes (AG/AA) in TMD patients, comparing to healthy controls ($p=0.006$, $p=0.015$, respectively). AA genotype was associated with increased risk of arthralgia a (odds ratio (OR) = 4.448, [95% confidence interval (CI) 1.311-15.089], $p=0.011$) and myofascial pain (OR = 3.543, [95% CI CI=1,038-12,092], $p=0.035$), compared to wild type (wt) genotype. Conclusion: AA genotype of rs165774 could be a significant risk factor for the development of TMD pain related diagnoses.

OP – 162

CORRELATION BETWEEN TEMPOROMANDIBULAR DISORDER AND DEPRESSION AND SOMATIZATION

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The term temporomandibular dysfunction refers to a heterogeneous group of clinical conditions arising as a result of the structure and function disorders of temporomandibular joints and / or masticatory muscles. Results indicate that TMD occur due to interaction of physiological, psychological and psychosocial factors. The aim of the present study was to evaluate the correlation between chronic pain and depression and somatization in women with temporomandibular disorders. The investigated group of patients included 28 women (mean age 24,1±4.0), who were seeking treatment in the Department of Oral rehabilitation at Faculty of Medicine Foca, Republic of Srpska, BiH. In all subjects Research Diagnostic Criteria for TMD (RDC/TMD), proposed by Dworkin and LeResche (1992) were conducted as diagnostic criteria. Depression and somatization scores were measured with the subscales of the Symptoms Check List (SCL-90). Results indicated that persons with TMD reported greater depression ($p<0.05$) and somatization ($p<0.05$) than matched controls. Results show that there is strong correlation between chronic pain and depression ($r=0,42$), chronic pain and somatization ($r=0,43$) as well as depression and somatization ($r=0,66$). We could conclude that women with TMD, with higher grade of chronic pain and related disability, are more depressed and somatized. Keywords: temporomandibular disorders, depression, somatization.

OP – 163**EVALUATING IN VITRO PERFORMANCES OF VARIOUS PIT AND FISSURE SEALING MATERIALS**

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The aim of this in vitro study was to evaluate the penetration depth of an infiltrant (Icon; DMG), a glass carbomer (GCP Glass Seal, GCP Dental) and a pit and fissure sealant (F1-Teethmate, Kuraray), when applied as recommended, into pit and fissure lesions. The fissure systems of extracted 60 human molar teeth were classified according to the international caries detection and assessment system (ICDAS, codes: 0, 1) and randomly divided into three groups to evaluate penetration depth (n=20). Materials were applied on fissures according to manufacturer's instructions. Specimens for penetration test were cut perpendicular to their surfaces, polished, and confocal microscopic images were obtained. Maximum lesion depths (LDmax) and maximum penetration depths (PDmax) were measured and maximum percentage penetration was calculated as $PP_{max} = PD_{max}/LD_{max} \times 100$. Statistical analysis of the obtained data were performed by Kruskal-Wallis and Mann-Whitney U-tests ($p=0.05$). PP_{max} did not differ significantly between groups in Icon and Teethmate F1 ($p>0.05$). GCP Glass Seal group was statistically different from Icon group ($p<0.05$). According to the results of this in vitro study, it can be concluded that Icon and Teethmate F-1 showed better performance than GCP Glass Seal. **Keywords:** Fissure lesion; Fissure sealant; Resin Infiltrant; Micro-invasive treatment.

OP – 164**MICROLEAKAGE IN CLASS II NANOCOMPOSITE RESTORATIONS WITH DIFFERENT ADHESIVE LINERS – IN VITRO INVESTIGATION**

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Background: The choice of material for cavity liner or base is important for positive adhesive connection and longevity of restorations. **Purpose:** To compare the microleakage in class II nanocomposite restorations with a flowable composite liner, with different resin-modified glass-ionomer cements and without a liner. **Materials and Methods:** Forty two sound extracted molars were selected and randomly divided into six groups of seven teeth each. Class II cavities in medial and distal part of each tooth were prepared with specified dimensions and margins in the enamel. The enamel of the gingival floor was beveled. Cavities in Group 1 were lined with flowable composite resin; in Group 2 - without lining; in Group 3 - axial wall was covered with 1.5 mm resin modified glass-ionomer cement (RMGIC) layer; in Group 4 - axial and gingival walls were covered with 2.5 mm layer of RMGIC; in Group 5 - axial wall was covered with 0.5 mm layer of RMGIC; in Group 6 - axial and gingival walls were covered with 0.5 mm layer of RMGIC. All the teeth were restored with nanocomposite material. The teeth were thermocycled 1000 cycles, immersed in 0.5% methylene blue dye, sectioned mesio-distally and observed under stereomicroscope. **Results:** Groups 1 and 5 showed minimum leakage on the gingival walls and compared with groups

2, 3, 4 and 6 difference was statistically significant. Conclusion: Placement of a thin layer of RMGIC on the axial wall or a flowable composite liner beneath class II nanocomposite restorations reduces microleakage.

OP – 165**THE EFFECT OF COLLAGEN-BIOAGGREGATE SCAFFOLD ON PERFORATED DENTAL PULP**

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Background: In this study the sponge scaffold, which was made from collagen and bioaggregate materials was used on perforated sheep teeth and we compared the amount of dentin formation between four and eight weeks with histological examination. **Methods and Materials:** Four sheep were used as experimental animals. Collagen and bioaggregate were mixed and a porous scaffold was formed using lyophilization. Afterwards, the scaffolds were placed on exposed mandibular incisor teeth pulp of sheep. 4 and 8 weeks later, sheep were decapitated and teeth were extracted. The formation of new tissue at the exposed area on histological sections of teeth was studied through a light microscope. The amount of dentin formation was measured by using CellSens Standard Software program. The dentin bridge formed was compared statistically by Mann-Whitney U test. **Results:** At the end of the 8th week, the repaired tissue was more compact and in tubular formation compared to the repaired tissue at the 4th week. In some histological sections of the 8th week samples, it was observed that the repaired tissue developed towards the exterior of the perforation site and into the scaffold. The repaired tissue was not greater in the 8th week than the 4th week ($p > 0.05$). **Conclusion:** Biocompatible sponge scaffolds may be used at exposed dental pulp to maintain viability of dental pulp tissue and to reconstitute lost tooth structures.

OP – 166**MULTIDISCIPLINARY APPROACH TO AN ADULT ORTHODONTIC PATIENT: A CASE REPORT**

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Aim: This presentation reports the comprehensive treatment of a 43-year-old female patient seeking a well-balanced occlusion and a good smiling. **Diagnosis and Etiology:** Patient was showing a flat profile, maxillary and mandibular crowding, Class II canine relationship on the right side and Class I canine relationship on the left side, multiple missing teeth, and teeth in cross bite.

Extraction sites were also narrowed. Treatment plan included a comprehensive treatment; orthodontics, implant surgery, restorative dentistry, and prosthetic dentistry, respectively. Treatment objectives: Preadjusted fixed appliances (0.022x 0.028-inch, MBT system) was used, and fixed orthodontic therapy lasted for 22 months. After that; composite resin restoration, implant and crown therapy was properly performed. Results and Conclusion: An acceptable occlusion without missing teeth and unaesthetic smiling was obtained. Multidisciplinary treatment approach can provide good aesthetic results for the adult orthodontic patients.

OP – 167**BONDING PERFORMANCE OF UNIVERSAL ADHESIVES TO ER,Cr:YSGG LASER IRRADIATED-ENAMEL AND DENTIN**

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Objectives: The aim of this study was to compare the shear bond strength (SBS) of universal adhesives (Single Bond Universal, 3M ESPE; Nova Compo-B Plus, Imicryl) applied Er,Cr:YSGG laser irradiated-enamel and dentin. **Methods:** Crown segments of one hundred and twenty bovine incisors were embedded into standardized acrylic blocks. Flattened enamel and dentin surfaces were exposed. Enamel and dentin specimens were divided into six subgroups randomly (n=10), as following; Group I, Single Bond Universal/Er,Cr:YSGG Laser; Group II, Nova Compo-B Plus/Er,Cr:YSGG Laser; Group III, Single Bond Universal/Self-etching mode; Group IV, Single Bond Universal/Acid-etching mode; Group V, Nova Compo-B Plus/Self-etching mode; Group VI, Nova Compo-B Plus/Acid-etching mode. After surface treatments, universal adhesives applied onto surfaces. SBS was determined after storage in water for 24 h using a universal testing machine with a crosshead speed of 0.5 mm/min. Failure modes were evaluated using a stereomicroscope. Data was analyzed using analyses of variances (ANOVA) and Tukey's test ($p = 0.05$). **Results:** Both adhesives showed similar SBS to enamel, regardless application modes. Single Bond Universal showed significantly higher SBS to dentin when applied in self-etch mode, whereas provide similar SBS to dentin hen applied in acid-etch and laser-etch modes with Nova Compo-B Plus. **Conclusion:** Enamel bond strength of universal adhesives containing MDP may not affected by adhesive brand unlike to dentin bonding. However, acid-etching or laser-etching may improve dentin bond strength of universal adhesive yielded lower dentin bond strength in self-etch mode.

OP – 168**THE EFFECTS OF DIFFERENT MANDIBULAR INCISOR INCLINATIONS ON ALVEOLAR STRUCTURES IN UNTREATED ORTHODONTIC PATIENTS**

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Aim: The aim of this study was to determinate the maxillary and mandibular alveolar structures of untreated patients with different Turkish incisor mandibular plane angle (IMPA) norms on standardized

lateral cephalometric radiographs. **Material and Methods:** 155 lateral cephalometric films were randomly selected from the records of pretreatment adult patients in Kırıkkale University, Faculty of Dentistry, Department of Orthodontics. The records were classified into three groups [low ($<92.3^\circ$), normal ($92.3^\circ - 101.7^\circ$) and high ($>101.7^\circ$) IMPA] according to Gazilerli Turkish IMPA norms. The number of patients with low, normal and high IMPA was 66, 59 and 30, respectively. Inclusion criteria were good quality lateral cephalograms and absence of congenital craniofacial anomalies or syndromes. Exclusion criteria were presence of congenital craniofacial syndromes and missed teeth. Upper incisor alveolar heights (UIAH), upper molar alveolar heights (UMAH), lower incisor alveolar heights (LIAH), lower molar alveolar heights (LMAH), thinnest width of symphysis values (B-B'), mandibular alveolar width (Id-Id') and maxillary palatal width were measured. Data analysis was performed with SPSS 16.0 software using the One-way ANOVA and Tukey test. **Results:** UIAH, UMAH, LIAH, LMAH, B-B', and maxillary palatal width measurements were not statistically significant among the different IMPA groups. However, Id-Id' measurements were statistically significant between low and high IMPA groups ($p<0.05$). There were significant positive correlations between IMPA groups and LMAH, Id-Id' and B-B' ($p<0.05$). **Conclusion:** The mandibular alveolar structures (especially Id-Id') should be examined in detail according to IMPA before applying implant and orthodontic mechanics, and appropriate treatment mechanics should be chosen.

OP – 169**AN EVALUATION OF THE EFFECTS OF RAPID MAXILLARY EXPANSION ON VOICE FUNCTION**

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Objective: The aim of this study was to evaluate the effects of rapid maxillary expansion (RME) on vocal function in patients with bilateral maxillary crossbite. **Materials and Methods:** Our research was designed as a prospective controlled clinical study. The treatment group and the control group both had twenty subjects for a total of forty subjects included in the study. Acoustic voice samples were recorded from all patients at T1 and T2. The voice samples were recorded to Multi-Dimensional Voice Program (MDVP Model 5105) for acoustic analysis in CSL (Kay Elemetrics, Lincoln Park NJ, USA). **Results:** No statistically significant differences were found between the treatment and control groups in the means of any parameters. **Conclusions:** RME does not change on vocal quality and resonance, so it can be safely used with patients. **Keywords:** Rapid maxillary expansion, Voice function

OP – 170**ORTHODONTIC TREATMENT OF OPEN BITE MALOCCLUSION WITH MINI SCREW : CASE REPORT**

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AIM: Open bite malocclusion is one of the most difficult dentofacial deformities to treat. The aim of this study is to describe mini-screw supported open bite treatment alternatives. **MATERIAL METODS:** The patient was a 16-years girl seeking orthodontic treatment for the correction bite and esthetic smile. Examination of the occlusion revealed 2 mm overjet -3 mm overbite, midline deviation was 2.5 mm to the left side in mandibular arch. Maxillary and mandibular crowding were 6.1 mm and 0.9 mm respectively. Cephalometric analysis showed that maxilla and mandibula were in retrognathic position

with class I skeletal relationship. At the beginning of treatment, we applied bonded rapid maxillary appliance to solve maxillary crowding. As expected, after leveling open-bite problem was increased. Molar intrusion was achieved with the use of palatally placed mini screw with memory chain. RESULTS: After orthodontic treatment, open bite was closed, crowding was resolved, class I molar and canine relationship was established, ideal overbite and overjet was achieved. Patient had esthetic profile and functional occlusion. CONCLUSION: With the use of temporary anchorage device in orthodontic treatment, it could be possible to obtain stable and successful results in open bite cases.

OP – 171**SATISFACTION LEVELS OF OUTPATIENT PATIENTS IN A ORTHODONTIC DEPARTMENT OF A UNIVERSITY**

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Background: Patient satisfaction is very important as a quality criterion in dental care services. Patient expectation outcomes are significant in quality assessments and shaping dental treatment plan. The aim of this study was to investigate the patients opinion about the quality of the medical care and clinical environment. **Methods and Materials:** In this descriptive study, a questionnaire was applied to randomly selected patients in order to determine their satisfaction about the medical services. The questionnaire included 22 questions which were prepared in the light of the existing literature. Questionnaires were issued young adults and adults, aged bigger than 16 years, after their orthodontic appointments. Participants used five scales for responses, arranged as a Likert scale to rate their treatment experiences and satisfaction with the orthodontic visit. They were asked if they had been sufficiently informed about the patient's disease and operation, and if they had been satisfied about the doctor, the nurse, the medical care of the patient, given interest to them, and the physical conditions and cleanliness of the clinic. **Results:** One hundred and fifty patients filled out the survey. **Conclusion:** There was a statistically significant relation between the general satisfaction level and the hospital personnels' attitudes ($p < 0.05$). There were also statistically significant relations between the services, the cleaning of the clinics and the doctors' skills ($p < 0.05$). **Conclusion:** Consideration of these factors could be important for practitioners attempting to set realistic expectations of their patients regarding orthodontic treatment outcomes.

OP – 172**ACCURACY OF TWO DIFFERENT ELECTRONIC APEX LOCATORS IN DETECTING SIMULATED ROOT PERFORATIONS**

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Introduction: The purpose of this in vitro study was to evaluate the accuracy of two electronic apex locators: Raypex 5 and Endy 6200 in detecting root perforations. **Methods:** Thirty extracted human teeth were perforated artificially in the middle section of the root. Before the electronic measurement, the distances to the perforations was determined visually and then the teeth were embedded in an alginate model. The electronic measurements of the perforations were taken using a #20 K-file attached to the holder. Differences between the electronic and actual lengths of the perforation were calculated. **Results:** The mean differences between the electronic and actual lengths of the perforation

measured by Raypex 5 and Endy 6200 were, respectively, -0.11 ± 0.44 , -0.15 ± 0.39 with no statistically significant differences ($P>0.05$). Conclusions: Under the in vitro conditions of this study, both electronic apex locators showed an acceptable determination of simulated root perforations. Key Words: Electronic apex locators, root perforations

OP – 173**THE EFFECT OF DIFFERENT HEAD POSITIONING ON PANORAMIC RADIOGRAPHY FOR APICAL ROOT RESORPTION ASSESMENT**

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Objectives: The aim of this study was to examine the effect of varying horizontal and vertical head rotations on assesment of orthodontically induced apical external root resorption on panoramic radiography. **Material and Method:** It was designed a mechanism that could imitate natural head movements (the right-left turn movement/X-plane, tilt up and down movement/Y-plane, right-toside tilting movement/ Z-plane) in three dimensions of the skull taken from cadavers. 28 extracted maxillary and mandibular teeth were placed in the model to form a full dental arch. In this model, it was obtained a total of 649 digital panoramic radiographs with 5, 10, 15, 20, 25 degrees on each plane (+), (-) directions. Apex of the teeth were abraded 2 mm to create root resorption at five times intervals. The lenght of the teeth was measured from incisal/occlusal to the apical on each radiograph by two observers. **Results:** The effects of different planes on measuement of lenght of the teeth were examined by means of analysis of intraclass correlation. Intra and inter observers agreement were perfect level. When the angle of the head 5, 10, 15, 20, 25 degrees on each plane, the lenght of the teeth were different statistically from measurements of the ideal head position. **Conclusion:** For true measurements on panoramic radiography, proper positioning of patient's head is important. Different head positioning on panoramic radiography for apical root resorption assesment may affect the lenght of teeth and visibility of root resorption. **Key words:** Tooth root resorption, external resorption, orthodontic treatment, panoramic radiography.

OP – 174**DIAGNOSTIC ACCURACY OF CONE-BEAM COMPUTED TOMOGRAPHY FOR SECONDARY CARIES DETECTION: AN IN VITRO STUDY**

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Background: The aim of this in vitro study was to assess the diagnostic performance of cone-beam computed tomography (CBCT) for detection of secondary carious lesions under composite resin filling and to compare between different types of cavities. **Methods and materials:** Seventy eight extracted

human posterior teeth were prepared as occlusal cavities (O) (n=18), mesial and/or distal occlusal cavities (MO/DO) (n=30), and mesial-occlusal-distal cavities (MOD) (n=30). In each group, artificial secondary caries lesions were simulated in half of the cavities. All groups of teeth were restored by composite resin and then, placed in blocks of silicone with approximal contacts. All of the blocks were radiographed by CBCT system and the images were evaluated by two observers, using a five-step confidence scale. All of the evaluations were repeated with two weeks later. Intra and interobserver agreement were calculated with Kappa statistics. The area under (Az) the receiver operating characteristic (ROC) curve was used to evaluate the diagnostic accuracy. Results: Intra and interobserver agreement were excellent. ROC curves (Az values) of two observers were highest for the O restorations, followed by the MOD and DO/MO restorations. Az values for MOD and DO/MO restorations were very low and no statistically difference was found for diagnosis ($p>0.05$). Sensitivity for DO/MO restorations and specificity for MOD restorations were found as lowest values. Conclusion: According of the results of the study, diagnostic performance of CBCT were better for O composite restorations than MOD and DO/MO restorations for secondary caries detection.

OP – 175**DIAGNOSIS OF CERVICOFACIAL SUBCUTANEOUS EMPHYSEMA**

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Introduction: Cervicofacial subcutaneous emphysema is defined as the abnormal introduction of air in the subcutaneous tissues of the head and neck. It is a rare but serious complication during dental practice. Its symptoms vary from mild swelling and nausea up to airway obstruction, air emboli and death. **Aim:** The presentation of contemporary views concerning diagnosis of subcutaneous emphysema and the impact of new imaging methods in diagnosis and treatment efficacy. **Material and methods:** A comprehensive review of the dental and medical literature was conducted in 6 electronic data bases. **Results:** Swelling and crepitus are the most common clinical signs of subcutaneous emphysema. Beside clinical examination, x-rays enables localization of the air accumulation and confirm the diagnosis. The evolution of computed tomography helps the clinician to locate the air collection more accurately, especially in cases that surgical intervention is imperative. The differential diagnosis of emphysema should be made from gas gangrene, necrotizing fasciitis, allergic reaction, cellulitis, hematoma, myocardial ischemia, superior vena cava syndrome and angioneurotic edema. Crepitus is pathognomonic sign for subcutaneous emphysema and its presence facilitates differential diagnosis. **Conclusion:** Despite the low prevalence of subcutaneous emphysema related to dental procedures, it can be potentially extremely harmful even lethal. The clinician must know the clinical and radiographic signs of emphysema in order to make an accurate diagnosis. The contribution of modern imaging methods is essential, especially in cases of severe diffusion of the air where the surgical intervention is necessary.

POSTER PRESENTATIONS (PP)

PP – 1**MODELS OF EXCELLENCE IN DENTAL HEALTH CARE - BENEFITS OF APPLICATION**

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Introduction Models of excellence are considered a practical tool in the field of management that should help a variety of organizations, including dental, to carry out the measurement of the quality of provided services, and so define their position in relation to excellence. The quality of healthcare implies the degree within which the system of healthcare and health services increases the likelihood of positive treatment outcome. **Objective** The aim of the present study was to define a model of excellence in the field of dental healthcare (DHC) in the Republic of Serbia and suggest the model of DHC whose services will have the characteristics of outstanding service in the dental practice. **Methods** In this study a specially designed questionnaire was used for the assessment of the maturity level of applied management regarding quality in healthcare organizations of the Republic of Serbia. The questionnaire consists of 13 units and a total of 240 questions. **Results** The results of the study were discussed involving four areas: (1) defining the main criteria and sub-criteria, (2) the elements of excellence of DHC in the Republic of Serbia, (3) the quality of DHC in the Republic of Serbia, and (4) defining the framework of the model of excellence for the DHC in the Republic of Serbia. **Conclusion** Excellence in DHC business as well as the excellence of provided dental services are increasingly becoming the norm and good practice, and progressively less the exception. **Keywords:** service; excellence; dental healthcare provision

PP – 2**INCREASED OCCURENCE OF DENTAL ANOMALIES ASSOCIATED WITH SECOND-PREMOLAR AGENESIS**

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Aim: The aim of the present study was to investigate the distribution of dental anomalies associated with maxillary and/or mandibular second premolar agenesis. **Material and methods:** A total of 10504 panoramic films were examined to assess the prevalence of maxillary and mandibular second premolar agenesis. Patients were divided into three groups (Group 1: 23 patients with maxillary right and left second premolar agenesis; Group 2: 84 patients with mandibular right and left second premolar agenesis; and Group 3: 45 patients with all second premolar agenesis) to evaluate the associated dental anomalies such as agenesis of other teeth excluding third molars, microdontia of maxillary lateral incisors, ectopic eruption of canine teeth, and infra occlusion of the deciduous premolar teeth. Pearson chi-square test was used for statistical comparisons. **Results:** A total 356 patients were found to have at least one premolar agenesis either in the maxillae or in the mandible representing a 3.39 % (356 out of 10504

patients), with no statistically significant gender difference ($P>0.05$). Infraocclusion of the deciduous second molar was found to be statistically significantly higher in group 3 (67 out of the 180 teeth; 37.22%) compared to those of the groups 1 (4 out of the 39 teeth; 10.26%) and 2 (75 out of the 336 teeth; 22.32%), while no difference was found for the other dental anomalies. Conclusion: Patients with agenesis of all second premolars were found to have higher prevalence of infraocclusion of second deciduous molars than the others. Key words: Hypodontia; Dental anomaly; Prevalence

PP – 3

MESIODISTAL INCLINATION OF THE UNERUPTED SECOND PREMOLAR IN THE MANDIBLE WITH INCISOR AGENESIS

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Objective: To elucidate the mesiodistal inclination of the unerupted mandibular second premolar (MnP2) in cases of mandibular incisor (MnIc) agenesis MnP2 agenesis. **Materials and Methods:** Eighty-two cases of unilateral MnP2 agenesis (MnP2 agenesis group) and a control group (control group A) of 82 cases without permanent tooth agenesis excluding third molars were selected. Thirty-four cases of MnIc agenesis (MnIc agenesis group) and another control group (control group B) of 34 subjects were also selected. Mesiodistal inclination of the unerupted MnP2 on panoramic X-ray was measured according to the distal angle and premolar-molar angle using the methods of Shalish et al. and Bacetti et al., respectively. Differences in mean values of the angular measurements between agenesis groups and corresponding controls were investigated. **Results:** In the MnP2 agenesis group, the mean premolar-molar angle increased 5.5 degree for the MnP2 compared with control group A. Also distal angle in this group, no significant differences compared with control group A. In the MnIc agenesis group, no significant differences in the mean of distal angle for the MnP2 was found compared with control group B and the mean premolar-molar angle increased 7 degree for the MnP2 compared with control group B. **Conclusion:** In Turkish orthodontic patients, there is a relationship between unilateral MnP2 agenesis and the mesiodistal angulation of the unerupted MnP2. However no significant relationship was observed distal angle for the MnP2 was found compared with both groups.

PP – 4

KNOWLEDGE OF HEPATITIS INFECTION AMONG DENTAL STUDENTS

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Background: Dental care workers including dental students are at high risk of exposure to hepatitis B virus. The aim of this study was to evaluate the knowledge of hepatitis infection of dental students studying in Ordu University, Turkey. **Methods and materials:** A questionnaire consisting

of 76 questions related to students' socio-demographic status, knowledge of hepatitis infection about the ways of transmission, prevention and risk groups, and vaccination status distributed to all dental students. Results: Totally 155 students were included in the study. 135 (%87) students were thought that they were at risk of infection. This rate was the highest at 5-year students. %88.9 of the 5-year students stated that they had sufficient knowledge of HBV infection, whereas only %21.82 of first year students thought same. The knowledge was increased with the year of the class. The students who were inoculated with HBV vaccine were only the %59.3 of the whole students. Younger classes did not seem to pay attention to be inoculated against HBV; however, among the 5-year students who have not been vaccinated, the reason was natural immunity against HBV. Conclusion: There was a lack of knowledge about the hepatitis infection especially among the first and second-year students. The education of infectious diseases is required started from the first year of the dental school.

PP – 5**THE PREVALENCE OF COMPLETE EDENTULISM: RADIOGRAPHIC EXAMINATION**

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Background: The aim of this study was to determine the prevalence of complete edentulism retrospectively and to evaluate the frequency and the location of significant radiographic findings in edentulous jaws in Ordu, Turkey. **Methods and Materials:** The orthopantomographs (OPG) of all ≥35 years old patients attended to our faculty from January 2014 to August 2015 were assessed. The prevalence of complete edentulism was determined among 8314 OPGs retrospectively. The impacted teeth, retained roots, radiopaque and radiolucent areas were recorded in terms of sex, age or location. **Results:** The study population consisted of 8314 patients with an average age of 50.38±11.35 (female/male; 4722/3592). Of the study participants, 508 (6.11%) were edentulous. The prevalence of edentulism was higher (24.85%) among the patients older than 64 years old. Edentulous rates were similar for male and female. The OPGs of edentulous patients were examined for the presence of pathologies. Retained roots were the most frequently found abnormality (18.89%), followed by impacted teeth (7.08%), radiopacities (2.75%) and radiolucencies (1.57%). **Conclusion:** Edentulism affects the elderly populations (especially older than 64 years old patients). The radiographic examination of edentulous patients was of importance for determining the asymptomatic non-clinical pathologies.

PP – 6**MANDATORY MEMBERSHIP IMPACTS ON THE DENTISTS' CONFIDENCE IN AUTONOMOUS PROFESSIONAL LEADERSHIP**

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The dental profession is characterized by a high level of autonomy and social standing. There are two major type of professional representation in society – registers implying mandatory

membership and associations with optional membership. The membership in Bulgaria is mandatory. Purpose: To identify the set of cases in which dentists in Bulgaria rely on their professional organization along the transition of social and professional relationship and the level was compared to the EU states situation. Material and Methods: A secondary data analysis based on longitudinal nationwide survey of the dental profession development, covering the period 1997 to 2011. Results: 1. The number of registered dentists in Bulgaria has been growing in recent years from 7858 (2008) to 9063 in 2015. The dental workforce in Europe changed for the same period from 349.640 (2008) to the 361.979 (2014). 2. The professional organizations' membership is mandatory in 13 countries, optional - in 17, and with double representation - in 4. 3. The average patients: dentists ratio for 2013 in EU is 1.433 people, while in Bulgaria in 2011 is - 984 people. This investigations evidenced that dentists rely on their organization mainly for professional protection (79,9%). Conclusions: The expectations of Bulgarian dentists are related to professional protection, maintenance of qualification and trade union protection in temporary long term leave. The confidence in organizational leadership is rather high. Compared to EU, the number of dentist is increasing faster; the average upload of dental practitioners in Bulgaria is almost half of that in EU.

PP – 7**DENTAL VISIT PATTERNS AND DENTAL HEALTH AMONG PRIVATE AND PUBLIC PATIENTS IN BOSNIA AND HERZEGOVINA**

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Background: Dental services comprise a combination of private and public sectors in Bosnia and Herzegovina. The aim of this study was to investigate dental visit patterns and dental health of patients attending private or public clinics. Methods and materials: A cross-sectional study of a random sample of 910 Bosnian subjects aged 15-18, 35-44, and 65-74 years. Data were collected by means of self-administered questionnaire and by clinical examinations. The questionnaire covered socio-demographics, type of service use (private/public), and time and reason for last dental visit. Dental status was assessed using decayed (D), missing (M) and filled (F) teeth (T) (DMFT) index and its components. Results: About 61.5% of subjects visited public services, while corresponding percentage for those who visited private practices was 38.5%. Dental visit was mainly problem-based in public practices (65.4%) and preventive in private services (58.9%). Persons attending public dental services had more decayed ($p < 0,001$) and missing teeth ($p < 0,001$), but less filled teeth ($p < 0,05$) compared with the persons who visited a private services. Conclusion: Public services are more used than private sectors in Bosnia and Herzegovina. Differences in dental visit patterns and dental health exist between private and public dental service users.

PP – 8**PRESENCE OF DEHISCENCE AND FENESTRATION IN ADOLESCENT PATIENTS AFFECTED BY BILATERAL CLEFT LIP AND PALATE**

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Background: To evaluate the dehiscence and fenestration presence in maxillary and mandibular anterior teeth of the patients affected by bilateral cleft lip and palate (BCLP) and to compare the findings with a well matched control group of noncleft patients using cone beam computed tomography (CBCT). **Material and methods:** CBCT images of 51 patients divided into two groups (Group 1: 21 patients affected by BCLP; mean age of 14.62±2.89 years and Group 2: 30 patients as noncleft control group; 14.22±1.05 years) were assessed for the presence of dehiscence and fenestration in the maxillary and mandibular anterior teeth. Data were analyzed by means of Student's t-test, Pearson's chi-square and Fischer's exact tests. **Results:** The prevalence of dehiscence in patients affected by BCLP was found to be 61.11% in the maxillary and 48.41% in the mandibular anterior teeth, while the rates in the noncleft group were found to be 7.78% and 16.67%, respectively ($P < 0.001$). The presence of fenestration was found to be statistically significantly higher in the maxillary central incisors of the BCLP group as compared to noncleft controls ($P < 0.05$), while almost similar rates were noted for the other teeth with no statistically significant differences ($P > 0.05$). **Conclusion:** Patients affected by BCLP showed higher prevalence of alveolar defects in the maxillary and mandibular anterior teeth and thus the clinicians to treat those patients should be careful during their orthodontic treatment. **Key words:** Bilateral cleft lip and palate; CBCT; Dehiscence; Fenestration

PP – 9**DISTALIZATION WITH MINI-IMPLANT SUPPORTED EZ SLIDER - A CASE REPORT**

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BACKGROUND: Intraoral appliances have been developed to distalize maxillary molars without the patient's cooperation. Intraoral methods have more comfortable, easier use and they are esthetically more acceptable. This case report presents orthodontic treatment of a patient with midline shift using mini-implant supported EZ Slider mechanics. **METHODS AND MATERIALS:** A 16-year-old female patient was admitted to our clinic with the chief complaint of dental crowding. In clinical examination she had 2 mm midline shift to the right, 3.5 mm crowding in the upper left segment, Class III molar and canine relationships on the right side, and Class I canine relationship on the left side. Distalization of the upper left posterior segment was planned to correct the midline discrepancy and dental crowding. After leveling phase, a mini-implant was placed between the upper left second premolar and first molar. The EZ Slider was applied onto 0.016X0.025 nickel titanium archwire to distalize the upper left posterior segment with a nickel

titanium closed-coil spring. Upper left second molar, first molar and second premolar were distalized by using 30, 20 and 12.5 mm EZ Sliders, respectively. RESULTS: After 5.5 months of EZ Slider treatment, the upper left posterior segment was distalized. The total treatment time was 2 years. The case was finished by establishing Class I molar and canine relationship. CONCLUSION: Mini-implant supported EZ Slider is effective in molar distalization and it is an alternative method to generate controlled molar distalization without no loss of anchorage.

PP – 10**ORTHODONTIC TREATMENT OF A PATIENT WITH MAXILLARY RETROGNATHY: A CASE REPORT**

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BACKGROUND: The development of Class III malocclusion can occur with maxillary skeletal retrusion, mandibular skeletal protrusion, or combination of the two. Face mask appliance has been used for the correction of Class III malocclusion since 1960s. This case report presents orthodontic treatment of a patient with maxillary retrognathia using face mask appliance and upper premolar extractions. **METHODS AND MATERIALS:** A 10-year-old male patient admitted to our clinic with the chief complaint of mandibular prognathism. Clinical examination showed Angle Class III molar relationship, -1mm overjet, 1mm overbite, proclined upper incisors and 8.7 mm crowding in maxillary arch. Cephalometric analysis showed skeletal Class III malocclusion with SNA=77.8°, SNB=83.4°, ANB= -5.6° and SN-GoGn=33.9°, FMA=25.6°. The patient was treated by a bonded acrylic-splint rapid maxillary expander with Petit type face mask, with a protraction force of 600 gf per side. The total treatment time with face mask was 4 months. After the correction of skeletal Class III, upper premolars were extracted to relieve the crowding. **RESULTS:** The total treatment time was 22 months. At the end of treatment, aesthetic facial profile was achieved while correcting skeletal Class III with face mask. Dental crowding was corrected with the upper premolar extractions. **CONCLUSION:** In skeletal Class III cases with maxillary deficiency, face mask is an effective treatment method and upper premolar extraction is generally not indicated because of the possibility of upper arch collapse. However, extraction can be performed in case of severe crowding.

PP – 11**CLINICAL CASE OF AN ORTHODONTIC-PROSTHETIC TREATMENT**

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We present a 35 years male patient with an early loss of lower first molars. For the implant rehabilitation it is required dimension as a molar's size, transversal size of the alveolar bone and non-traumatic occlusion with the antagonist. The aim of the present treatment is to gain space in the dental arch for implant rehabilitation and achieving normal occlusion in the regions where Godon's effect is present. **Materials and Methods:** The lower second molar was with severe mesial

tipping. We uprightened and moved it distally with the use of an absolute bone anchorage via mini-screws. The mini-screw in the left segment was placed at the alveolar crest and shaped as a premolar, loaded with braces. The mini-screw was the anchorage we used for the distal movement of the second and third molar. In the right segment we corrected the tipping of second and third molars using a T-loop retractor. Sufficiently space was gained due to closing the spaces in the premolar area. Results: With the use of the mini-screw we achieved space of 6mm in the dental arch, the lower second molars were uprightened. During their movements a bone induction was noticed. This was favorable because the alveolar transversal dimension was increased. We intruded the extruded antagonists and align the teeth. The new occlusion will not be traumatic for the implants. Conclusion: We achieved functional balance of the dentition, smile comfort and long-term stability. With the orthodontic treatment we avoided devitalizing of the teeth and their preparation for crowns.

PP – 12**ORTHODONTIC TREATMENT OF BILATERAL MAXILLARY IMPACTED CANINE-FIRST PREMOLAR TRANSPOSITION AND LATERAL INCISOR AGENESIS**

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INTRODUCTION: The prevalence of tooth transposition varies from 0.09% to 1.4% (1,2). Peck and Peck classified five types of maxillary transposition, ordered by incidence: canine–first premolar, canine–lateral incisor, canine to first molar site, lateral incisor–central incisor and canine to central incisor site (3). Maxillary lateral incisor agenesis has been reported to range between 0.8 to 2% of the population in the permanent dentition (4,5). Except for the third molar, maxillary lateral incisors are the most common congenitally missing teeth (4,5,6). The aim of this case report is to present the resolving of bilateral maxillary impacted canine and first premolar transposition and lateral incisors agenesis with orthodontic treatment. **CASE REPORT:** The clinical findings of the patient with 13 years of chronological age, bilateral maxillary impacted canine-first premolar transposition and lateral incisor agenesis. Orthodontic treatment plan involved orthodontic traction of bilaterally impacted canine and first premolar after providing adequate space, orthodontic movement of first premolar tooth into lateral incisor sides and extraction lower bilateral first premolar. The impacted tooth were erupted and aligned in 1 year and four months and then the first premolars were stripped in order to mimic a lateral incisor. Orthodontic treatment was completed in 2 years and 8 months. **CONCLUSION:** As observed in this case, the impacted first premolars were erupted in the lateral incisors area and shape of the tooth was restored with multidisciplinary approaches.

PP – 13**ORTHODONTIC TREATMENT OF A PATIENT WITH SEVERE CROWDING: A CASE REPORT**

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Background: In order to detect the severity of crowding during orthodontic diagnosis, it is necessary to evaluate two things, mesio-distal tooth widths and arch length. Treatment can be planned with

extraction of tooth in both maxillary and mandibular archs related to severity of crowding. First premolar extraction is commonly used for orthodontic treatment of a patient with dental crowding. The aim of this case report is to present the treatment of a patient with four premolar extraction

Material and Methods: A 14 years old male patient with severe maxillary and mandibular crowding(8-7mm) was admitted to orthodontic department for orthodontic treatment. Fixed orthodontic treatment with 4 permanent premolar extraction was planned to treatment of the patient in order to correct crowding. Canine distalization and retraction of incisors and finishing were performed respectively. Results : The acceptable occlusion was maintained for 18 months. Patients smile was corrected. Conclusion: Orthodontists prefer extraction in patients with severe crowding instead of other treatment techniques These results indicate that extraction is an effective and compulsory option for treating patients with severe crowding.

PP – 14

MYOBRACE® AND DENT@LIGN ALIGNER SYSTEM FOR TREATMENT OF DEEP BITE PATIENTS

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BACKGROUND Combined therapy including Myobrace® and Dent@lign aligners can achieve functional and aesthetic results, without necessarily involving of brackets in the treatment plan. **AIM** The aim of the study was to follow the results of combined treatment including Myobrace® and Dent@lign aligners in adult patients with deep blocking bite and Class II malocclusion. **MATERIALS AND METHODS** The current study included 4 patients, aged 17-34 years (3 women and 1 man) with mild Class II Angle malocclusion, deep bite, crowding, rotated and inclined teeth, abrasion. A full orthodontic analysis and treatment plan were made. For the treatment Myobrace® (Australia) and digital aligners - Dent@lign (Bulgaria) were used. **RESULTS** The treatment results showed 10-24 months for achieving Class I Angle relationship and 1/3rd overlap of the front teeth. Finishing was done with Dent@lign aligners. The stage continued according to the planned teeth movements, but not more than 10 months. The number of necessary steps - aligners was determined by the virtual setup and treatment plan. The retention was done with fixed or vacuum retainer in the lower dental arch and TMJ maintenance for muscle balance. **CONCLUSION** The results showed that combined treatment including Myobrace® and Dent@lign aligners in adult patients with deep bite and mild Class II Angle can be recommended method. Correction of dental problems, functional balance of teeth-jaw system was achieved, as Myobrace® assists in solving skeletal problems and muscle disorders. Myobrace and Dent@lign aligners provide reliable retention.

PP – 15

COMPARISON OF OVERJET CORRECTION IN MIXED DENTITION AFTER TREATMENT WITH MYOBRACE®

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BACKGROUND The term “overjet” applies to the distance between labial surface of mandibular incisors and labial aspect of maxillary incisors’ incisal edge. In Class I and II Angle cases with oral

myofunctional disorders, the overjet can be reduced and even corrected by myofunctional treatment. **AIM** The aim of this study was to compare the clinical effectiveness of Myobrace® in reducing overjet according to Angle Class malocclusion and age, among growing patients with mixed dentition. **MATERIALS AND METHODS** The study included 24 patients with overjet (2-6mm), mixed dentition and Skeletal Class I, treated with Myobrace® (Trainer for Kids). 12 patients had Class I and 12 had Class II1/2 Angle malocclusion. Patients were also divided according to the age – Group 1 (7-10) and Group 2 (11-14). Patients were instructed to wear the appliance 8-12 hours daily. Impressions were taken before and after the treatment. Overjet was measured on plaster models as the distance between the most protruded upper incisor and the most retruded lower incisor using a digital caliper. The data was statistically processed. **RESULTS** In 100% of the cases the overjet was reduced. In Class I patients overjet was reduced an average of 1.983 mm compared to Class II patients - 2.092 mm (II1 – 2.2mm; II2 – 2.014). According to age, greater reduction of overjet was observed in Group 1 (2.227) compared to Group 2 patients (1.722). **CONCLUSION** Early interceptive treatment with Myobrace® for elimination of jaws inhibiting factors is of actual benefit for growing kids with mixed dentition.

PP – 16**OSTEODISTRACTION IN THE TREATMENT OF CLEFT LIP AND PALATE**

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Introduction: Osteodistraction is the biologic process of creation of new bone between the surfaces of bone segments that are gradually separated by traction. This method is often used in the treatment of craniofacial deformities. The aim of this study was to display the application of osteodistraction at the patient with unilateral cleft. **Materials and Methods:** The patient aged 19, with a maxillary hypoplasia as a consequence of unilateral cleft, was subjected to osteodistraction of maxilla. The goal of therapy was to expand the maxilla by using extraoral distractors. Prior to surgery, fixed orthodontic appliances on both jaws were set to the patient. After leveling dental arches, maxillary osteotomy was performed and extraoral distractor was placed, which was activated 1mm a day. **Results:** After 6 weeks of wearing the distractor (along with a period of consolidation, which usually lasts twice as long as the active period) sufficient extension of the maxilla was noted. After the removal of extraoral distractor, postsurgical orthodontic phase, lasted for 6 months, after which the patient was prosthetically restored. **Conclusion:** Compared to conventional surgical methods, with osteodistraction stable results are achieved, complete skeletal and soft tissue deformity correction, with less invasive treatment. It is especially recommended in overjet greater than 10 mm. Extraoral distractor enables extremely controlled direction of extraction during the distraction, it may be used in children, as well in adults with hypoplasia of the maxilla or middle part of the face which are the consequence of the cleft, injury or craniosynostosis.

PP – 17**CHARACTERISTICS OF CLASS II MALOCCLUSION IN SERBIAN CHILDREN (8 – 15 YEARS OLD)**

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The aim of this study was to investigate some of major characteristics of Class II malocclusion in population of Serbian children aged 8 – 15 years. The investigation was carried out on the lateral cephalographs of 450 patients (ANB angle more than 5°) in our clinic. The following cephalometric measurements were made: angles SNA, SNB, ANB, SN/ SpP, SN/ MP, Björk poligone angles (NSAr, SArGo, ArGoMe and their summ), I/SpP, i/MP, I/i; linear parameters N – Me, S – Go, Cd – Me, Cd – Go, Go – Me, Snp – A. The dominate findings are: mandibular retrognathism with slightly prognathism of maxilla, ANB angle is $5,46^{\circ}$ average, higher mandibular plane angle, growth of the face is mostly by backward rotation (62 %), upper and lower incisors are protruded, mandibula is shorter (Cd – Me and Go – Me). It is easier to decide when you will start the therapy, and to choose the most adequate appliance, if you know the characteristics of the malocclusion in your population.

PP – 18**SURGICAL ALVEOLAR CORTICOTOMIES IN ORTHODONTIC TREATMENT OF MODERATE CROWDING - CASE REPORT**

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This study demonstrates a orthodontic method that provides shortened treatment times without compromising treatment results. Patients (5) 18+ years of age, with a class I, moderately crowded malocclusion, elected to undergo this treatment option, due to the estimated reduction in treatment time. During the week following bracketing and wire activation, labial flap was reflected in the maksillary arch. The exposed cortical layer of bone over the roots of the upper teeth designated for the major orthodontic movements was then selectively decorticated. Following the periodontal plastic surgery, the orthodontic adjustment were performed approximatly every 2 weeks. No excessive forces were used. The total orthodontic treatment required exactly 6 months. It has been demonstrated that the same treatment results achived with nonextraction orthodontic therapy can be attained with corticotomy, but in one-third the treatment time. Treatment results, also suggest that the need for extraction may be reduced. This procedure provides a safe alternative for those patients with moderate crowding who desire the benefits of orthodontic treatment in a relatively short period of time.

PP – 19**DENTOALVEOLAR COMPENSATION OF SKELETAL CLASS II IN CASE OF ADULT PATIENTS**

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Introduction: Malocclusion class II is one of the most common orthodontic anomalies. Various combinations of orofacial structure components participate in its formation. The aim is to show the possibility of treating skeletal class II after completed growth by dental compensation. **Materials and Methods:** This paper presents a 30 year old patient with skeletal distal bite, protrusion of upper incisors and crowding in the upper jaw. The lower left first molar was previously extracted. The treatment plan was to take out the upper first premolars and conduct treatment by dentoalveolar compensation. Upper and lower fixed appliances were set. Retraction of the upper anterior teeth in the space of excavated premolars was performed in two phases: retraction of upper canines and retraction of incisors by a sliding mechanism. NiTi, SS and TMA arches were used. Correction of incisor position was achieved by bending the torque in the frontal part of the arch. Attracting the second molar in the lower jaw was done by bending the loop - closing loop. **Results:** Good and stable interjaw and dental relations were achieved in class I area of the canines and in class II region of the molars, because of the extracted first premolars only in the upper jaw. The results were achieved in 18 months. **Conclusion:** The treatment class II skeletal by dentoalveolar compensation among adult patients provides successful and stable results if the patient meets the following requirements: moderate skeletal discrepancies, mild crowding, balanced vertical relations.

PP – 20**THE LACK OF SPACE TO ACCOMMODATE MAXILLARY SECOND PREMOLAR SOLVED WITH FIXED ORTHODONTIC APPLIANCE**

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Introduction: Upper second premolars appear in the oral cavity about 12 years after birth. The most common reason for them not to erupt in the oral cavity is premature loss of second deciduous molars. Double-sided loss of other deciduous molars in this case has caused mesial migration and inclination of the first permanent molars and closing of required space. **THE AIM:** Is to demonstrate the procedure, where with the help of fixed orthodontic appliances space was created and then both upper second premolars were correctly positioned in a dental arch. **METHOD:** A patient is a 12-year-old girl. The clinical history shows the fact that the upper deciduous molars were extracted very early. The patient was diagnosed with palatal position upper second premolars. Maxillary dental arch was bonded using 0.022"x0.028" slot MBT bracket and 0.014" round nickel-titanium arch wire was placed, then replaced by 0.016". Active

spring was set between the first premolar and the first molar. Every month a spring was changed and thus a necessary space was created. Then brackets were glued on the second premolars and the 0.012" arc was set. At regular intervals, arches were changed in standard order, later by 0.016"×0.022" followed by 0.017"×0.025" and at the end by 0.017"×0.025" rectangular stainless steel arch wire. RESULT: The space is provided and both maxillary second premolars are positioned properly. CONCLUSION: Thanks to the timely and well-planned treatment with fixed orthodontic appliance, very quickly palatal placed second premolars were properly placed in the dental arch.

PP – 21**THE EFFECT OF ORTHODONTIC EXTRUSION ON ALVEOLAR BONE – A CASE REPORT**

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Aim:The aim was to examine the effect of orthodontic teeth extrusion on the dimension of interdental septum and the height and width of alveolar bone. **Material and method:** A 24 year old female patient received orthodontic treatment. Fixed appliance was used to extrude the upper right canine. Two CBCT radiographs of the upper right canine were performed (S-field, high resolution): 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 bicuspids. Measured values on both radiograms: the height and width of interdental septum mesial and distal of extruded tooth, the height and width of the buccal bone as well as the vertical movement of the extruded tooth. **Results:** The difference in values on two radiograms showed that the extrusion caused some changes on the alveolar bone of the extruded tooth. **Conclusion:** Modern dentistry is based on minimal invasive treatments and methods that provide tissue regeneration. This research will show the significance and potential of orthodontic extrusion in periodontal tissue regeneration and dental implant site development.

PP – 22**EFFECT OF SUPERNUMERARY TEETH ON PERMANENT DENTITION**

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INTRODUCTION: Supernumerary tooth is a term used to describe more than the normal number of a full complement of teeth in either the primary or permanent dentitions. **CASE REPORT:** A15 – year-old female patient referred to department of orthodontics for control. In the intraoral examination, asymmetric tooth eruption and delayed eruption time were determined.. Although the patient was 15 years old, bilateral canines, and left first and second premolars have not erupted yet. On the other hand, eruption of the first and second premolar was completed. Panoramic radiograph was taken to observe the position of the unerupted teeth. Radiographic evaluation

revealed that there were two supernumerary teeth on the eruption way of the permanent maxillary canines. It was also observed that right supernumerary tooth changed the eruption way of the right maxillary canine. Additionally, because of ectopic of left second premolar, there was no resorption at the roots of primary second molar. The patient was also evaluated by using dental tomography. Due to supernumerary tooth, ectopic eruption of permanent left second premolar and maxillary arch deficiency the patient had orthodontic problems. **CONCLUSION:** Since supernumerary teeth are generally asymptomatic, they are usually diagnosed during clinical or radiological investigations. Intraoral examination is an important factor to prevent the dental problems and malocclusion that would occur in the future. Diagnosis of supernumerary teeth and ectopic eruption at the early stage may prevent or shorten the duration of orthodontic treatment.

PP – 23**SUPERIOR LABIAL FRENUM: ORTHO-PERIO APPROACH**

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Introduction: a fat, hypertrophic, wide fibrous or in a high adhesion superior labial frenulum causes some unpleasant and pathological situations. It is related with the midline diastema of the maxillary dental arch and causes the danger of relapsing an orthodontic treatment and traumatic problems when exercising oral hygiene and during mastication. **Aim:** evaluation and an orthodontic and periodontics approach of this situation. Describe the occurring problems, the confrontation methods and the advantages of the in-time frenum's excision. **Methods:** study of articles and bibliography **Results:** the in time excision of the superior labial frenum has more advantages than drawbacks in order that it is made in a proper way. **Conclusion:** the confrontation approach of the frenum differs and must be personalized to the specialties and needs of each patient.

PP – 24**PALLATALLY DISPLACED CANINES: THE ORTHO-PERIO APPROACH**

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INTRODUCTION: The palatally displaced canines (PDC) are the second in frequency impacted teeth 1-3% after the third molars. They mainly found palatally and they present several management problems such as a prolonged treatment, loss of alveolar bone, recessions and root- absorption of lateral incisors. The impaction has either local or genetic multifactorial etiology. There are two basic treatment methods: a) surgical exposure, waiting for its physiological eruption and orthodontic settlement to the dental arch, b) surgical exposure, positioning an auxiliary link and immediate tooth retraction. **PURPOSE:** This study presents the treatment of this problem by the abovementioned ways for the settlement of the impacted canines into the dental arch. **METHODS:**

Study of articles and bibliography. RESULTS: The impacted canines have a multifactorial etiology and the treatment requires the co-operation of different dental specialists (oral surgeon, periodontist and orthodontist). **CONCLUSION:** Both manners are used with different advantages and disadvantages. The position and the orientation of the canine into the palate is determining the right method.

PP – 25

TREATMENT APPROACH OF A CLASS II PATIENT USING DAMON SELF LIGATING SYSTEM: A CASE REPORT

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AIM To present orthodontic treatment of a subject with Angle class II malocclusion using DAMON system which is a self ligating, low friction orthodontic treatment system. **PATIENT AND METHODS** A 13 years and 6 months-old female patient applied to the clinic with an Angle Class II malocclusion, convex profile, maxillar and mandibular tooth crowding, and retroclined maxillar incisors. This patient was treated with DAMON self ligating system for eleven months. **RESULTS** After DAMON treatment, class I molar relationship was obtained. Convex profile was improved to normal profile. Maxillar and mandibular intercanine arch distances were increased. Mandibular incisor crowding was corrected. **CONCLUSIONS** Essentially, DAMON self ligating system corrects crowding, increases transversal width of the dental arch and improves facial appearance. This system also has advantages in the matter of treatment time and ease of oral hygiene maintenance.

PP – 26

THE EVALUATION OF PHYSICAL AND DENTAL DEVELOPMENT DIFFERENCES BASED ON SOCIAL AND ECONOMIC STATUS

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Background : In order to put a diagnosis and to intercept malocclusions in children and teens, it is necessary to understand the mechanisms of growth and development of teeth, face, cranium and the entire organism as a whole. The growth rates in somatographic analysis based on sex, age, bio-geographical environment and socio-economic status, provide important data for professionals of dentistry. **Purpose:** The purpose of the study is to investigate the differences in the physical and dental development, in two separate groups of boys selected from two different schools with different socio-economic profiles. **Materials and Methods:** In 2014-2015, there were examined 286 boys in Tirana, aged: 9-12 and they were divided into two groups: Group A: 104 students of a private school and Group B: 182 students of a public one. Students of both schools,

lived in urban areas therefore they have the same bio-geographical conditions. Socio-economic status was different. A clinical examination consisted of the evaluation of physical development (weight and body length) and dental age. Results: The students of group A have passed the normal values of physical bodily development for the most age groups with differences -2.1 and +5.5. The students of group B had constant values with differences from the average rate respectively -6.6 to -2.6. Conclusions: There must be continued further studies to assess physical and dental development, in children with different social and economical status.

PP – 27

PRE-PROSTHETIC ORTHODONTIC SURGICAL TREATMENT OF ADULT PATIENTS

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Introduction: Orthodontic therapy of adult patients often requires an interdisciplinary team approach, since an untreated orthodontic anomaly leads to more severe functional and aesthetic problems. Aim: The aim of this paper is to present the results of an orthodontic-surgical team approach treatment of a patient with a skeletal malocclusion and partial edentulism prior to prosthetic rehabilitation by partial denture. Materials and Methods: A 35-years-old patient with maxillary hypoplasia, mild mandibular prognatism, edentulous areas in posterior maxilla and mandible and occlusal contacts limited to left premolar region. Fixed orthodontic appliances were used in the upper and lower jaw to correct the position of the remaining teeth in all three dimensions. Maxillary osteotomy followed by intermaxillary elastic traction was performed in order to align the dental arches into neutral position. After the removal of fixed orthodontic appliances, removable dental orthodontic retainers were used for stabilization of achieved results until final prosthetic rehabilitation. Results: A good and stable position of the remaining teeth, as well as the alignment and stable occlusal relationship of maxilla and mandible were achieved. Conclusion: A thoroughly planned and correctly executed multidisciplinary treatment leads to good functional and aesthetic results, even in very challenging cases.

PP – 28

ACTIVATOR APPLIANCE TREATMENT OF A PATIENT WITH SKELETAL CLASS II MALOCCLUSION DUE TO RETROGNATHIC MANDIBLE

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Background : Functional appliances are removable or fixed orthodontic appliances that are held in contact with both upper and lower dental arches. The appliances hold the mandible in a postured position away from the normal rest position. The literature surrounding the use of functional appliances refers mainly to the Andresen type of removable activator functional appliance. This case report presents the treatment process of a patient with skeletal class II malocclusion who treated with removable functional appliance. Subject and methods : A 14-year-

old female patient with a chief complaint of proclined upper anterior teeth, had a symmetrical face, convex profile, retrusive chin. Intraoral examination showed that she had class II canine and molar relationships. There was no maxillary constriction. The cephalometric analysis showed Class II skeletal relationship with normal angle vertical pattern and mandibular retrognathia. An attempt was made to bring the mandible forward with a activator functional appliance because of maximum pubertal growth. Dental relationships was corrected using fixed orthodontics treatment. Results: At the end of treatment Class I skeletal and dental relationships, normal overbite were obtained. The overjet was progressively reduced from 12mm to 2mm. The patient showed a clear improvement in the soft tissue, with a reduction convex profile. Conclusions: This case report showed that removal functional appliance treatment successfully aided in the correction of the skeletal CI II malocclusion.

PP – 29

ORTHODONTIC THERAPY IN PATIENTS WITH AUTISM

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INTRODUCTION:Autism is developmental disorder of communication and social interaction which occurs in the early childhood and lasts lifelong.Characteristics:incapacity of communication,difficulties in socialization,lack of central looking,bizarre speech,mimic expires from the face,compulsive behavior, monotony, ritual and restrained behavior,self aggression
AIM:Aim of the work is to exam a possibility of the orthodontic therapy with mobile and fixed appliances, in male patients,with autism
MATERIAL AND METHODS:1)Boy,age 14 Class II,crowding of the maxillary arch,reverse folding of the 12,21,22 teeth.Patient wore lower mobile appliance.Compromise extraction of the teeth 12 and 24 was performed. Patient wore upper mobile appliance for short time,than brackets were bonded on the teeth 11,13,23,25,26.When patient got accustomed to appliance,brackets were added to remaining teeth and the archwires were changed according to the levelling procedure.Control examinations had to be short due to the patient's disturbed attention,however he reacted quite well.B)Boy,age 15 Open bite-front teeth,tightness of the upper jaw,high position teeth 13 and 23.He cooperated well at the examinations,therapy started with fixed appliance,brackets were bonded on the teeth 13,14,15, 23,24,25.Elastomeric chain used to distally move 13 and 23.Other brackets were added.At SS 0.016x0.016 wire,13 and 23 teeth indirectly tied to the archwire and pulled down in the provided space.After year,breckets were bonded in mandibulary arch.Levelling was completed,the Kobayashi ligatures were put on, and inter-maxillary pulling started,in order to regulate open bite
DISCUSSION:Therapy was successfully completed in both patients,after three years.Patients cooperated excellently
CONCLUSION:When the parents and therapist are motivated,and the patients with autism cooperate well,it is fully justified to implement orthodontic treatment.

PP – 30**INFLUENCE OF PREMATURE EXTRACTION OF DECIDUOUS TEETH TO THE POSITION OF THE MAXILLARY CANNINES**

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Introduction: The early loss of deciduous teeth leads to migration of adjacent teeth towards free space, narrowing the space for the teeth replacements which also shortens the dental arch. **Objective:** The objective of this study was to investigate the effect of crowding on the secondary position and localization of permanent canine teeth in the upper jaw. **Materials and Methods:** The study was conducted at the Medical Faculty in Foča, with inspected a total of 73 patients aged 12-16 years old who were involved in orthodontic treatment. Each patient underwent a detailed clinical examination, analysis of study models and orthopan footage. **Results:** The results show that the canines position anomalies as ectopia and retention are present in 52% of the total number of patients. Ectopy (42.46%) was more frequent compared to the retention (12.3%). The combination of these two anomalies in the same patient is represented with 2.7%. Those canines malocclusions are present in women population (30.1%) and in male population 21.9%. **Conclusion:** Keeping deciduous teeth, and correct dentition shift will largely prevent the occurrence of secondary crowding, which is the basis for the development of these abnormalities.

PP – 31**PREVALENCE OF PRIMARY AND SECONDARY CROWDING WITH CHILDREN IN NEED OF ORTHODONTIC TREATMENT**

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Introduction: Crowding is an irregularity of dental arches, which implies a lack of space for the proper placement of teeth. The expression of crowding may vary from the mildest (rotation of individual teeth) to the worst forms, when a greater number of teeth is outside the port or they remain impacted. Crowding is encountered in dairy, mixed and permanent dentition and can be primary, secondary, tertiary and combined. **Objective:** The objective of this study was to investigate the presence of primary and secondary crowding in children, indicated for orthodontic treatment. **Materials and methods:** The study was conducted at the Medical Faculty in Foca, Dentistry Department, between 2014 and 2015. The research group consisted of 94 orthodontic indicated patients, aged 12-15 years. A detailed clinical examination was performed, the teeth marks in alginate were taken as well as study model analysis and digital OPT. **Results:** The results of this study indicate that crowding was present in 53.2% of patients, of which secondary crowding was present in 38.3% and is much more prevalent as compared to the primary crowding (14.9%). In relation to gender, this anomaly was more prevalent among girls (58.5) while in relation to the

age these irregularities were mostly present in twelve-year-olds (30.9%). A student's t-test showed there is no statistical significance of gender or age in relation to the tested dental anomaly. Conclusion: Early orthodontic examinations, interceptive orthodontics measures reduce the percentage of orthodontic problems.

PP – 32

THUMB SUCKING INFLUENCE TO THE OPEN BITE ETIOLOGY – CASE REPORT

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Introduction:Open bite represents an anomaly in the vertical direction when the central occlusion has no contact between opposing teeth. Open bite can be dentoalveolar and skeletal. The most common cause of dentoalveolar form of these anomalies are bad habits: thumb sucking and tongue thrust. It is considered that this anomaly represents a very important pathological condition, because of compromising the aesthetic and functional oral status of the patient. **Case:**A patient S.R. born in 2005, appears at the Clinic of Dental Medicine in Foca on July, 2nd 2014 for dental intervention. After taking dental history, clinical examination, analyzing X-rays and study model, a patient was diagnosed dentoalveolar open bite. The examination diagnosed multiple warts on the thumb of his right hand, which speaks about the connection between this anomaly and the bad habit of sucking fingers. The patient was positioned mobile orthodontic braces with filaret. Orthodontic treatment lasted for a total of 20 months after which there was a rehabilitation of the open bite. Growths on the thumb have been corrected and in cooperation with psychologist the bad habit of sucking fingers too. **Conclusion:** It is possible to prevent the occurrence and development of bad habits among children in primary and early mixed dentition, and so avoid future orthodontic treatment by measures of interceptive orthodontics.

PP – 33

ORTHODONTIC TREATMENT OF OPEN-BITE MALOCCLUSION WITH HIGH-PULL HEADGEAR: A CASE REPORT

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Background : Anterior open bite is an anomaly which has multifactorial aetiology and their very high relapse rate. There are several treatment possibilities dependent on the origin of the anterior open bite malocclusion and the patient's age. High pull headgear, fixed appliances with and without extractions, orthognathic surgery and intrusion of maxillary molars with skeletal anchorage with miniplates or miniscrews are treatment alternatives. **Methods and materials :** Fixed and functional orthodontic treatment with high pull headgear was planned 15 years 4 months old female patient who had referred to our clinic with complaint of her smile. We corrected anterior open bite by using fixed appliances with vertical intermaxillary elastics and high pull headgear to intrude the upper molars. **Result :** The acceptable occlusion was maintained for 20

months and patient's smile was corrected . Conclusion : High pull headgear is a treatment option for adolescents.

PP – 34**ORTHODONTIC TREATMENT OF FUNCTIONAL CLASS III ANOMALIES WITH COMBINATION OF FIXED APPLIANCE AND CHIN-CAP THERAPY**

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background: Angle class III anomalies are classified in three groups: skeletal, functional and dental anomalies. In the functional class III anomalies, the lower jaw is forced to close forward by the effects of various factors. There are various treatment methods for these anomalies. The aim of this case report is to present the treatment of a patient with corrected anterior crossbite by the protrusion and then extrusion upper four incisors and chin-cap. Methods and materials: Fixed and functional orthodontic treatment was planned 11 years 5 months old female patient who had referred to our clinic with complaint of forward position her lower jaw. Firstly, we corrected anterior crossbite with using protrusion arch and chin-cap that enforcer 600 gram-force. Then fixed orthodontic appliance was applied for all teeth. Result: The acceptable occlusion was maintained for 17 months. Patient smile was corrected. Conclusion: Class III anomalies get worse through aging and that mandibular protrusion and maxillary deficiency rate increase during transition from primary dentition to permanent dentition. Therefore class III anomalies were diagnosed and treated in the early stage.

PP – 35**TREATMENT OF A PATIENT WITH UNERUPTED PERMANENT MAXILLARY RIGHT CENTRAL İNCISOR: A CASE REPORT**

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Background: unerupted teeth are often encountered in orthodontic practice. This anomaly is related to general and/or local aetiologic factors. Although an impaction of other permanent teeth is rarely diagnosed during the early mixed dentition period, an unerupted central incisor can be usually diagnosed on time following the delay in the eruption of the tooth. Patients with unerupted maxillary central incisors are referred to paediatric dentists or orthodontists. The purpose of this case report is to present the treatment of a patient with unerupted permanent maxillary right central incisor. Material and methods: A 10 years and 9 months female patient referred to our clinic compliance with unerupted permanent maxillary right cenral incisor. A treatment protocol was initiated with fixed orthodontic appliances to align the adjacent teeth and create adequate space for the unerupted tooth. A flap was elevated and the tooth was exposed. A small round orthodontic attachment was bonded to the unerupted tooth. Orthodontic traction with light forces was initiated 1 week following operation and treatment completed when incisors were stabilised with stainless steel arch wire in full alignment. Results: Combined surgical and orthodontic treatment resulted in an aesthetically pleasant and balanced occlusion. Conclusion: While unerupted central incisor is a aesthetical problem for the

patients, their surgical exposure, in combination with fixed appliances, is a conservative treatment plan without complications and with aesthetical smile.

PP – 36**TREATMENT OF ANKYLOSED MAXILLARY INCISORS WITH DENTO-OSSEOUS OSTEOTOMY AND BONE GRAFT**

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Background : Dentoalveolar ankylosis is described as lack of the vertical growth of the alveolar process and can lead to an unesthetic smile, and occlusal disharmony. The aim of this case report was to present a new treatment protocol for an ankylosed left central and lateral incisor with severe root resorption using a combined surgical orthodontic management protocol. **Methods and materials:** A 19 years old male patient with ankylosed left maxillary central and lateral incisor was referred to orthodontic department with a brief compliance of unesthetic smile. Fixed appliance was applied to maxillary and mandibular archs after the extraction of mandibular premolars. After leveling of teeth, 16*22 inch stainless steel arch wire was applied to both maxillary and mandibular archs before surgery. Dento-osseous osteotomy was applied and bone graft was injected between alveolar bone and nasal base. Occlusion was guided with occlusal splint. Maxillary central and lateral (left) were restored with laminate veneers to ensure esthetic smile. **Results :** After multidisciplinary treatment, the patient's unesthetic smile was corrected. Class 1 molar and canine relationship was achieved and also normal overjet and overbite were obtained. Alveolar bone height was increased. **Conclusion :** The advantage of this dento-osseous osteotomy technique is the acceptable gingival margin of treated teeth. Unesthetic smile also can be corrected.

PP – 37**A NINE-YEAR CLINICAL EXAMINATION OF FISSURE SEALING AND PREVENTION OF OCLUSAL SURFACES IN CARIES PREVENTION**

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Fissure sealing represents profilactical recognized method. Its aim is to prevent accumulation of pathological plaque content in fissure. Aim of this paper is investigation of clinical effective in prevention of caries with composite and GJC fissure sealings. This examination involved 52 patients of both sexes, aged from 6 to 7 with at least two permanent first molar. Selection of teeth was performed according to Rippin criterium. Materials were applied to 141 first molars, and control check up were performed after 15 days, 6, 12, 18 month i 9 year. We applied four different materials to each patient during their 2 visits. The following materials were tested: HeliOSEAL opak i transparent, FISURIT i FUJI VII. The technique and way of application of dressing were performed according to the appropriate instructions. Cvar&Ryge criteria were modified and used for clinical follow up. The results showed that

there was no statistically significant difference between the materials used during the nine-year survey according to all selected modified Cvar & Ryge criteria. Helio seal opak showed the best results in retention, marginal adaptation and surface roughness. Fuji VII had the highest absence of the edge discoloration and secondary caries Composite sealant Helioseal-opak and glas-ionomer Fuji VII showed better clinical results in respect to all tested parameters. Apart from fissure sealing and patient motivation for proper and regularly oral hygiene no other systematic measures for caries treatment were used. This leads to the conclusion that fissure sealing should represent important part in preventive programme.

PP – 38**SOCIOECONOMIC MATERNAL FACTORS AND ORAL HEALTH OF CHILDREN**

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Introduction: The role of parents, especially mothers, to maintain and improve oral health is very important considering that they are the main caregivers during the first years of the children's age. The aim was to determine the association between age, education, employment and income mothers and oral health behavior and caries experience of their children in early school age. Materials and Methods: The study comprised 59 pairs of mother-child (6-7 years old). As a research instrument was used a questionnaire-interview, while the state of oral health of children was determined with dental examination. Pearson's χ^2 test was used to test between different variables. Statistic significant considered values where $p < 0.05$. Results: Caries experience and oral health practices are better in children of mothers of older age (> 30 years) but without statistical significance. Education of mothers has a statistically significant effect on caries experience of children ($p=0,000$). Oral health habits of children of mothers of higher education are at the higher level but without statistical significance. Employment and income of mother were not influenced to a significant extent on oral health habits and caries experience of children. Conclusion : Caries prevalence is high, oral hygiene habits are very bad and the consumption of sweets is common at all the examined children, regardless of age, level of education, employment and mother's income.

PP – 39**PARENTS RESPONSIBILITIES FOR ORAL HYGIENE MAINTENANCE IN PRESCHOOL CHILDREN**

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Introduction: Good, stable and regular oral hygiene maintenance habits in the early childhood guarantee reduced incidence of caries in adolescence. Objective: The aim of this research was to determine how responsible are parents in transmitting positive habits in regard to teeth brushing to their children. Methods: The study included a total of 190 respondents (parents of 3-5 years old children). Specifically designed questionnaire for this type of research was used in this study. Parents were given a detailed explanation about the purpose of research. Results: A total of 10% of parents

said that they have started to maintain oral hygiene right from the birth of a child. More than 60% of them bought their children toothbrushes only when all the primary teeth came out. 58.9% of parents of children in this age group stated, that their children brush their teeth themselves. Only 38.4% of parents stated that their children wash their teeth regularly and daily, in the morning and before bedtime. A third of parents control how the children brushed their teeth while 46.3% of them take the kids to the dentist only when they have a toothache. Conclusion: Children in preschool age do not know how to brush their teeth themselves because of their undeveloped manual skills. It is very important to clarify this fact to parents, as well as emphasize to the parents that they have the greatest responsibility when the oral health of their children is concerned. Key words: children, oral hygiene, health

PP – 40**EFFECTS OF CPP-ACP/CPP-ACFP ON ORAL-HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH SALIVARY GLAND HYPOFUNCTION**

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Background: The purpose of this study was to assess the influence of casein phosphopeptide-amorphous calcium phosphate (CPP-ACP) and casein phosphopeptide-amorphous calcium fluoride phosphate (CPP-ACFP) containing pastes on quality of life among individuals with salivary gland hypofunction. **Methods and Materials:** The study comprised 30 patients of both genders, aged 15-54 years, who suffered from medical condition associated with xerostomia, had symptoms of dry mouth for longer than 6 months, and the stimulated salivary flow rate lower than 0.7 ml/min. The included patients were randomised into three groups (n=10): 1) CPP-ACP, 2) CPP-ACFP, and 3) 0.05% NaF to be used two times a day according to the manufacturers' instructions, supplementary to their normal oral hygiene. The same oral hygiene devices (ultra soft tooth brush, dentifrice with 1450 ppm F) were provided to all participants. Measurements of the severity of dry-mouth symptoms were made with the use of the xerostomia inventory and the Oral Health Impact Profile at baseline and after 6 months use of CPP-ACP, CPP-ACFP or 0.05% NaF. Wilcoxon test was used in the statistical analyses. **Results:** During the 6-month experimental period, reduction of subjective feelings of dry mouth has been noted in CPP-ACP and CPP-ACFP groups. Application of CPP-ACP, CPP-ACFP and 0.05% NaF contributed to decrease of burning mouth symptoms. However, these differences were not statistically significant ($p>0.05$). **Conclusion:** The application of CPP-ACP and CPP-ACFP containing pastes can partly improve the oral-health-related quality of life in patients with salivary gland hypofunction.

PP – 41**IDENTIFYING LEVEL OF ORAL PREVENTION KNOWLEDGE AMONG MEMBERS OF GOVERNMENT**

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BACKGROUND: Dental and oral diseases, generally, represent mass non-communicable diseases with common risk factors, where approach of prevention is directed toward their identification and controlling. To what extent are the legislative and executive authorities aware of the importance of

oral health and it's vulnerability in the state and city community, will depend on the actions that profession must take in order to introduce procedure of legal regulation and funding of prevention programs. **METHODS AND MATERIALS:** This study included respondents from the legislative and executive powers. The sample was 60 respondents. The survey was anonymous and the questionnaire was in written form. Statistical significance was analyzed by X2 test. **RESULTS:** The 40% of respondents believe that the dental disease can't be prevented due to genetic predisposition and the 60% of the study sample are not familiar with the ability to estimate the caries risk before the onset of disease. Yet, 80% of respondents are aware that parents don't have satisfying level of oral health education and even 100% agree that it is necessary to invest in programs that prevent, opposite to the sector for the treatment of diseases. **CONCLUSION:** There are certain financial and personnel ability to cover the minimal preventive program that would provide the expected improvement, but it require major shifts in the organization of the existing one. This requires the direct involvement of the whole community.

PP – 42**FACTORS THAT DETERMINE DENTAL FEAR AND ANXIETY PREVALENCE EXPRESSION IN CHILDREN**

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Background Dental fear and anxiety (DFA) presence in children represents special psychological entity that is important for several reasons. The most important are dental office attendance/avoiding, dental treatment planning, providing and its prognosis, as well as dental, oral and health of entire organism. In this paper the most important factors that have influence on DFA presence expression in children will be presented and briefly explained. Materials and methods The DFA prevalence expression in children aged 9 to 12 years was investigated considering their age, behavior, cognition and type of observer. Results This expression is due to direct factors (mostly related to child itself) as well as indirect ones (related to parents, dental health care personnel /DHCP/ and environment for example). Children understand, react and cope differently to the challenges of dental stressors (stressors at all) mostly due to their age and level of psychological and cognitive maturity. Indirectly, the DFA presence and expression in children depend on the way how the observers (parents, dentists) understand and evaluate them. Conclusion The reasons for DFA presence expression in children are several, and only observing and understanding of all of them (each one and altogether) is the way to fully explain this phenomenon. Keywords Dental fear and anxiety in children, presence, expression, evaluation.

PP – 43**TREATMENT OF TRAUMATIC EXTRACTED TOOTH – A CASE REPORT**

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Introduction: Trauma to the oral region occurs frequently and comprises 5% of all injuries for which people seeking a treatment. Traumatic extractions of teeth are rare and represents serious

teeth injuries that most affected the upper central incisors. The success of replantation depends on many factors: mainly from the time that has past from the avulsion of the tooth and the way to preserve the one. Case report: An 12- year-old girl was referred to the Clinic of Paediatric and Preventive Dentistry, School of Dental Medicine University of Belgrade with traumatic extraction of permanent upper right central incisor (11), half an hour after the accident. Extracted tooth 11 with empty alveola was diagnosed based on clinical and radiographic evidence. Immediate treatment involved the tooth replantation which has been reinforced by composite splint. After a seven days of injury, root canal debridement was made to prevent root external resorption. During the next two months, root canal was filled by the Ledermix® and sterile paste of Ca(OH)₂ on 30 days. Two months later tooth 11 was definitely endodontically treated by the Acroseal® and gutta percha poens. One year, after the end of treatment, clinical and radiographic examinations revealed no signs of pathology ie. root resorption and the patient was satisfied with her aesthetic appearance. Conclusions: Analysing the obtained results, it can be concluded that an appropriate treatment plan included fast dental health care, which means a quick replantation of avulsed tooth during next 30 minutes after the injury, represents the most important factor for a good prognosis.

PP – 44**THE CHARACTERISTICS OF SELF-REPORT MEASURES FOR EVALUATION OF DENTAL FEAR AND ANXIETY PRESENCE IN CHILDREN**

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Background Self report measures for dental fear and anxiety (DFA) presence evaluation in children are the most used psychometric instruments for quantification of these clinical entities worldwide. It is essential to determine most accurately as possible the presence of DFA in children in order to set the dental treatment planning according to these assessments. In this paper we want to present the good and bad sides of self-report measures usage in evaluation of DFA presence in children. Materials and methods The characteristics of self-report measures for DFA presence evaluation in children aged 9 to 12 years were investigated considering their usage limits. Results Self-report measures for DFA presence evaluation in children should have proper psychometric characteristics. It is essential to determine them before the first usage due to different language,culture, customs and other from the original ones, and not just to apply scales without this verification. These instruments are mostly designed as questionarries and easy for understanding and answering, but with limited application in controlled environment and younger individuals. It is also allowed to fill these scales in the name of the child examinees (parent versions). This approach has also many inequalities mostly linked with subjective judgment of child behavior by their parents in uncontrolled environment. Conclusion The usage of self-report measures fo DFA presence evaluation in children should be consider most seriously considering its usage limits. Keywords Dental fear and anxiety in children, psychometric characteristics, parent versions of scales.

PP – 45**EVALUATION OF BOND STRENGTH , ROUGHNESS AND MICROHARDNESS OF DIFFERENT COMPOSITE RESINS : IN VITRO**

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Aim : The aim of the this study was to compare the surface roughness , microhardness and bond strength to dentin of a posterior composite resin , Imicryl Novo Compo N , with four different posterior composite resins ; Voco Grandio , Swisstec , 3M ESPE Filtek Z250 , Charisma Classic .
Material and Method : Ten specimens of each composite groups prepared for roughness and microhardness tests and were polymerized under a polyester strip for manufacturer's instructions. For hardness test, Vicker's hardest test used and for the surface roughness test, surface profilometer was used. For test the bond strength of dentin ; the occlusal surfaces of fifty non-carious, human molar teeth were abraded to be perpendicular to the long axis to obtain a flat dentin surface . Resin-dentin bonded specimens were prepared using a self-etch adhesive . Bond strength tests were measured using a universal testing machine. **Result :** There were not statistically significant differences in roughness, microhardness and bond strength of dentin among composite resins. ($p>0.05$) According to results Filtek Z250 and Novo Compo N showed highest bond strength and lower roughness values. However , Voco Grandio showed the highest surface microhardness value. **Conclusion :** All of the physical tests in 3M ESPE Filtek Z250 composite material , similar to other studies , our study has achieved the best results. Imicryl Novo Compo N newly developed composite material, however, be considered as a composite material promising for the future.

PP – 46**EVALUATION OF INFLAMMATORY MARKERS IN RADICULAR PULP OF PRIMARY TEETH WITH CARIOUS PULP EXPOSURE**

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Background: The aim of this study was to evaluate radicular pulp inflammation by measuring inflammatory marker levels in order to determine whether or not vital pulp amputation is an appropriate treatment for teeth with carious exposed pulp and hemostasis at the canal orifices.
Methods and Materials: A total of 60 primary molar teeth in 52 children aged 5-9 years were included in the study. Group A (n=20) consisted of teeth with carious pulp exposure and an indication for vital pulpotomy based on the criteria of hemostasis at canal orifices within 5 min; Group B (n=20) consisted of teeth with irreversible pulpitis; and Group C (n=20) consisted of teeth

with healthy pulp tissue. Pulpal blood samples were taken from canal orifices, and IL-1 β , IL-2, IL-6, IL-8, IL-10, TNF- α , PGE2 levels were analyzed by ELISA. Results: Levels of all inflammatory markers were significantly higher in Group B than Group C. IL-1 β , IL-2, IL-8, IL-10, TNF- α and PGE2 levels were also significantly higher in Group A than Group C, and IL-2, IL-6, IL-8, TNF- α and PGE2 levels were significantly higher in Group B than Group A. Conclusion: Based on these results, it was concluded that the radicular pulp of teeth indicated for vital pulp amputation based on clinical criteria and achievement of hemostasis at the canal orifices was in an early stage of acute inflammation. However, further studies are needed to evaluate how the success of vital pulp amputation is affected by pulpotomy materials and medicaments that can resolve acute inflammation in its early phase.

PP – 47**AN AESTHETIC TREATMENT OF A TOOTH WITH MICRODONTIA USING SILICONE TECHNIQUE: A CASE REPORT**

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An aesthetic treatment of a tooth with microdontia using silicone technique: a case report
Background: Microdontia is a dental anomaly of teeth which is described as being smaller than normal size. This case report presents a permanent maxillary left central incisor tooth with a microdontia that was aesthetically treated by using silicone technique. Methods and Materials: : Microdontia of the permanent maxillary left central incisor tooth was observed in the intraoral and radiographic examination of the 9-year-old female patient. The aesthetic treatment of the tooth using a silicone mold was decided. The impressions of maxillary and mandibular dental arcs were taken by using alginate to create plaster models, and then, the models were mounted on an articulator. The indirect restoration of the left central incisor tooth on plaster model was completed with a soft model wax, and the second impression was taken by using c-silicone to create a negative mold for the composite restoration of left central incisor tooth. Results: Main restoration was completed by using the silicone mold. Planning the restoration at the laboratory and using a silicone mold allowed to make a detailed and aesthetic restoration. Conclusion: Technique that is used in microdontia have significant advantages. It is not only easy to use but also has better aesthetic results and saves time in clinic. Keywords: impression, microdontia, silicone

PP – 48**CORRELATION BETWEEN THE DENTAL CARIES SOCIAL DETERMINANTS**

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Correlation between the dental caries social determinants in children from 4 to 12 years Liliya Doichinova, Peter Bakardjiev* Department of Pediatric dental medicine Faculty of Dental

Medicine - Sofia Introduction: The general health of children, including the health of the oral cavity are associated with the social variables in the family. The environmental factors can have a major impact on the development of carious process in one child. **Aim:** This study aims to evaluate the relationship between dental caries and influence of social factors in children from 4 to 12 years of age. **Material and Methods:** The study included 200 children from schools and kindergartens in Sofia. Was conducted targeted medical history, taking into account demographic data- sex, age and socio-economic status and education level of parents, visiting a dentist, food preferences and health habits of the child. The prevalence of dental caries was registered with the index DMFT. **Results:** The results show that in 75% of children the incidence of tooth decay is over 4, at 18% were up to 4 and 7% are 2 DMFT. 63% of the children are from families with an average social status, 30% are low and 7% with higher social status. Most children consume a frequently throughout the day low molecular weight carbohydrates and fizzy drinks such as is reduced intake of milk and dairy products, fruits and vegetables. The results are significance ($p < 0.001$). **Conclusion:** The prevalence of dental caries is directly related to social variables examined in the family.

PP – 49

ORAL HYGIENE IN CHILDREN WITH DIFFERENT SOCIAL STATUS

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Oral hygiene in children with different social status Peter Bakardjiev, Liliya Doichinova *
Department of Pediatric dental medicine Faculty of Dental Medicine - Sofia Introduction: The oral health is linked to the knowledge, motivation and the level of oral hygiene of each individual. It reduces the risk of dental caries. Oral hygiene care is the most effective method of preventing it. **Aim:** The study aims to assess oral hygiene status of students of different social status, their health awareness for oral hygiene and skills in brushing. **Material and Methods:** The study included 200 children aged 4-12 years. They assess the oral hygiene, health knowledge for its maintenance through a short questionnaire and skills in brushing by applying visual index Simmons. Oral hygiene status was determined by the index of Greene & Vermillion. **Results:** When 65% of the children is recorded unsatisfactory oral hygiene, at 22.5% it is good, and the rest 12,5%, it is satisfactory. Most children have built correct oral hygiene skills. They are of different social groups, with a greater proportion of those with low social status. It is striking that 83.5% of children wash only vestibular surfaces of teeth, 9% vestibular and occlusal and only 7.5% included lingual surfaces. **Conclusion:** Poor oral hygiene, lack of parental control and appropriate health knowledge with frequent consumption of carbohydrates in addition to socio-demographic characteristics are the main risk factors for the development of caries in surveyed children in Sofia.

PP – 50**EVALUATION OF TEETH DEVELOPMENT OF UNILATERAL CLEFT LIP AND PALATE PATIENTS IN MIXED DENTITION****Onur Gezgin¹, Murat Selim Botsali²***¹Necmettin Erbakan University, Faculty of Dentistry, Department of Pediatric Dentistry; ²Selcuk University, Faculty of Dentistry, Department of Pediatric Dentistry; Konya, Turkey*

Background:The cleft lip and palate deformity becomes before the 4-8th week of intrauterin life by the factors that affect embryo's grow up. Orofacial clefts, one of the most common craniofacial deformities. **Method and Materials:** In our study, 25 patients with mixed dentition unilateral cleft lip and palate examined CBCT. This tomography images obtained with a high screen resolution medical images on the computer control system (MIMICS 15.0 and SOLIDWORKS 2014) transferred to the three-dimensional volumetric images are obtained. This three-dimensional images cleft on the sides of the teeth in the crown and root growth measured by mesiodistal length and crown/root rate with volume and area. These measurements determined as a control group compared with the healthy segment. **Results:** There was no statistically significant difference in the volume, surface area, MD size and crown / root ratio of central incisor, canin, first premolar and second premolar teeth within defect and healthy segment but it was found that there was a significant difference between volume, surface area, MD size and crown / root ratio the lateral teeth in each group. When the volume and surface area of teeth within both segment compared, was observed a high correlation between the two criteria. **Conclusions:** In particular, patients with cleft lip and palate, obtaining a solid model of the tooth structure by using these programs, tooth development can be examined in more detail, made more reliable diagnosis and treatment planning.

PP – 51**ADAMS-OLIVER SYNDROME. CASE REPORT****Fatma Demiray, Emre Korkut, Onur Gezgin, Yağmur Şener, Büşra Bostancı*****Necmettin Erbakan University, Faculty of Dentistry, Department of Pediatric Dentistry; Konya, Turkey***

Background Adams-Oliver Syndrome, has been described by Adams and Oliver in 1945. Original definition, along with aplasia cutis congenital syndrome and limb defects, has neurological and cardiological problems. In the first description, genetic defect passes variable autosomal dominant pattern. Afterwards the autosomal recessive and sporadic cases were published. In this case report, we present a case diagnosed with the syndrome and we also discuss the medical and dental findings of patients with the syndrome reported in the literature. **Method and Materials** 11-year old male patient complained of mobile teeth admitted to our clinic. He was noted to have characteristic view with distal-phalanx and nail hypoplasia of his hand and feet with occipital scalp defect. We consulted to genetics because of these findings and learned that he has the Adams-Oliver Syndrome. The patient has some orofacial manifestations including high-narrow palate, fissured tongue, crowding, dysmorphic facial features, facial asymmetry, deep-philtrum, delayed eruption, class III malocclusion. The extraction of mobile deciduous teeth, restoration of caries and also oral hygiene motivation was made. Then, the

patient was referred to orthodontics. Results Pediatric Dentistry is part of work team since it offers an improvement in the dental and oral circumstances, it controls risks factors to avoid caries formation, as well as deleterious habits or malocclusion. Oral and dental treatment of Adams-Oliver syndrome requires previous multidisciplinary evaluations which take into account preventive measures. Conclusions Adams-Oliver syndrome represents are rare congenital alteration, insufficiently documented in scientific literature. This shows the need to document news cases.

PP – 52**ENAMEL PEARL AND CENTRAL INCISOR RETENTION – A CASE REPORT**

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Introduction : Etiology of enamel pearls is associated with differentiated ameloblasts presumably leading from residues of Hertwig's epithelial sheath. They are usually located in molar regions, most often on second and third molars, while their presence in the region of anterior teeth is seldom. In this case report we will present a case of enamel pearl in the region of right central incisor. **Case report :** Female patient, 9 years old, reported to the Clinic for paediatric and preventive dentistry in Belgrade because of delayed eruption of right central permanent incisor. After clinical examination and X-ray diagnostics were performed, it was concluded that the cause of the incisor retention was oval formation, approximately 2 mm by 3 mm , with bone-type x-ray density, located on the right incisors incisal edge, with cyst-like formation around it. Surgical intervention was scheduled, and performed. Flap was lifted in a minimal-invasive way, small portion of alveolar bone was removed to gain access, and enamel pearl was removed. Cyst was enucleated, and tunnel preparation was made to facilitate eruption of the incisor. Enamel pearl and cyst tissue were sent to PH analysis, which confirmed clinical diagnosis. **Conclusion :** Presence of enamel pearls in the anterior teeth region can lead to their retention, or delayed eruption. Early detection and proper diagnostics, as well as appropriately timed intervention are important in treatment of these cases.

PP – 53**ORAL HEALTH STATUS IN CHILDREN WITH DIABETES MELLITUS IN MONTENEGRO**

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Aim: The main goal of this research is to determine the state of oral health of children with diabetes mellitus type I in Montenegro. **Methods:**For this research was obtained approval of the Ethics Committee of the Clinical Center of Montenegro in Podgorica. Informed parental consent was gained for every child.This study includes 177 patients aged 10 to 15 years, of both sexes, divided into two groups; the first group D, 87 of them, made up of children with diabetes mellitus type I. Second, the control group K, 90 of them, representing the healthy children. The status of the tooth is registered with the Klein Palmer system. In order to determine the oral hygiene applied the Plaque Index by Silness-Loe and Index of Tartar by Green, and the clinical assessment of the gingiva was applied using Silness-Loe's index. **Results:** There were no statistically significant differences in the mean values of DMFT index between the diabetics and non-diabetics childrens. However the mean Plaque index and the mean Index of Tartar was significantly higher in diabetic subjects than non-diabetics ($p < 0.05$). The

children with type I DM had significantly higher mean values of GI compared with the non-diabetic subjects ($p < 0.001$). Gingival bleeding upon probing was most frequent in the percentage of the diseased population, while the percentage of healthy periodontium forefront in the control group ($p < 0.001$). Conclusion: Children with diabetes mellitus have worse oral health compared to healthy children of the same age.

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DENTAL CARIES STATUS OF CHILDREN WITH AND WITHOUT ASTHMA

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Introduction Asthma is a chronic inflammatory lung disorder in which many cells and cellular elements play a role. **Objective** The aim of this study was to determine the dental status of asthmatic and non asthmatic children. **Methods** In this study, participants were divided into two groups: the experimental (children with asthma) and the control (children without asthma) group. Based on symptoms of the asthma and possibility for effective control of disease, the experimental group was divided into two subgroups (Good Controlled Asthma and Partly Controlled Asthma) children. The oral examination of the teeth was done by the use of probe and mouth mirror under artificial light. **Results** The study population consisted of 136 children aged from 6 to 16 years (10.5 ± 3.3). 28.6% of participants in the experimental group had all healthy teeth compared to 44.5% in the control group ($p = 0.001$). There was no significant difference in value of DMFT between asthmatic (3.30 ± 4.44) and control children (2.51 ± 3.35). Asthmatic children (1.52 ± 3.12) had a high prevalence teeth affected by caries compared to the control group (0.63 ± 1.44) ($p < 0,05$). **Conclusion** It is evident that asthmatic children have higher prevalence of dental caries compared to no asthmatic children, whereas the prevalence of dental caries was similar in children with good and partially good asthma control. **Keywords:** children; asthma; caries; epidemiology

PP – 55

DENTAL CARIES EXPERIENCE AMONG 12-YEAR OLD CHILDREN OF THE REPUBLIC OF MACEDONIA

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Aim: The aim of this study was to assess dental caries among primary school children (seventh grades) in Eastern, Southeast and Vardar Region of the Republic of Macedonia. **Methods:** In 2013, during this cross-sectional study, 608 primary school children (born in 2000/01), from seventh grades were randomly selected from 11 central and 17 regional primary schools. Participants' dental status was evaluated using the 1997 World Health Organization caries diagnostic criteria for Decayed, Missing or Filled Teeth (DMFT) by 2 calibrated examiners. Data obtained during the survey were stored in a database (SPSS 13,00 and tested for possible statistically significant differences using the Kruskal-Wallis

ANOVA test. A p value ≤ 0.05 was considered statistically significant. Results: The total number of children in the sample was 608, comprising 293(48.19%) females and 315(51.81%) males. The results of this survey showed that the DMFT score of children from all three regions was 3.04, while in the Eastern region was $3,46 \pm 2,9$ for the permanent dentition. Average DMFT score of the 12 year-old children from the southeast region was $1,94 \pm 2,49$, while for 12 year-old children group from the Vardar region it was $2,75 \pm 2,56$. Kruskal-Wallis ANOVA test by ranks gave a p-value of $p = 0,000$ $p < 0,01$. Significant caries (SiC) index was $6,27 \pm 2,2$. The prevalence of caries-free children was 25.41%. Conclusions: Dental caries experience was seen to be high statistically significant among 12-year-old school children (seventh grades) from Eastern, Southeast and Vardar Region of the Republic of Macedonia.

PP – 56**TWIN MESIODENS. A CASE REPORT.**

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Introduction: A supernumerary tooth can be found in almost any region of the dental arch but the most common appears in the maxillary midline is called a mesiodens. Treatment depends on the type and position of the supernumerary tooth and on its effect on adjacent teeth. The etiology is not completely understood. One theory suggests that the supernumerary tooth is created as a result of a dichotomy of the tooth bud. Another, the hyperactivity theory, which suggests that supernumeraries are formed as a result of local hyperactivity of the dental lamina. Heredity play a role in the occurrence of this anomaly. **Case report:** Pacient 7 years old was directed to Clinic of Dentistry of Vojvodina because of the oddities of the eruption of the first permanent central incisors. Clinical examination revealed two mesiodens, fully sprung up in the area of central incisors in the upper jaw. During radiographic examination were diagnosed the presence and correct position of the permanent central incisors. After consulting with orthodontis both mesiodens were extracted. It is expected that both permanent central incisors will spontaneously erupt because their phisiological root development is not completed yet. **Conclusion:** The specificity of this case lies in the fact that in about 80 % of the cases there is only one mesiodens and at 20% is present two or more mesiodens , and its appearance in the mouth is only in 25% of cases. It is very important multidisciplinary approach to therapy.

PP – 57**SPACE SUPERVISION AND ERUPTION GUIDANCE WITH A REMOVABLE APPLIANCE**

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Background: Management of space problems is an important factor in the mixed dentition patients with hypodontia. The aim of this case report is to describe a removable appliance therapy in the management of median diastema, due to agenesis of lateral incisors, with guidance of eruption. **Subjects and Methods:** A 9-year-old male patient referred to our clinic with a chief complaint of large spaces between the anterior teeth. Radiographic examination demonstrated agenesis of maxillary

lateral incisors and left second premolar. Due to the missing lateral incisors, upper permanent central incisors erupted distally which causes a large median diastema. Treatment plan included extracting primary canines to guide permanent canines to erupt more mesially. After the extractions, a removable appliance with mesio-distal springs was implemented to move the central teeth towards midline. Springs were activated only per mouth in order not to apply excessive force to the teeth with open apices. After the diastema, was closed, the patient started to use the appliance as a retainer. Results: After 3 years follow up, clinical and radiological investigations showed that the median diastema closure remained stable, and permanent canines erupted mesially. Conclusion: In mixed dentition, early intervention with simple removable appliance provides successful treatment results, met the patient's basic aesthetic needs and reduce the need for comprehensive fixed appliance treatment.

PP – 58**DETERMINATION OF THE PARENTS KNOWLEDGE ABOUT DENTOALVEOLAR TRAUMA: A SURVEY STUDY**

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Background Dentoalveolar traumatic injuries are becoming the most important public health problem, and occur frequently due to adverse incidents such as falls, impact sports, and fights. Parents' knowledge about managing the dentoalveolar traumas has an essential role in the prognosis of traumatized teeth because early intervention can enhance the regenerative capacity of traumatized teeth. This study was to evaluate the knowledge of parents with different socio-economic status levels regarding the emergency management of traumatic injuries. Materials and Methods The 501 parents were included in this study (53.7% female, 46.3% male; age 37.06±8.17 years). After obtaining the consent, they filled 18 items questionnaire containing both correct and wrong answers related to emergency management of avulsed teeth. Collected data was statistically analyzed with pearson correlation test. Result As 47 percent of participants couldn't get any information about dental trauma, 23% was satisfied with their knowledge, 90.4 told that education was important and 68% wanted to attend in training. The participants were satisfied with the knowledge of dental trauma, and a positive correlation has been found between the correct answers and their answers to the question of when and how the traumatic teeth should be taken to the dental office ($r=0.109$ $p<0.05$; $r=0.11809$ $p<0.01$). Conclusion Most parents were lacking in the knowledge of emergency management of traumatic injures. The need for educational programmes with the help of parents, through leaflets, posters, presentations and media campaigns is suggested, and also this approach will increase the success of treatment. Key words. dentoalveolar trauma, parents

PP – 59**ORAL HEALTH ATTITUDES AND BEHAVIORS AMONG DENTAL STUDENTS**

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Background The role of education level in determining oral health attitudes and behaviors has been verified. In this context, dental students could be considered more fortunate. The aim of this study was to evaluate the oral and dental health care and habits of the dental students. Methods and Materials One hundred and eighty six dental students of Inonu University in Malatya, Turkey (49.5% females,

50.5% males), aged 21.43 ± 3.36 , from different academic years participated in this study. The clinical examinations of the students were performed and DMFS scores were recorded. The students defined their academic years, tooth brushing habits, the usage of dental floss and rinse solution, and snacks consumption. Spearman's correlation and Mann-Whitney U tests were used for statistical analysis. Results Tooth brushing and flossing habits of female students showed a significantly higher score than males ($p < 0.05$). There was a positive correlation between grade and using tooth floss ($p = 0.001$ $r = 0.235$), and a negative correlation between academic years and dental caries number ($p = 0.0001$ $r = -0.343$). There was also a significant positive correlation between using tooth floss and rinse solution (0.002 $r = 0.228$); snacks consumption and using tooth floss ($p = 0.031$ $r = 0.159$); tooth brushing habits and using rinse solution ($p = 0.027$ $r = 0.162$). Conclusions Female students have shown better dental care behavior than male students. With the advancement in dental education, oral care consciousness of dental students has improved. Keywords: Oral health behavior, dental attitudes, dental students

PP – 60**FREQUENCY OF PREFERING RESTORATIVE MATERIALS IN PEDIATRIC DENTISTRY: A RETROSPECTIVE STUDY**

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Background: Several dental restorative materials are available in pediatric dentistry nowadays. The aim of this study is to evaluate the relative utilization of amalgam, glass ionomer cement, compomer and composite in children those were treated between 2011-2015 years. This study was accomplished by specialist dentists in the field of pediatric dentistry. **Material and Methods:** record scored and collected about the patients in automation system were used for this study. During the period 2011-2015, 39457 restorations have been restored in 26829 children by pediatric dentists of Samsun Ondokuz Mayıs University found in Samsun, Turkey. Ages were classified into the following three groups (0-5, 6-9, 10-12 years old). The smallest group was based on 650 patients, which were chosen randomly. Restoration numbers of each amalgam, glass ionomer cement, compomer and composite restorations were recorded from the automation system in all of the groups. **Results:** The ratio of using glass ionomer cement was higher than the other restorative materials in 0-5 and 6-9 aged groups and that was (34.6%). However, in 10-12 aged group, composite restorations were used significantly higher and that was (65,5%). Amalgam was used rarely about (14%). **Conclusion:** Several restorative materials are used in children patients. Materials are selected according to age, cooperation, ease of use by pediatric dentists.

PP – 61**EVALUATION OF THE EARLY CHILDHOOD ORAL HEALTH IMPACT SCALE IN A GROUP OF TURKISH PEOPLE**

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Background The assesment of life quality has become an important part of evaluating health programs. The Early Childhood Oral Health Impact Scale (ECHOIS) was first developed and

validated to determine the impact of oral health problems and related treatment on the quality of life in preschool children. **Methods and Materials** The ECOHIS was answered by 126 parents/caregivers of preschool children (meanage 4.7 ± 0.62 ; 42.9% girl + 57.1% boy). ECOHIS includes 13 questions. 9 questions are about parents' perception of the impact of oral health on the children (CIS) and 4 questions are about the impact on the family (FIS). Responses are coded according to a scale with five quantifiable options (from "never" to "very often and not know"). The clinical examination of the students was performed and dmfs scores were recorded. Spearman's correlation and Mann-Whitney U tests were used for statistical analysis. **Results** There were no statistically significant differences between genders. In the child impact section, the parents most frequently reported "pain in the teeth, mouth or jaws" (8.5%). In the family section, "feelling guilty" was reported most frequently (8.5%) by parents. The mean of dmfs scores were 13.26 ± 9.23 . The correlations between the results of ECOHIS and dmfs scores were positive ($p=0.006$, $r=0.244$). There was a similar positive correlation between CIS and FIS ($p=0.0001$, $r=0.628$). **Conclusions** Poor oral health of children negatively affects their life quality and families. **Keywords:** ECOHIS, quality of life, pre-school children

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THE ASSESSMENT OF CHILDREN'S ANXIETY IN THE DENTAL CABINET

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Background: The key to success during dental interventions in patients of preschool and school age is the ratio of mutual trust between doctor and patient, which is related to the professional capacity of the dentist and to his assessment and management of children's anxiety. **Purpose:** To assess anxiety in children who were presented for treatment in the dental cabinet. **Materials & Methods:** There were picked up randomly in study 300 children of the city and rural zones nearby. Children aged 3-10 years old were presented in the dental clinic university and three private clinics. There were more females than males. Based on a questionnaire that was filled by children in collaboration with their parents, before the examination, was taken data on the fear of needles, noise, dentist's outwear, the age of the first visit at the dentist, dental periodic check-up-s and the level of cooperation of the child with the dentist. Children were divided into three groups: Children who represented a state of noted anxiety, the dental anxious and those who did not represent any particular emotional state. **Results:** Dental anxiety as a specific phobia at the dentist, is almost always present on children of preschool and school age. A part of children were very anxious before their visit in the dental cabinet. Girls were more anxious than boys. **Conclusions:**

PP – 63**ASSOCIATION OF SOCIO-ECONOMIC STATUS WITH ECC AMONG 3- 5 YEARS OLD CHILDREN OF TIRANA CITY**

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Aim: Determine the prevalence and severity of ECC in children 3-5 years old in the public kindergartens of the city of Tirana and evaluate the association between socio-economic status and early childhood caries. **Methods:** This cross-sectional study was conducted for 3 years. 4 out of 42 public kindergartens in Tirana were randomly selected. Children 3-5 years old (n=904) were included in this study. Information was obtained through structured questionnaires that were completed by parents and intraoral examination of children. Screening, diagnosis and recording of the subjects in this study were obtained according to WHO criteria. The data collected were statistically analyzed. **Results:** The prevalence of ECC in children 3-5 years old in public kindergartens in Tirana was 91% (823/904). Most of the children (62.1%) suffered severe ECC with a mean deft 6.45 (SD±4.25). The results showed significant association between early childhood caries and socio-economic status. **Conclusions:** The prevalence of ECC and the mean deft are very high in preschool children of Tirana. A positive correlation is found between socio-economic status and ECC. To prevent ECC, some preventive strategies should be drawn up as soon as possible. For preschool children who live in households with low income level, should be offered better opportunities for access to public dental service.

PP – 64**ASSESSMENT OF PERIODONTAL HEALTH IN TYPE 1 DIABETES MELLITUS SCHOOL CHILDREN AND ADOLESCENTS**

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Background: The association between diabetes mellitus and periodontal disease in adults is well established in prior literature. The aim of our study was to evaluate the influence of type1 diabetes mellitus (T1DM) as well as of metabolic control of the disease, expressed by the mean values of glycated haemoglobin (HbA1c), on the periodontal health of diabetic children and adolescents. **Methods:** The study included 90 subjects 12-18 years old. A total of 90 subjects were examined. The study group consisted of 60 patients diagnosed with T1DM, divided into two sub-groups: subgroup A (HbA1c ≤ 7%) and subgroup B (HbA1c > 7%), each consisting of 30 patients. The duration of the disease, age and average HbA1c were obtained from their medical records. The control group consisted of 30 healthy individuals of the same age with no systemic diseases,

as determined by medical history. Periodontal health was evaluated according to the following indexes: Silness-Löe plaque index and Community Periodontal Index (CPI). Results showed that the average plaque index value for the diabetic patients was 1.6, which was significantly higher ($p < 0.01$) than for the controls (0.87). Patients with better metabolic control showed significantly lower plaque index value. CPI categories had different distributions among groups, with $CPI_0=16,67\%$, $CPI_1=40,0\%$, $CPI_2=36,7\%$, $CPI_3=6,7\%$ for the controls and $CPI_0=8,3\%$, $CPI_1=23,3\%$, $CPI_2=31,7\%$, $CPI_3=36,7\%$ for diabetics. In conclusion, according to the results obtained, T1DM may considerably affect periodontal health in children and adolescents.

PP – 65**CLINICAL ASPECTS OF DECIDUOUS AND PERMANENT TEETH DISCOLORATION**

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Background: Color and the shape of teeth are an integrated part of facial aesthetics which plays very important role in the complex social, cultural and psychological interaction. The aim of this review is to present various causes of deciduous and permanent teeth discoloration, their classification and treatment options. **Material and method:** An extensive research on PubMed data base for clinical and in vitro studies, published between 1969 and 2015 was performed, using different combination of key words: tooth discoloration, extrinsic discoloration, intrinsic discoloration and internalized discoloration. Independent screening of 63 unique titles identified 40 studies that meet the eligibility criteria. **Results:** All studies divided tooth discoloration into three main types, intrinsic, extrinsic and internalized. The authors suggested that an understanding of the mechanisms behind tooth staining is of relevance to the general dental practitioner. Also, understanding the mechanism of stain formation associated with cationic antiseptics and metal salts, notably stannous fluoride and advising patients in respect of the more chromogenic dietary fluids may help prevent or limit tooth staining. This review offers a new classification based on etiological background and clinical appearance of tooth discoloration, considering it more suitable for the proper selection of a treatment. **Conclusion:** It is important that doctors of dental medicine understand the background of different causes of tooth discoloration so, in cases with aesthetic problems, they are able to offer proper information for the patients with the aim to include them in the treatment planning.

PP – 66**CARIES EXPERIENCE OF 4-5-YEARS-OLD CHILDREN FROM BANJA LUKA, B&H**

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BACKGROUND: Caries in primary dentition represents a public health problem that continues to affect babies and preschool children worldwide. **AIM:** The aim of this study was to determine

information and data about dmft index at 4-5 years-old children in the municipality Banja Luka. DESIGN: A cross-sectional study was conducted on 177 children, aged 48 to 60 months from kindergartens in Banja Luka, B&H. The studied sample was born, raised and lived in an area with a low level of natural fluoride. Subjects were examined in kindergartens according to WHO Oral health surveys – Basic methods. Criteria for including the child in the study were informed consent of parents and no systemic disease of the child. Oral status of deciduous teeth was described by dmft index. RESULTS: Results showed that the mean dmft index was 5.03 and there were no statistical difference between boys and girls. Only 39 (22.03%) of examined children were caries free. 80 (45.20%) of examined children had 6 and more carious teeth. There were no children who had teeth with fissure sealant. 77 (43.50%) of children had carious upper molars and 84 (47.46%) of them had carious lower molars. 39 (22.03%) of children had carious upper incisors. CONCLUSION: This study shows that we are still far away from the goals set by WHO for 2020. In the future all known preventive measures must be implemented more effectively and made accessible to all children, if further improvements in oral health should be achieved.

PP – 67**A SURVEY ABOUT COMPREHENSIVE DENTAL REHABILITATION UNDER GENERAL ANESTHESIA AT A DENTAL HOSPITAL IN TURKEY**

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Background Comprehensive dental rehabilitation under general anesthesia (DRGA) is a treatment option for young children, which is difficult to manage their behaviors, and for mental and physical disabled children. This survey's purpose was to describe the characteristics of the children receiving comprehensive DRGA at a dental hospital in Turkey. The survey also aimed to evaluate the relations between children's health problems including mental retardation, systemic diseases or both and treatment choices. Materials and Methods 100 children participated in this study (mean age 6.41 ± 0.32 ; 68 boys, 32 girls). 48% of the children were in the period of primary dentition, 47% were in mixed dentition, and 5% were in permanent dentition. The treatments included extractions (463 deciduous, 28 permanent teeth), 619 fillings, 42 amputations, 8 endodontic treatments and 95 fissure sealants. Moreover, fluoride varnish and scaling-polishing were applied to 76 and 58 patients respectively. The children were divided into three groups. Group I: healthy children with dental anxiety(ASA I), group II: mental retardation with/without systemic diseases, group III: systemic diseases without mental retardation. Kruskal-Wallis test was used to compare the differences among the groups. Results The statistically significant differences among the groups were seen only in the treatment of fillings ($p < 0.05$). The highest rates of fillings were in group I while the least were in group II. Conclusions Most of the healthy children were less than 5 years old, to whom fillings in dental treatments were applied mostly, under general anesthesia. More comprehensive studies are needed. Keywords: Children, dental treatment, general anesthesia.

PP – 68**DELAYED TOOTH REPLANTATION AFTER TRAUMATIC AVULSION: 2 CASE REPORT WITH 30 MONTHS FOLLOW-UP**

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Background: Avulsion occurs ranging from 1-16% among the traumatic dental injuries. Immediate replantation is considered the most preferable treatment but delayed replantation can be preferable for esthetic contribution and normal growth of the alveolar-ridge. This case report describes delayed replantation of 2 avulsed permanent incisors. **Material and Methods:** Two traumatized children who were treated at Inonu University, Pediatric Dentistry Department were included this study. The parents/patients were informed about the complications of delayed replantation and informed consent was received. **Case1:** The left central incisor of a 7.1 year-old boy with open apex was avulsed and tooth was stored in milk for 1 day. Tooth was replanted and splinted with semi-rijit splint. 1 month later necrotic pulp was extracted and Mineral Trioxide Aggregate was used to create apical barrier and the root canal treatment was made. **Case2:** The right central incisor of a 8.8 year-old girl was avulsed and tooth was kept under unclean and dry conditions. The attached necrotic soft tissue was removed, the root canal treatment was performed extraorally and the tooth was replanted with semi-rijit splint. **Results and Conclusions:**Two patients were followed up periodically. Tooth in the case1 showed no evidence of resorption and survived until 30 months but in the case2, tooth was lost after 1 year because of root replacement resorbsion. Space-maintainer was made with patient's tooth. We thought that delayed replantation should be done even in cases of poor prognosis, because its importance for the child's jaw and facial development. **Keywords:**Delayed replantation, Avulsion, Replacement resorbsion

PP – 69**THE COMPARATIVE EVALUATION OF DENTAL ANXIETY LEVELS OF PRECLINICAL AND CLINICAL DENTAL STUDENTS**

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Background: The aim of this study was to evaluate the fear levels and the dental anxiety between the preclinical (1st, 2nd, 3rd class- Group 1) and clinical(4th, 5th class, Group 2) dental students. **Methods and Materials:** A total of 227 students of İnönü University Faculty of Dentistry were (109 male, 118 female) participated in this study. Questionnaire forms were given to the students for answer the questions. To determine the dental anxiety levels of students Corah's dental anxiety scale (DAS) and a dental fear survey (DFS) was used. Students whose DAS score value was ≥ 15 , were considered as highly anxious. **Results:** The results of this study indicated that DAS score of group 1 (8.69) was higher than group 2 (7.61). But there was no statistically significant differences

between the DAS scores of groups. According to the DFS scores there were statistically significant differences in questions ($p < 0.05$), except the questions 1 (making an appointment), 2 (cancel an appointment) and 12 (smell of the dentist's office). The most common physiological response was the tension of the muscles for group 1 (2.25 ± 0.85) and group 2 (1.89 ± 0.81). Local anesthesia injection was the most fearful dental procedure for both of groups. Conclusions: In this case, it was determined that preclinical dental students were higher degree of anxiety. We can think of due to the fact that preclinical students receive less training and less detailed information about dental practices. Keywords: dental anxiety, dental students, dental fear survey

PP – 70**EARLY PROSTHETIC MANAGEMENT OF CHILDREN WITH ECTODERMAL DYSPLASIA: A REPORT OF THREE CASES**

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Background: Ectodermal dysplasia (ED) is a group of congenital anomalies characterized by defects of two or more ectoderm-derived structures, such as hair, teeth and nails. The aim of this paper is to describe the characteristics and prosthodontic treatment of 3 cases with ED. Case 1: A 6-year-old boy attended to Kirikkale Universtiy, Department of Pediatric Dentistry, with a complaint of tooth agenesis. The child exhibited the typical features of ED including sparse hair and dry skin. In clinical and radiographical examination, patient presented anodontia of permanent teeth. There were only primary maxillary canines in the oral cavity. Medical history revealed that the child has cutaneous dyshidrosis and hypohidrosis. Based on the findings, the patient was diagnosed as Anhydrotic ED. To provide function, fonation and aesthetics, it was decided to make complete denture for lower jaw and partial denture for upper jaw. Case 2-3: Two brothers attended to Kirikkale Universtiy, Department of Pediatric Dentistry, with complaints of dental caries, dental pain and missing teeth. They had a medical history including hypohidrosis and subsequent problems with thermoregulation. In clinical and radiographical examination, both of the patients presented oligodontia. Based on the findings, brothers were diagnosed as Familial ED. Firstly extractions and restorations were completed, then to gain desired aesthetics and function, partial dentures were made for both of the brothers. Conclusion: It is important to note that early prosthetic intervention gives the opportunity to the child to develop physically, emotionally and socially like other healthy individuals.

PP – 71**MICROLEAKAGE OF THREE ROOT-END FILLING MATERIALS - A PILOT STUDY**

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Introduction The main goal of materials that are being used in apical surgery is to ensure hermetic obturation of root canal i.e. to prevent penetration of bacteria between surrounding tissue and canal system. Aim of this study was to compare the characteristics of the materials for retrograde

root canal obturation using dye penetration test. **Materials and methods** The study was conducted at 9 extracted single root maxillary teeth of intercanine sector with intact pulp, completed root formation without fracture and tooth root resorption. Teeth were randomly divided in 3 groups. The first group consisted of the teeth where the apical cavity were filled with amalgam, in the second group with Mineral Trioxide Aggregate (MTA) and third one with biodentin. The apical part of tooth was resected for 3 mm and prepared to a depth of 3 mm into root canal by ultrasonic scaler (EMS, miniMaster Piezon scaler). After obturation, and coating with 2 layers of nail varnish they were submerged in a 1% solution of methylene blue for 72 hours. After drying they were cut longitudinally with turbine diamond bur with water cooling, and sections were observed under a stereo microscope magnification of 25 times the depth of penetration of color that is measured in millimeters. **Results** Results showed that there wasn't significant difference among materials that were used. It is necessary to increase the sample to show the existence of any disparities. **Key words:** microleakage, root end filling materials, dye penetration test

PP – 72**RESIDUAL MONOMERS AND DEGREE OF CONVERSION OF DUAL CURED RESIN LUTING CEMENTS**

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This studies goal was to examine possible correlation between the degree of conversion (DC) and the amount of substances eluted from three commercial cured resin-based cements. **Material and method** The three different dual cure resin luting cements included in the study were: Panavia F2, Variolink 2 and Nexus 2. Ten specimens of each material were prepared and divided into two groups. One group of specimens was DC tested immediately after specimen preparation by Raman spectroscopy. Second group of specimens was stored in a water for 24 hours at 37°C. After extraction the resulting solutions were analyzed by HPLC. **Result** According to the results of statistical analysis, Variolink 2 showed the highest degree of conversion, whereas Panavia F2 showed the lowest. The ANOVA revealed no significant differences in the DC between the tested luting resin cements The monomer TEGDMA was the main substance found in storage water for the materials: Nexus 2 and Variolink 2. The highest amount of Bisphenol A was released from Panavia F2. Significant concentrations of HEMA were eluted from Nexus 2. The monomer UDMA could not be detected in the storage water for Panavia F2. There are statistically significant differences in values of leachable monomers between the examined materials. **Conclusion** This research did not confirm a direct correlation between the degree of conversion and elution of monomers among the different commercial resin-based cements

PP – 73**EFFECTS OF DIFFERENT SURFACE FINISHING TECHNIQUES ON THE FLEXURAL STRENGTH OF DIFFERENT ALL-CERAMIC SYSTEMS**

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Background: Strength of all ceramic systems is an important consideration for the long term success that influenced by the fabrication procedures, skills of dental technicians and contents of

the materials . In addition, surface polishing or glazing may achieve the strength of all ceramic restorations. The aim of this study was to evaluate the effect of different surface finishing techniques on the fracture strength for different all ceramic systems. Materials/Methods: In total, 40 specimens of two different all ceramic system (20 specimens of feldspathic blocks(CEREC Blocs) and 20 specimens of leucit-reinforced glass-ceramic blocks(IPS EmpressCAD)) were fabricated in dimension 14 mm of length, 12 mm of wide, 1 mm of thickness.All of the specimens were roughened using 600-grit abrasive paper and were divided in to 4 subgroup(n= 10) according to surface finishing techniques as manufacturer's recommendation: group A,Empress CAD with polished surface; group B, Empress CAD with glazed surface; group C,CEREC Blocs with polished surface; group D, CEREC Blocs with glazed surface.All specimens were subjected to a 3-point bending test with using a universal testing machine and the flexural strength values(mPa) was calculated.The data were analyzed with 2-way ANOVA and the Tukey HSD multiple comparison test ($p < 0.05$). Results: IPS Empress CAD blocs treated with glazing techniques showed significantly higher flexural strength than the other groups. Differences between group A, C and D were not significant. Conclusion: Flexural strength varied depending on the surface finishing procedures. Glazing technique were found more effective than the polishing technique in IPS Empress CAD blocs group.

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MATERIALS FOR MAKING AND CEMENTATION OF DENTAL VENEERS

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Background In modern dentistry, which offers many solutions for restauration and aesthetic correction, dental veneers represent least invasive treatment modalities. Development of different materials improved dental veneers and extended area of indications such as fractured teeth, stained teeth, closure of diastemas etc. Depending on reconstruction type, patient profile and length of treatment process clinicians can decide for composite or porcelain veneers. Methods and materials The current literature was reviewed to search for the most important parameters determining the long-term success, correct application and clinical limitations for composite and porcelain veneers. Data for comparison are taken from electronic search of publications from 1991 to 2011, that was made using the electronic databases Medline® and Pubmed®, and included words: "lamine veneer", "ceramic veneer", "porcelain veneer" and "dental ceramic". Results shown failure rates of less than 5% at 5 years for all-ceramic restorations and longer survival rates than composite veneers. Feldspathic porcelain showed survival rates: 96% in 5 years, 93% in 10 years and 94% in 12 years. Feldspathic porcelain and glass-infiltrated ceramics presented long-term survival rates about 96-98% in 5 years. Conclusion Both materials, porcelain and composite, have their advantages and weaknesses in dental veneers. Porcelain veneers are stronger and durable, have high biocompatibility and stain resistant; but composite veneers are less expensive, request minimal irreversible loss of tooth structure and can be made in one visit. Success of treatment depends on dentists choice of the right material for right indication.

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ULTRASONIC TECHNIQUE TO REMOVAL OF BROKEN ENDODONTIC INSTRUMENTS FROM ROOT CANAL: CLINICAL CASE

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Background: The fracture of instruments within the root canal during endodontic treatment is a common incident. The removal of broken instruments from the root canal in most cases is difficult and often hopeless. No standardized procedure for successful instrument removal exists. Many techniques and devices have been tried. These techniques are time-consuming, have limited success, and impart considerable risk to narrow and curved canals. **Methods and Materials:** A 20-year-old male was referred to Department of Endodontic, Ordu University, Faculty of Dentistry, Turkey, for the removal of a broken instrument and continuation of endodontic treatment of his mandibular right first molar. The history indicated and the radiograph showed a broken instrument at mid-root and apically level in the mesiolingual canal. Tooth was asymptomatic with radiolucency evident at the mesial and distal root apices. The broken instrument was removed with a technique is that using Gates Glidden burs to platform to the coronal aspect of the fractured instrument, then ultrasonic troughing around the fragment to expose it, followed by the ultrasonic vibration of the fractured instrument segment with irrigating solution. Then, root canal preparation and obturation of all canals was completed using gutta-percha and sealer with cold lateral condensation. The tooth was restored with composite resin. **Results:** At the 3 –month follow up, clinically the tooth was asymptomatic. Radiographic showing decrease in size of radiolucency. **Conclusion:** An ultrasonic technique using is effective method to removal of broken instrument.

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EFFECTS OF ETHYLENEDIAMINETETRAACETIC AND ETIDRONIC ACIDS ON THE SURFACE ROUGHNESS OF BIODENTINE

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Background: The aim of this study was to evaluate the effect of 9% etidronic acid (HEBP) and 17% ethylenediaminetetraacetic acid (EDTA) solutions on the surface roughness of Biodentine in different time periods. **Materials and method:** Biodentine was mixed and placed into 30 steel matrices with a diameter of 5 mm and depth of 3 mm. The exposed Biodentine surfaces were polished for the roughness test. The surface roughness of all samples were measured prior to the irrigation solution application. Then the samples were divided into two groups (n=15) according to the irrigation solution used. 9% HEBP was applied to the samples in the first group, and 17% EDTA to the second group. The surface roughness of the samples was measured again after 1 and 2 minutes of application. At each time period, three tracings at different locations on each specimen were performed. Arithmetical value of three tracings was calculated as the mean roughness value (Ra, µm). **Results:** 17% EDTA use increased

surface roughness of Biodentine more than the 9% etidronic acid. There was no significant difference between the roughness values at 1 and 2 minutes of application. Conclusion: Use of EDTA may result in disruption of Biodentine's surface during perforation repair and root canal treatment.

PP – 77**SEALING ABILITY OF THE BIOCERAMIC SEALER ACCORDING TO THE MOISTURE DEGREE OF ROOT CANAL**

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Background. Hermetic sealing ability affects the success of the endodontic treatment. This in vitro study evaluates apical leakage of bioceramic sealer according to moisture degree of the root canal as semi-dryness and complete-dryness. **Methods and Materials.** Thirty two single-canal lower premolars were used in this study. Instrumentation was done using Protaper universal rotary system to file size-F4, and irrigation with sodium hypochlorite. After the preparation, the canals were washed with distilled water. Then teeth were divided into two main groups of 12 samples each, in terms of moisture degree of the root canal. One group presented semi-dryness and the other group complete-dryness, and eight teeth (4-positive and 4-negative) were used as controls. The irrigation solution was absorbed with paper point in the root canals, but the application times of the paper points affect the degree of dryness. The roots were obturated using F4-tapered single-cone gutta-percha and bioceramic sealer. All roots were exposed to 0.2% Rhodamine-B solution, and centrifuged at 3000 rpm for 5 min. The dye penetration was measured from the apical to coronal part of the root canal. **Results.** The positive control group showed total dye penetration of the root canal system, whilst the negative control teeth had no dye penetration. The moisture of the root canals affected the apical sealing ability of the bioceramic sealer. Completely dryness of the root canals exhibited less leakage than the semi-dryness group ($P < 0.05$). **Conclusion.** It is concluded that the root canals should be dried completely when using the bioceramic sealer for better sealing ability.

PP – 78**THE EFFECT OF ACCESS CAVITY DESIGN ON STRESS DISTRIBUTION OF ENDODONTICALLY TREATED MAXILLARY MOLAR**

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Background: The aim of this study was to evaluate the effect of access cavity design on stress distribution of endodontically treated maxillary molar. **Methods and Materials:** The models of maxillary first molar was created by CT scanning, Mimics and SolidWorks software. Two access cavity designs were respectively proposed: (1) minimally invasive, (2) straight line. Both access cavity restored with resin composite. Four experimental groups for two access cavity were created according to load and loading angle. Group I: loads of 480 N were applied at an angle of 90° to the longitudinal axis of the tooth on the restorative material, Group II: loads of 480 N were applied at an angle of 45° to the

longitudinal axis of the tooth on the restorative material, Group III: loads of 240 N were applied at an angle of 90° to the longitudinal axis of the tooth on the restorative material and Group IV: loads of 240 N were applied at an angle of 45° to the longitudinal axis of the tooth on the restorative material. Von Mises stresses were calculated. Results: The highest von Mises stress distributions were observed in Group I (702.18 MPa) and Group II (288.28 MPa) for minimal invasive and straight line access cavity, respectively. The lowest von Mises stress distributions were observed in Group IV (337.85 MPa) and Group III (142.35 MPa) for minimal invasive and straight line access cavity, respectively. Conclusion: Straight line access cavity is more suitable than minimally invasive because of minimal stress distribution.

PP – 79**RESTORATION OF SUBGINGIVALLY LOCATED OBLIQUE COMPLICATED CROWN FRACTURE WITH ORIGINAL FRAGMENT: A CASE REPORT**

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Background: Endodontically treated teeth are known to present a higher risk of biomechanical failure than vital teeth. The loss of tooth structure, whereas other reported the effect of decreased moisture content and subsequent brittleness of root canal treated teeth as causes of fracture. The aim of this case is to present restoration of subgingivally located oblique complicated crown fracture with original fragment by fiber post. Methods and Materials: Fourty-year-old male patient referred to our clinic with pain complaints caused by fractured tooth which was broken two days ago. The root canal treatment had been done before; it had large composite restoration. The tooth was broken while biting food. The fragment was under about three milimetres of gingiva and removed after local anaesthesia. 2/3 part of root canal filling material was removed in order to place fiber post by the drills. The fragment and tooth was etched by orthophosphoric acid %37 and rinsed. Surfaces were dried and bonded. After fiber post was placed, the fractured tooth fragment was adapted to the remaining tooth with the help of the adhesive composite resin Results: A 9-months- of follow up revealed that the patient was asymptomatic, the tooth was functional. Also radiographical examination revealed the normal periodontal tissues. Conclusion: Complicated crown fractures can be restored with the original fractured segment. This approach is an alternative treatment and preferable for providing ideal aesthetic, being non-invasive and low cost in comparison with prothetic restorations.

PP – 80**THE ENDODONTIC TREATMENT OF MANDIBULAR PREMOLAR TEETH WITH DOUBLE ROOTS: THREE CASE REPORTS**

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Aim: An accurate diagnosis of the morphology of the root canal system is a prerequisite for successful root canal treatment. Careful radiographic examination of pulp chamber floors are helpful in locating root canal entrances. These case report present endodontic treatment procedures in lower premolars anatomical variations. Case: Three patients were referred to our

clinic with the complaints of severe pain. Radiographic examination of the patients showed the presence of extra roots in the involved mandibular premolars. Root canal treatment was initiated. Access cavity prepared. The root canals were prepared with ProTaper NiTi files to size F3 under continuous irrigation with 5.25% NaOCl. The root canals were irrigated with 5.25% NaOCl, 17% EDTA, and saline solution respectively for final irrigation and dried with sterile paper points. In the case that diagnosed with apical periodontitis, calcium hydroxide paste was applied into the root canals, and the endodontic access cavity was sealed with temporary restorative material. Patient were called up after one week. The teeth were clinically asymptomatic in this session. Root canals were obturated with gutta percha and resin based sealer. The teeth were restored with composite resin. In 6-month follow-up, the tooth were clinically asymptomatic. Conclusions: Unestablished root canals have major role in failures of treatments. Therefore, clinician should be aware of variation types of mandibular premolars.

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BYPASSING THE FRACTURED FILE IN ENDODONTIC TREATMENT: A CASE REPORT

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The fracture of endodontic instruments during root canal treatment is a complication every endodontist may have to deal with. The risk of treatment failure because of incomplete cleaning and shaping encourages the dentist to retrieve the fractured part. Several techniques have been offered to remove the fractured file, but removal of the file may not be possible or even desirable. In this case, bypassing the instrument is a valid alternative, which can lead to a favourable outcome. A 34-year-old patient had no health problems. She came our clinic with acut pain on mandibular right 1st premolar tooth. When the diagnostic radiograph was taken, a fractured instrument was seen in the middle of the root. The fractured instrument could not be visualised by root access. The decision was made to try to bypass the instrument rather than try to retrieve it. We completed her treatment succesfully with two appointments .Sometimes removal of a fractured instrument is impossible or undesirable. In these cases, bypassing the instrument is a valid alternative, which can lead to a favourable outcome as presented in this case.

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ENDODONTIC RETREATMENT BY REMOVAL OF FILE:A CASE REPORT

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Introduction: Retreatment or revision therapy is called as reperforming the root-canal filling following removal of the root-filling, if the initial root canal therapy is defined as " failed" .The case selection, proper technique and equipment as well as detailed assesment of case prognosis affect the success of retreatment. Before applying surgical techniques, orthograd procedures performed endodontically can be realised using manual or rotary instruments, hot condansators or their combination with various solvents. Purpose: The case report is to define the clinical reason of

failed root-canal therapy according to retreatment of a failed 26# because of fractured root-file. Case report: 18 years old male patient referred to Ankara University Dentistry Faculty Endodontics Clinic with pain in his left upper jaw. Clinic examination revealed that he had a composite fillin in maxillary molar 26#, sensitive to percussion and palpation and root-canal filling with a small piece of canal file in radiographical examination. Conclusion: The removal of the post is a simple procedure that can be accomplished when correct technique and instruments are used for post removal.

PP – 83**INFRARED THERMOGRAPHY OF ROOT CANAL OBTURATION WITH WARM GUTTA-PERCHA (IN VITRO STUDY)**

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Introduction The contemporary requirements for endodontic treatment are associated with three-dimensional obturation of root canals - warm condensation of gutta-percha. As a result of this, a thermal injury can occur in the periodontium. **Aim** The aim of the research is to measure with infrared thermography the thermal changes that occur on the root surface after obturation of the root canal with warm gutta-percha. **Material and methods** To accomplish the aim, 31 root canals of extracted teeth were studied. All the root canals were shaped with master apical file #40 (diameter of the apical stop 0,4 mm) and 2% taper. Elements™ Obturation Unit by SybronEndo was used for obturation of the prepared root canals by full length syringe filling. Each tooth was held coronary by tweezers. The temperature of the surface of the root was measured before and after the obturation of the root canal by infrared camera Flir T330. **Results** Temperature rise on the root surface is different according to number of root canals. In single rooted teeth average temperature rise is 6.87 °C, in teeth with 2 canals – 7.8°C, while in teeth with three or more canals temperature increases average with 13.2 °C. **Conclusions** The temperature changes that have been registered suggest that the method and the technique of obturation of root canals should be selected and performed very carefully in order to avoid thermal injuries of the periodontium. Additional clinical studies should be conducted.

PP – 84**DELAYED REPLANTATION AND ENDODONTIC TREATMENT OF AVULSED TEETH: A CASE REPORT**

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Introduction: Avulsion is one of the most common traumatic injuries in which the tooth is completely displaced out of its socket. Generally, the socket is empty or full of blood clots.

Replantation is the treatment in which the tooth is replaced in its socket. This case report describes the management of endodontic and periodontal treatment of avulsed maxillary incisors. Case report: 19 year old male patient fell down from the stairs and crashed his anterior maxillary incisors (#12,#11,#21). The time he came to clinic, 19 hours after the accident , it was seen that his #12 and #21 teeth were avulsed, #11 tooth had been also avulsed but were replanted by himself. It was detected that, buccal alveolar wall of empty socket of #12 tooth was fractured in radiological examination. Endodontic and periodontal treatment was performed after replantation of avulsed teeth. replanted teeth were splinted with fiber splint. Results and conclusion: Radiological and clinical examinations are of great importance in the treatment of avulsed teeth. Also, the time patient comes to clinic after avulsion and conditions of transportation of avulsed teeth are critical for a complete healing.

PP – 85**SURGICAL TREATMENT OF NON HEALED PERIAPICAL PATHOSIS**

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A 26- year old male patient was referred to our clinic with complaint of pain, recurrent swelling, and pus discharge with maxiller lateral tooth. Intraoral examination revealed a sinus tract in the buccal mucosa of right anterior maxiller region. The buccal mucosa was tender on palpation and there was a pus discharge from the sinus tract. The tooth # 12 was sensitive to percussion and there was no respond to heat and electric pulp sensitivity testing. In radiographic examination, it was observed that localized periapical lesion involving right lateral incisor. Endodontic access cavity was prepared. #15 no K file inserted to root canal and working length was confirmed by radiographic evaluation. The root canal was preperated and filled with calcium hydroxide. Calcium hydroxide medicament was freshly dressed for each week. Three weeks later,the tooth was asymptomatic after removal of calcium hydroxide, the root canal was obturated with gutta-percha by using lateral condensation technique. At 6 mounths follow up, periapical radiograph showed nonhealing of the lesion and endodontic surgery was decided. After raising flap, root resection was performed and root end cavity was filled with MTA. 3 mounths after the operation, no clinical and radiographic symptoms were found.

PP – 86**ENDODONTIC TREATMENT OF MAXILLARY CENTRAL INCISOR WITH INTERNAL ROOT RESORPTION AND PERIAPICAL LESION**

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Background: Internal root resorption is a pulp disease characterized by the loss of dentine as a result of the action of clastic cells stimulated by pulpal inflammation. The purpose of this report is to present a case of maxillary central incisor with internal root resorption and periapical lesion

Methods and Materials: A 34-year-old female patient came to the dental clinic with a chief complaint of dull pain in maxillary left central incisor tooth. Periapical radiograph showed radiolucency in middle third of root surface of the related tooth a case of internal resorption and an associated radiolucency in the periapical area of same tooth. The access cavity was opened through the crown restoration, because the patient didn't want to change her new restoration. Calcium hydroxide dressings were made in two sessions. Root canals were obturated with gutta-percha and Ah Plus root canal sealer using cold lateral condensation technique. **Results:** At one year recall, the tooth was asymptomatic and periapical radiograph showed progression of hard tissue healing. **Conclusion:** The process of internal root resorption can be controlled with conventional root canal therapy. Regular recall is important to check the status of healing and for the overall prognosis of the tooth.

PP – 87**HORIZONTAL ROOT FRACTURE IN NON-TREATED MANDIBULAR MOLAR TOOTH: A CASE REPORT**

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Background: One of the main cause of root fractures is traumatic occlusion and occlusal forces. The aim of this report is to present an unusual horizontal root fracture which is caused by repeated and long-term excessive occlusal forces. **Case Report:** A 66-year-old female with a horizontal root fracture in the right mandibular second molar. There was no history of any traumatic injury to the involved teeth. The patient had no complaints, and were discovered on routine examination. The occlusal surfaces of the teeth showed severe attrition. Electric pulp tests showed positive response. On periodontal probing, normal pocket formation was noted. Patient who refused any treatment due to being symptom-free were put-on observation. The patient had excessive attrition of the occlusal surfaces of her posterior tooth and any adjacent teeth, which indicates that this tooth had sustained heavy, repeated stress of lengthy duration, with the root finally became fatigued, resulting in fracture. The fractured teeth had previously received neither root canal treatment nor prosthodontic treatment. Radiographic examination showed bone loss around the fractured roots that closely resembled a periodontal lesion, presumably caused by the persistence of the fracture. **Conclusion:** The patient exhibited excessive attrition of the occlusal surfaces of her posterior teeth, indicating that this teeth had sustained heavy, repeated and prolonged stress. Other than as a result of trauma, horizontal root fractures are rare in the absence of previous endodontic treatment.

PP – 88**A MAXILLARY CENTRAL INCISOR WITH THREE ROOT CANALS: A CASE REPORT**

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Background: The majority of maxillary central incisors only have 1 root canal. Variations in the anatomy of the root canal system have been reported in cases of dens invaginatus and fusion or

gemination. Most authors use Oehlers classification based on the extent of the invaginated dental tissue. Type I, characterized by the invagination confined within the crown, extending only to the cementoamel junction; type II, characterized by the invagination extending apically beyond the cementoamel junction, where connection between the invagination and the pulp is possible; and type III, characterized by the invagination extending beyond the cementoamel junction and exhibiting a second foramen into the lateral periodontal ligament or periradicular tissue. This case report is described the endodontic treatment of a maxillary central incisor with type II dens invaginatus and three root canals. Case report: A 19-year-old woman was referred for endodontic treatment of the right maxillary central incisor. Radiographic evaluation indicated a periapical radiolucency and the lamina dura was absent around the apex. The access cavity was prepared. The canals were cleaned and shaped with nickel-titanium rotary instruments. The canals irrigated with 2.5% sodium hypochlorite. Calcium hydroxide was applied after the biomechanical instrumentation, and the access cavity was sealed with a temporary filling material. Three weeks later, the patient was asymptomatic. All root canals were obturated by lateral compaction technique with gutta-percha and root canal sealer. Conclusion: Correct diagnosis and treatment planning are fundamental to treatment of dens invaginatus.

PP – 89**RADIOGRAPHIC EVALUATION OF PERIAPICAL STATUS AND PREVALENCE OF ENDODONTIC TREATMENT IN AN ADULT BOSNIAN POPULATION**

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Introduction The aim of this cross-sectional study was to determine the prevalence of periapical radiolucencies and endodontic treatment in an adult Bosnian population. **Methods:** The sample consisted of 84 subjects, presenting consecutively as new patients seeking dental care in Department of Restorative Dentistry and Endodontics, Faculty of Medicine, University of East Sarajevo, Bosnia and Herzegovina. Digital ortopantomografia (OPGs) were independently examined by two reliability-calibrated endodontists. Teeth were categorized as endodontically treated if they had been filled with a radiopaque material in the pulp chamber and/or in 1 or more root canals. The total number of teeth present, the location of the root canal filled teeth, and the presence or absence of apical periodontitis (AP) were recorded for each radiograph. Periapical status was assessed using the Periapical Index score (PAI). **Results:** Overall, 50% of the subjects had root-filled teeth, and 66.7% exhibited an apical radiolucency on 1 or more teeth. Of the 2 105 teeth examined, 5.1% had been root-filled, and, of these, 88.7% exhibited an apical radiolucency. Root-filled teeth that were overfilled or that were maxillary premolars (25.2%) had the highest prevalence of apical radiolucencies. **Conclusion:** Prevalence of apical periodontitis in root-filled teeth was relatively high among Bosnian adults. Overfilled teeht and maxillary premolars are most likely to exhibit periapical pathosis.

PP – 90**ANALYSIS OF THE EXTERNAL ROOT CANAL ANATOMY OF MAXILLARY SECOND PREMOLARS****Brankica Davidović, Ljiljana Bjelović, Igor Radović, Dajana Nogo Živanović, Nikola Stojanović*****Faculty of Medicine, University of East Sarajevo; Foča, Bosnia and Herzegovina***

Introduction The aim of this study was to investigate number and direction of roots, and position of apical opening of the maxillary second premolars. **Material and method** The study included 150 extracted human maxillary second premolars. After extraction, the teeth were rinsed with water and placed in 5.25% sodium hypochlorite for two hours. Then, teeth were mechanically cleaned from soft tissue remains, and bone fragments and number and direction of roots, and position of apical opening were recorded. **Results** A total of 94% of teeth had a single root and 6% two roots. As to direction of the roots, 22% were straight, 40% presented distal, 21% buccal, 12% mesial, and 4.7% oral curvatures. Apical opening was located at the top of the root in 42% of teeth. **Conclusion** Maxillary second premolars usually had one root curved toward the distal and apical opening located on top of the root.

PP – 91**ENDODONTIC THERAPY OF AN INTERNAL RESORPTION OF TOOTH ROOT****Ljiljana Šubarić¹, Aleksandar Mitić², Radovan Jovanović¹, Vladimir Matvijenko¹, Ankica Mitić³**

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Introduction: In order to happen an internal inflammatory resorption, the pulp tissue of apical lesion must have an adequate blood supply, which will provide clastic cells and its nutrients, while the infected necrotic coronary pulp provides stimulation to clastic cells. Clinical internal root resorption is usually asymptomatic and detected incidentally during routine radiogram. **The aim:** The aim of this study is to present the case of radiographic intraradicular resorption of teeth without perforation and to introduce the success of properly selected and performed endodontic therapy. **Materials and methods:** At the dentistry clinic admitted a 32-year-old patient, due to the insignificant painful sensations in the area of lower right premolar in the projection of the root apex. Analyzing X-ray film and applying basic and auxiliary diagnostic methods, we make the diagnosis of internal resorption in radicular part. There was also a extirpation of the pulp, for channel medication is used Ca(OH)₂ (ApexCal) preparation. Final obturation of the canal system has been performed by a modified method of lateral condensation of gutta-percha sticks using paste based on Ca (OH)₂ (Acroseal Septodont). **Results:** The tooth root resorption with no perforation of the wall has been successfully endodontically obturated and we we have not noticed any changes in terms of expanding defect after six months using the radiographic control. The patient had no subjective symptoms, and tooth was preserved. **Conclusion:** The success of resorption treatment depends on early detection process and making an endodontic treatment.

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COMPRESSIVE STRENGTH OF NEW NANOSTRUCTURAL CALCIUM SILICATE-BASED CEMENT

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Introduction: The aim of this study is to compare compressive strength of new nanostructural calcium silicate (CS) based cement with commercial calcium silicate cement and conventional GJC in relation to time. **Methods:** Four nanostructural materials were tested: CS (Jokanović et al.), MTA Plus (Cerkamed, Poland), Fuji IX (GC Corporation, Japan) and Ketac Universal Aplicap (3M ESPE, USA). Five samples of each material were mixed in accordance with producers guidelines and positioned in metal moulds (φ4mm and 6mm). Compressive strength (Cs) expressed in MPa was measured after 24 hours, 7 days and 28 days respectively. Measurement was performed on the universal testing equipment at a crosshead speed of 1mm/min. **Results:** Recorded values of compressive strength for conventional GJC were significantly higher compare to values recorded for calcium silicate cements ($p < 0.05$). After 24 hours a compressive strength for GJC was 38.56 MPa for Fuji IX and 39.42 MPa for Ketac and remained at that level after 7 and 28 days (47.72 MPa, 35.25 MPa and 37.03 MPa, 30.65 MPa, respectively) ($p > 0.05$). Calcium silicate cements showed lower Cs values 24 hours after mixing: 6.32 MPa for MTA, and 1.92 MPa for CS, but values showed a significant increase during the time from 19.90 to 11.73 MPa respectively after 7 days, and 15.67 MPa for CS after 28 days. **Conclusions:** Calcium silicate cements initially showed lower values of compressive strength in comparison to conventional GJC, but also showed increase during the time.

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PH AND CALCIUM ION RELEASE FROM NEW NANOSTRUCTURAL BIOMATERIALS BASED ON CALCIUM SILICATES AND HYDROXYAPATITE

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Background: Calcium and hydroxyl ion release are important characteristics of bioactive materials. The aim of this study was to evaluate pH changes and calcium release from new nanostructural biomaterials based on calcium silicate (CS) and calcium silicate and hydroxyapatite (HA-CS) after immersion in simulated body fluid. **Methods and Materials:** Nanostructural calcium silicate cement (CS), a mixture of nanostructural calcium silicate and hydroxyapatite (HA-CS) and two commercial calcium silicate cements, MTA Angulus (Londrina, Brazil) and Biodentin (Septodont, France) were tested. After materials setting, samples were individually sealed in a flask containing simulated fluid. Hydroxyl and calcium ions released were determined after 24h, 7, 14, 21 and 28 days. After each measurement samples were placed in a new flask with fresh body fluid. Data

were statistically analyzed using ANOVA and Tukey post-hoc test ($\alpha=0.05$). Results: All tested materials created alkaline pH after 24h, which continued for 28 days. pH values for all materials were the highest at 24h, after which they decreased ($p<0.05$). Initially, MTA presented the highest pH values ($p<0.05$). pH values for CS and Biodentin were similar, and both higher than HA-CS ($p<0.05$). Calcium ion release for all tested materials was the highest at 24h and 7 days. At 24h, CS and HA-CS exhibited lower values of calcium ions than MTA and Biodentin ($p<0.05$). Conclusion: CS and HA-CS exhibited the ability to release calcium and hydroxyl ions and create alkaline environment over 28 days.

PP – 94**LABIOMANDIBULAR PARESTHESIA CAUSED BY ENDODONTIC TREATMENT: A CASE REPORT**

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Endodontic treatment of root canal is a very difficult and complex procedure. As a result, problems very often arise in various phases of endodontic procedure. During endodontic treatment, trauma of inferior alveolar nerve might occur due to toxicity of used medication, irrigants or other material, i.e. due to mechanical compression caused by instruments or material thrown over apex frame. Symptoms of alveolar nerve damage might vary from mild neurosensory dysfunction to a complete loss of sensation in innervation area of damaged nerve. For a successful endodontic treatment, it is very important to use preoperative diagnostics to determine anatomorphological deviations from specific configuration of root canals and possible direct communication with inferior alveolar nerve. The aim of this paper is to present the case from clinical practice and therapy procedure of endodontic treatment of root canal in c-shaped second mandibular molar in patients with paresthesia of inferior alveolar nerve. The case study shows properly performed endodontic therapy and positive effects of Guttaflow paste as obturation material. KEY WORDS: PARESTHESIA, C-SHAPED CANAL, GUTTAFLOW PASTE

PP – 95**PUSH-OUT BOND AND FLEXURAL STRENGTH OF CALCIUM SILICATE-BASED ROOT CANAL SEALERS**

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Background: Bond strength of endodontic sealers and root canal dentin is influenced by dislocation resistance and flexural strength of sealers. Our aim was to evaluate the push-out bond and flexural strength of BioRoot RCS (Septodont) and EndoSequence BC (Brassler) sealers compared to AH Plus (Dentsply). Material and method: Push-out bond strength measurement included 3 groups of eight single rooted teeth. From each root, three 1mm-thick-slices were obtained at different levels (coronal, middle, apical). The root canal space was enlarged up to 1.5mm in diameter and filled with a different sealer in each group. Specimens were stored in 100% humidity for 28 days. Flexural strength measurement included 3 groups of eight specimens each. Sealer sticks were obtained by filling

10mmx2mmx2mm silicone molds and allowing them to set for 7 days in 100% humidity. Push-out and flexural strength were measured using a universal testing machine at a cross-head speed of 1mm/min. Bond/flexural strength values (MPa) were calculated as force at dislocation/fracture (N) divided by area (mm²). Results: AH Plus showed significantly higher bond and flexural strength values than calcium silicate-based sealers ($p < 0.05$; ANOVA). There were no significant differences in bond and flexural strength values between two calcium silicate-based sealers ($p > 0.05$). Regarding root thirds, AH Plus showed highest push-out bond strength values in the middle third, while calcium silicate-based sealers showed similar results in all regions. Conclusion: Epoxy resin-based sealer performed better than calcium silicate-based sealers in terms of bond and flexural strength values. Calcium silicate-based sealers performed similarly.

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ORAL SQUAMOUS CELL CARCINOMA OF THE TUBER MAXILLA: A CASE REPORT

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Oral squamous cell carcinoma of the tuber maxilla: A case report Background: Squamous cell carcinoma is the most common cancer type of the oral cavity. The incidence of the lesion accounts for 23% to 37% of all intraoral cancers. The lesion is defined as an invasive epithelial malignant neoplasm, which has variable degrees of squamous differentiation, with or without keratinization. It generally originates from the level of keratinized stratified squamous epithelium (skin) or non-keratinized (oral mucosa, esophageal mucosa, uterine exocervical mucosa), but it can also be found in squamous metaplasia areas (uterine endocervix or trachea-bronchial tree). The prognosis is generally poor. Oral clinical findings of squamous cell carcinoma include alveolar bone loss and erythematous lesion view. The purpose of the presentation is to present a case of oral squamous cell carcinoma located on the tuber maxilla with an unusual clinical view. Case report: A 52 year old male patient referred to clinic because of a mass in his left upper jaw. A large erythematous, unusual lesion was seen in the edentulous alveolar region that covering tuber maxilla. Panoramic radiograph showed an ill-defined alveolar bone loss in the associated hard tissue at the base of the lesion. Incisional biopsy was performed and it was diagnosed as squamous cell carcinoma in histopathological examination. Results and conclusions: Irregular shaped and unusual localised lesions should be considered by clinicians for the differential diagnosis of malignant neoplasms.

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THERAPEUTIC CHALLENGES IN PEMPHIGUS VULGARIS TREATMENT

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Autoimmune pemphigus is a life threatening mucocutaneous blistering disease associated with IgG antibodies targeting several types of keratinocyte antigens and eliciting epidermal

clefting(acantholysis). Several hypothesis have been put forward to explain the mechanism of pemphigus acantholysis. The fact that structural damage and death of keratinocytes in pemphigus are mediated by the same set of enzymes has justified introduction of the new term „apoptolysis“ to distinguish the unique mechanism of autoantibody-induced keratinocyte damage in pemphigus vulgaris from other known forms of cell death. The high dose, long-term systemic glucocorticoid therapy remains the mainstay of current therapy of pemphigus vulgaris patients. Although there has been a significant decrease in mortality nowadays, it remains at a relatively high level, with death being almost invariably related to complications of therapy. Purpose: is to show complex mechanisms of pemphigus vulgaris autoimmunity with emphasis on therapeutic principles of steroid use and their side effects, and possibilities of efficient treatment by other therapeutical methods. Materials and methods: through literature review, point to complexity of autoimmunity, positive and side effects of still leading, steroid therapy, as well as point to introduction of steroid-sparing therapies, aimed to steroid use reduction and it's final exclusion in pemphigus treatment. Conclusion: Individual variations of immune reactivity of each pemphigus patient put a challenge and a task in front of researchers as well as therapists to find and, on demand, clinically modify the most appropriate therapeutic combination in pemphigus treatment. Keywords: pemphigus, apoptolysis, steroid therapy, steroid-sparing therapy

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THE MANAGEMENT OF ORAL MUCOUS MEMBRANE PEMPHIGOID WITH TRIAMCINOLONE: TWO CASE REPORTS

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Background:Mucous membrane pemphigoid (MMP) is a rare, chronic and autoimmune disorder that consists of vesicles, bullae or erosions, or both, and that mainly affects mucosa. MMP often affects the mucosal surfaces of the mouth and cutaneous involvement may seen rarely, approximately one-quarter of patients. **Case Reports:** Patient 1 was a 64 -year-old woman who visited our department due to painful ulcerative area over the oral mucosa. She had also experienced bleeding of the gingiva and palate mucosa. Biopsy specimens from the oral mucosa revealed detachment of epithelial basement membrane and subepithelial lamina propria with slight chronic inflammation. Patient 2 was a 61-year-old man who was referred to our department with a history of large erosions on the gingiva. Biopsy specimens from the oral mucosa revealed partial junctional separation at the level of the basement membrane. Both patients were treated successfully with intralesional (injected into the affected areas) triamcinolone acetonide twice in a week for 6 weeks. Chlorhexidine mouthwashes are used to provide oral health care. **Conclusion:** No evidence of recurrence has been reported at the end of the two years follow-up.

PP – 99**PERIPHERAL GIANT-CELL GRANULOMA OF THE MAXILLA: A CASE REPORT****Mehmet Eray Kolsuz¹, Poyzan Bozkurt², Ali Altindag¹***¹Ankara University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology; ²Ankara University, Faculty of Dentistry, Department of Dentomaxillofacial Surgery; Ankara, Turkey*

Introduction: Giant-cell granulomas are rare, osteolytic lesions, usually located in the maxilla and mandibula, but located more often in mandible (from 2:1 to 3:1), than in the maxilla. They account for 7% of all benign tumors of the jaws. It consists fibrous cellular tissue that contains multiple foci of hemorrhage, multinucleated giant cells, and occasional trabeculae of woven bone. In this presentation we report a giant-cell granuloma of the maxilla in a 67 year-old female patient. **Case report:** 67 year-old female patient with no known systemic diseases referred to our clinic with a mass in her upper jaw. The lesion had been present for almost 3 years. Patient did not have any complaints but wanted to have it removed for a proper prosthetic treatment. Lesion was excised under local infiltration anesthesia. In order to prevent bleeding 0.0 silk sutures was used to compress adjacent nutritive arteries. Lesion was excised with 5mm safety margins and periosteum. Associative canine tooth was extracted with neighboring premolars. Wound margins were closed as much as possible with 3.0 silk sutures and secondary healing was obtained. Sutures were removed at postoperative day 7 and no complaints were observed. Histopathological examination of the lesion confirmed giant-cell granuloma diagnosis. **Results and conclusions:** because of its possible aggressive behavior, surgical excision of giant-cell granulomas should be performed carefully. It must be taken under consideration that recurrence might be seen.

PP – 100**ORAL IRRITATION FIBROMA OF BUCCAL MUCOSA: THREE CASES****Hakan Eren, Ali Altindag, Kaan Orhan***Ankara University, Faculty of Dentistry, Department of Dentomaxillofacial Radiology; Ankara, Turkey*

Introduction: Irritation fibroma is the most common tumor like and sub mucosal reactive lesion in the oral cavity. These lesion is a benign proliferation that occurs as a response to local irritation. Usually it is measured. It is an elevated pedunculated or sessile lesion that ranges in size less than 1.5 cm in diameter; however in rare case it has more than 3 cm in diameter. Its surface is like normal mucosa in color, although it may appear to be more pale than the normal mucosa. Fundamental therapy is removal of the lesion as well as elimination of factors which are causative. The purpose of the presentation is to exhibit 3 cases of irritation fibromas arising due to lack of teeth **Case Reports:** 1 female and 2 male patients referred to our hospital because of having a mass in their buccal mucosa. Clinical examination revealed that they had a tumor like reactive lesions due to lack of teeth in the adjacent region to lesions. Excisional biopsy were done and histopathological examination showed that all of them were irritation fibromas. Results and

Conclusions: Tooth loss may cause chronic irritative trauma or parafunctional habits. This situation may result mucosal reactive lesions in the adjacent mucosa of tooth loss.

PP – 101

ORAL CANDIDIASIS IN PATIENTS WITH DIABETES MELLITUS TYPE 2

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Background: One of the frequent oral manifestations of diabetes, which is also a sign of systemic immunosuppression, is an opportunistic infection with *Candida* species. The main factors responsible for the development of oral candidiasis in patients with diabetes are reduced salivary secretion and increased level of glucose in saliva. Other contributing factors are: salivary pH, the presence of prostheses, smoking as well as oral hygiene habits. The aim of this study was to determine the frequency of oral candidiasis in diabetic and nondiabetic subjects with respect to glycemic control of diabetics. **Methods and materials:** A total of 90 adults, 60 with type 2 diabetes and 30 without diabetes (control subjects), aged 45-65 years, participated in the study. With respect to level of HbA1c diabetic subjects were divided into two groups: 30 better-controlled (HbA1c<9) and 30 poorly-controlled (HbA1c≥9). Culture specimens were obtained from dorsum of the tongue using a sterile cotton-tipped swab and inoculated into Sabouraud Dextrose Agar for 48 hours. **Results:** The percentage of diabetics with candidiasis was 23.4% for better-controlled and 43.3 % for poorly-controlled, while the percentage of nondiabetics was 10%. The frequency of oral candidiasis was higher in diabetics than in control subjects, however statistically significant difference was observed only between poorly-controlled diabetics and control subjects ($p<0.05$). **Conclusion:** The results of this study show that patients with diabetes mellitus type 2 are more susceptible to oral candidiasis, especially poorly-controlled ones.

PP – 102

DIAGNOSTIC VALUE OF UREASE TEST AND HELICOBACTER PYLORI CULTURE IN DENTAL PLAQUE

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A reliable literature data reported correlation between *H. pylori* in dental plaque and *H. pylori* gastric status. **Aim:** To correlate rapid urease test and *H. pylori* culture in dental plaque to pathohistological status in gastric mucose. **Materials and methods:** This study was done on 118 patients with discomfort in the upper part of digestive tract and with indication to complete endoscopic diagnostics. Just before the endoscopy two samples of dental plaque were taken with a dental probe. The first sample was immersed in the rapid urease test (Bramio HP test, the Institute for Immunology and virology, Torlak, Belgrade, Serbia) and kept at 370 C and analyzed in the first and second hour and between three and twenty four hours. The second sample of dental plaque was immersed in transport medium (Thioglycolate) and cultured in nonselective medium in microaerofil conditions. During the endoscopic procedure, a fragment of gastric mucose membrane was taken and immediately fixed in 10% formaldehyde, proceeded to pathohistological analysis(PH). **Results:** Statistically analyzed results

showed a positive match between the PH status of *H. pylori* in gastric mucose and rapid urease test results in dental plaque of 84 patients (71.2%; $p < 0.001$). In 111 patients (94.1%) the results of PH analysis and culture of *H. pylori* in dental plaque matched each other ($p < 0.001$). Conclusion: This methodology using high sensitivity and low specificity tests for *H. pylori* detection in dental plaque can be proposed as screening test for *H. pylori*. Key words: dental plaque, urease test, *H. pylori* culture, pathohystological status

PP – 103**THE EFFECTIVENESS OF ACUPUNCTURE IN DRUG-INDUCED HYPOSALIVATION**

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Background: Hyposalivation is a lifelong problem in persons who take drugs and it is known that more than 500 drugs cause dry mouth symptoms. There is a limited help for these sufferers. Acupuncture is known to be helpful and lately, use of low level laser therapy (LLLT) has shown beneficial effect in patients with hyposalivation. Methods: Unstimulated salivary flow rate (USFR) and quality of life assessment scale (OHIP-CRO 14) before and after acupuncture treatment was determined in 24 persons with dry mouth. Furthermore, USFR as well as OHIP-CRO 14 were determined in 28 patients before and after LLLT. Low level laser treatment was performed by use of GaAlAs laser on the both parotid and submandibular and sublingual glands every day except weekend during 14 days. Every session lasted for 20 minutes. Acupuncture was performed by use of needles inserted on the representative points on both ears. After the participants got press needles (0.16x1.4mm) on one ear at the points Shen Men and Thirst Point till the next session. Second acupuncture session was one week after the first one and the remaining three every seven days. Results: Significant increase in salivary flow rate after treatment in the acupuncture and LLLT group was found. No significant difference in OHIP score was found after treatment in LLLT group. Significant difference in OHIP score was found after treatment in acupuncture group. Conclusions: Acupuncture is superior to the LLLT as both USFR and OHIP scores were significantly increased. Key words: drug-induced hyposalivation, acupuncture, low level laser therapy.

PP – 104**AN ALTERNATIVE APPROACH FOR PARAFUNCTIONAL CHEEK BITING**

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Introduction: Physical traumatic injuries are commonly seen in individuals with parafunctional habits or under stress and usually bilateral, and increased mucosal thickness, whitening on erythematous areas can be observed. Erosive areas can be turn to ulcerations which are very painful. Material and Methods: A 17-year old male patient who attended to our clinic with the complain of pain in his cheek. In clinical examination, on his left buccal mucosa, a traumatic ulceration with a size of 2x2 cm caused

by chronic cheek biting and sucking was seen. Advices were given for quitting his harmful habits. At first visit, rigid appliance use was avoided as not to cause more injury. Topical steroid cream and vitamin A tablets were given. After 2 weeks the ulceration was completely healed. After 6 months, new traumatic ulcers occurred in different areas- around the anatomical fissures in the retromolar regions due to unusual biting habit. An acrylic appliance was made to prevent biting. Results: The patient quit his habits and the ulceration was completely healed. Because of the healing of the lesion, there was no need for biopsy. Discussion: The most effective treatment of traumatic ulcerations is to prevent harmful habits. To aid the healing, medical vitamin tablets and topical steroids may be recommended, adjustment of the sharp cusps of teeth can also be considered. A biopsy is recommended in refractory cases. Soft mouth guard can be utilized. In addition the patient can be referred to a psychologist.

PP – 105

PREVALENCE OF INFLAMMATORY BOWEL DISEASE RELATED ANTIBODIES IN PATIENTS WITH RECURRENT ORAL ULCERATIONS

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Recurrent oral ulcerations (ROU) are the most common oral mucosa lesions and can be seen in numerous systemic and local diseases. An association between ROU and inflammatory bowel disease (IBD) that includes Crohn's disease (CD) and ulcerative colitis (UC) has previously been suggested, but the supporting evidence remains questionable. Oral lesions occur in most cases of CD and can often precede intestinal symptoms. METHODS: Prevalence and concentration of IgA and IgG antibodies against *Saccharomyces cerevisiae* (ASCA) were determined by ELISA method in 40 patients with ROU and 30 healthy subjects without ROU. Also, the presence of antineutrophil cytoplasmic antibodies (ANCA) were detected in 40 patients with ROU and 30 healthy controls using an IIF assay. RESULTS: The prevalence of IgA and/or IgG ASCA seropositivity did not differ between ROU patients and controls (3/40 vs. 3/30 and 10/40 vs. 3/30, respectively, $p > 0.05$). Also, the prevalence of ANCA was not higher in patients with ROU (3/40 vs. 1/30, $p > 0.05$). There was a significantly elevated concentration of IgG ASCA in patients with ROU compared to control group ($p < 0.05$). CONCLUSION: The study suggests that screening for IBD is appropriate in patients with ROU, especially for early diagnosis of IBD since oral manifestations often precede intestinal symptoms. KEY WORDS: Recurrent oral ulcerations, inflammatory bowel disease.

PP – 106

CORRELATION BETWEEN THE PRESENCE OF PERIODONTAL BACTERIA IN ATHEROMATOUS PLAQUES OF ABDOMINAL AORTIC ANEURYSM

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In the last years the relationship between chronic periodontitis and cardiovascular diseases, such as abdominal aortic aneurysm (AAA) has been a subject of increasing research. The identification

of periopathogens in atherosclerotic plaque in subsequently developed AAA can contribute to our knowledge of that association. Therefore, the aim of this study was to assess the concomitant presence of 6 periodontal pathogens (*Actinobacillus actinomycetemcomitans*, *Prevotella intermedia*, *Porphyromonas gingivalis*, *Treponema denticola*, *Streptococcus mutans* and *Tannerella forsythia*) in subgingival and atherosclerotic plaque samples recovered from the same individuals. Three patients (mean age 57 years) with chronic periodontitis scheduled for vascular surgery were enrolled in the study. Subgingival plaque and atherosclerotic plaque samples were examined using the polymerase chain reaction and reverse hybridization techniques by means of specific probes for periodontal bacteria. All subgingival plaque samples were positive for at least three target microorganisms. Subgingival plaque samples demonstrated the presence of DNA of *Actinobacillus actinomycetemcomitans* 66.6%, *Prevotella intermedia* 100%, *Porphyromonas gingivalis* 100%, *Treponema denticola* 66.6%, *Streptococcus mutans* 66.6% and *Tannerella forsythia* 100%, respectively. Atherosclerotic plaque samples revealed the presence of *Actinobacillus actinomycetemcomitans* DNA in 33.3%, *Prevotella intermedia* 66.6%, *Porphyromonas gingivalis* 100%, *Tannerella forsythia* 66.6%, while *Treponema denticola* and *Streptococcus mutans* DNA were not detected. The presence of periodontal bacteria in atheromatous plaques was confirmed in this investigation, suggesting strong correlation between periopathogens and microorganisms involved in the atherosclerotic lesions. These results may support the hypothesis of a translocation of periodontal pathogens from subgingival microbiota to the bloodstream and then to atheromatous plaques of a. abdominalis.

PP – 107**TREATMENT OF GINGIVAL RECESSION CAUSED BY ENDO-PERIO LESION BY USING PLATELET-RICH FIBRIN: A CASE REPORT**

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Background: Endo-perio lesion is the association of periodontal and pulpal disease contained in the same dental site. In this case report, lateral sliding flap (LSF) technique was combined with platelet-rich fibrin (PRF) for the treatment of gingival recession (GR) occurred the result of damage during endodontic treatment. **Methods and Materials:** A 45-year-old female patient referred to the University of Necmettin Erbakan, Faculty of Dentistry, Department of Periodontology with the GR in upper anterior tooth site. There was a history of endodontic treatment of the maxillary right central incisor three days ago. Clinical examination revealed that there was no any symptom (sensitive to percussion, mobility, pain) except GR and root perforation in the upper anterior region. Radiographs also showed a broken root canal file. It was diagnosed as an endo-perio lesion of primary endodontic with secondary periodontal involvement. Firstly, initial treatment including the removal of etiological factor, scaling and root planning, and oral hygiene instruction was carried out. For the treatment of GR observed after initial treatment, LSF design which has an excellent post-operative healing process was combined with PRF obtained from autologous blood. **Conclusion:** In this case, usage of LSF design combined with PRF for the treatment of GR showed

satisfactory results such as root coverage, aesthetic condition with adequate band of keratinized tissue, and also reduced post-operative discomfort after 4 months.

PP – 108**OCCLUSAL TRAUMA EFFECTS ON THE SERUM LEVELS OF STRESS HORMONES IN THE BLOOD OF RABBIT**

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Objectives: The aim of the study was to investigate changes of the serum levels of stress hormones during experimental occlusal trauma in rabbits. **Methods:** 20 New Zealand White male rabbits were selected. Experimental periodontitis was included by tying a silk ligature around the neck of mandibular anterior teeth of rabbits in each group. Clinical indices and radiographic examinations were carried out on experimental days 0, 7, 21, and 90. In group test, experimental occlusal trauma was produced in the animal's lower anterior teeth by insertion of metal crowns which raised the vertical dimension of occlusion by 2mm and incorporated interferences into the occlusion. Blood samples were taken 0, 1, 3, 7, 30, or 90 days after introduction of occlusal trauma, and serum levels of ACTH, TSH, GH, PTH, PRL, and Cortisol were measured as the markers of stress. **Results:** At day 7 after insertion of the crowns there was a significant increase of serum Cortisol and PRL levels ($p < 0.05$). At day 30 after occlusal trauma, the level of GH was extremely low and in test animals ($p < 0.05$). Furthermore, there was evidence of trauma from occlusion of the experimental teeth, including a significant increase of tooth mobility, crown fracture and occlusal wear. Statistically significant correlations were not observed between stress hormones and periodontal clinical parameters. **Conclusions:** The present results show that both Cortisol and Prolactin levels are elevated in rabbit with experimental periodontitis induced by traumatic occlusion. In addition, the finding suggested that occlusal trauma could result in emotional stress.

PP – 109**CROWN LENGTHENING SURGERY AND PROSTHETIC REHABILITATION IN THE MANAGEMENT OF TOOTH ABRASION**

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Background: Crown lengthening plays a role to create healthy relationship of the gingiva and bone levels so as to gain access to more of the tooth which can be restored. The purpose of this case report was to present application of clinical crown lengthening surgery before restorative treatment for the aesthetics and to increase the retention of the restoration. **Material and Method:** A 37 old male patient before the prosthetic treatment is referred for crown lengthening operation. Examination results were found to be short of clinical crown height because of anterior tooth abrasion. Osteoplasty, gingivectomy and apically positioned flap was applied to maxillary anterior area. Prosthetic restorations was completed after tissue healing. **Result:** Improved

aesthetic appearance and the resolution of a potentially harmful psychosocial condition were achieved. Patient remained satisfied in the 3-month follow-up examination. Conclusion: Multidisciplinary treatment approaches can be resolved functionally aesthetic problems and improve quality of life.

PP – 110**EVALUATION OF LOW-POWER LASER EFFICIENCY IN GINGIVAL INFLAMMATION REDUCTION**

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The aim of this research was to examine the efficiency of a diode laser on gingival inflammation reduction, as a supporting treatment method following the initial periodontal therapy of chronic periodontitis. Materials and Methods: The study sample included 24 patients of both sexes. A diode laser, low-power laser (SmilePro 980, Biolitec) operating in the periodontology mode was used for laser irradiation. All patients went through: general anamnesis, periodontological status with all relevant parameters: plaque index, papillary bleeding index, gingival index, pocket probing depth, clinical attachment level, tooth mobility and x-ray analysis of orthopantomogram. Results: Average values of plaque index (PI), gingival index (GI) and papillary bleeding index (PBI) before the therapy were statistically different from average values immediately after the administered therapy, and three months after the therapy. Conclusion: Based on the obtained results, we concluded that the diode laser therapy as a supporting method after the initial periodontal therapy had a positive influence on the reduction of inflammation in gingival area even three months following the treatment. Keywords: laser therapy low-power, gingivitis, periodontal not surgical treatment

PP – 111**DEPIGMENTATION OF HYPERPIGMENTED GINGIVA WITH AIR-POWDER POLISHING SYSTEM: A CASE REPORT**

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Gingival hyperpigmentation is a major esthetic concern for many people. Although it is not a medical problem, many people complain of dark gums as unesthetic. For depigmentation of gingival, different treatment modalities have been reported, such as bur abrasion, scraping, partial thickness flap, cryotherapy, electrosurgery, and laser. One of these methods is air-powder polishing systems. Air-powder polishing method involves projecting a jet of compressed air, water and fine powder particles onto the surface of the tooth to polish the surface and remove debris. This method can be used not only for polishing teeth but also for depigmentation of gum. This case report aims to illustrate the use of air-powder polishing system in the removal of the gingival melanic pigmentation for aesthetic reasons in a 45-year-old female patient. The air-powder

polishing was performed on the gingival mucosa with effective and quick results and without any complications or significant symptoms after the treatment. We conclude that air-powder polishing systems could be a useful, effective, and safe instrument to treat hyperpermentation of gingival tissue.

PP – 112**CLINICAL EVALUATION OF SUBGINGIVAL CHLORHEXIDINE GEL APLICATION**

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BACKGROUND Mechanical debridement is a basic part of the conventional periodontal therapy that aims to reduce or eradicate periodontal pathogens. Local antimicrobial therapy have been introduced to treatment of periodontal disease as an adjunctive measure and involves direct placement of antimicrobial agent into subgingival area. In order to achieve its effect, an antimicrobial agent must stay long enough in subgingival environment maintaining sufficient concentration. Chlorhexidine is effective against gram-positive and gram- negative bacteria, viruses and yeast, and it is not known to any microorganisms resistance. Asuming that viscosity of gel would improve its efficacy, chlorhexidine was incorporated in gel. **METHOD AND MATHERIALS** This randomised, split mouth designed study included patients with at least two bilateral pockets probing ≥ 5 mm. Periodontal pockets, total of 40, were randomly assigned to treatment by scaling and root planing (SRP) and chlorhexidine gel, three times in 10 minute, (SRP+CHX group) or by SRP alone (SRP group). Clinical measurments including probing depth (PD), clinical attachment level(CAL), bleednig on probing (BOP) and plaque index (PI) were recorded at baseline, one and three months after the therapy. **RESULTS** Both treatments have led to significant improvement in PD, BOP and PI values one and three months after the baseline. However, significan improvement in CAL value was observed only for SRP+CHX group at three months recall. Significant difference between treatments was observed only for SRP+CHX group over SRP group in PI value at one month recall. **CONCLUSION** Local administration of chlorhexidine gel is beneficial as adjunct to SRP.

PP – 113**PERIPHERAL OSSIFYING FIBROMA: A CASE REPORT**

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Background: Peripheral ossifying fibroma (POF) is a common gingival overgrowth thought to arise from the periosteum and periodontal ligament. But the etiology of POF is unclear. POF is a non-neoplastic enlargement and is classified as a reactive hyperplastic inflammatory lesion. It is typically seen on the interdental papilla. Females are more commonly affected than males. POF exhibits a peak incidence between the second and third decade. The purpose of this report is to present a case of POF in the anterior maxilla. **Methods and materials:** A 14-year-old male patient applied to our clinic with a painless

gingival growth in his upper right front teeth. An intraoral examination revealed reddish pink gingiva with a well-demarcated, non-tender, firm, sessile nodular growth arising from the interdental papilla of the maxillary right lateral and canine teeth. The mass in buccal was 0.5 x 0.5 cm in size and the mass in palatal was 1 x 1 cm with a reddish pink color and smooth surface. In radiographic examination, no radiological signs of involvement of alveolar ridge were observed. Initial periodontal treatment was applied and oral hygiene instructions were given to the patient. After 3 weeks, the lesion was excised conservatively. Results: The result of histopathological evaluation confirmed diagnosis of POF. Patient still comes to routine controls. Conclusion: Histopathological examination of lesion is necessary for an accurate diagnosis. Also, postoperative follow-up is required, due to the high recurrence rate. Key Words: Peripheral ossifying fibroma, fibroma, gingiva

PP – 114**THE EFFECT OF PRP WITH BONE GRAFT IN PERIODONTAL REGENERATION IN AGGRESSIVE PERIODONTITIS: CASE REPORT**

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Introduction: Aggressive periodontitis is a severe destructive form of periodontitis causing bone loss that can even reach apices of the relevant teeth. Regenerative therapy offers reconstruction of the periodontium. The purpose of this case report was to evaluate the effectiveness of platelet rich plasma (PRP) with bone graft in periodontal regeneration in localized aggressive periodontitis patients. **Case:** Two patients, 17 years old female and 22 years old male, were referred to Gaziosmanpasa University Faculty of Dentistry Department of Periodontology. Based on the intraoral and radiographic examination patients were diagnosed with localized aggressive periodontitis. A thorough non-surgical periodontal treatment was provided and patients were treated by surgical periodontal therapy. The bone defect was filled with a bone graft (using freeze dried cancellous bone allograft) (0.5-1.0 mm, Maxxeus Dental™, Ohio, USA) and PRP, and a guided tissue regeneration membrane (1.0-1.0 cm pericardium, Maxxeus Dental™, Ohio, USA) was adapted over the site. Patients showed decreased probing pocket depth, increased radiographic bone fill when baseline and 18 month follow-up data was compared. **Conclusion:** Surgical reconstructive therapy with placement of PRP and bone graft in osseous defects of AgP patients can be an effective approach to enhance the periodontal regeneration.

PP – 115**EVALUATION OF CHRONIC PERIODONTITIS IN HOSPITALIZED INPATIENTS WITH DEPRESSION**

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Background/Aim. Periodontitis and other common chronic inflammatory diseases share multiple modifiable risk factors, such as depression. Depression implies cognitive and vegetative symptoms

that can impact oral health due to depressive symptomatology, physiological sequelae of depression, or oral side effects of antidepressant medications. The aim of this study was to compare the severity of chronic periodontitis in hospitalized patients with depression (D-group) and mentally healthy controls (H-group). Patients and Methods. The study comprised 89 patients with depression and chronic periodontitis at the Clinic for Psychiatric Disorders "Dr Laza Lazarevic" in Belgrade, and 89 mentally healthy patients at the Department of Periodontology and Oral Medicine, School of Dental Medicine, University of Belgrade. The clinical attachment level (CAL), probing depth (PD), bleeding on probing (BOP) and plaque index (PI) were registered in the both groups. Patients of the D-group were compared with age- and sex- matched controls. Results. The mean value of CAL and PD were 3.74 ± 0.60 mm and 4.10 ± 1.02 mm in D-group and 2.56 ± 0.32 mm and 3.05 ± 1.50 mm in H-group, respectively ($p < 0.05$). The BOP values (2 ± 0.2) and PI in D-group (1.8 ± 0.3) were significantly higher than in H-group BOP (1.1 ± 0.3) and PI (1.2 ± 0.3); ($p < 0.05$). Conclusion. It can be concluded that the patients with depression had more severe destruction of periodontal tissues than mentally healthy controls. Key words: depression, chronic periodontitis

PP – 116**STRESS RELATED TO LIFE EVENTS AND ITS ROLE ON GINGIVAL INFLAMMATION**

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The present study is aiming to explore the relation of stress perceived from life events and its role on the gingival inflammation reflected through parameters of sulcus bleeding index (SBI) and the Turesky-Gilmore-Glickman Modification of the Quigley-Hein Plaque Index. Material and methods: 97 patients presented in the University Dental Clinic in the Restorative Dentistry and Periodontology Services during the period of 2014-2015 academic year, were included in this study. We used the SBI and the TQHPi for evaluating the gingival status of the patients involved and the form of Life Experience Survey with a previous consent from the attenders. Results: Patients that showed high THQPI results, had showed higher perceived stress on the Life Experience Survey Inventory. Similar data were recorded after the analysis of the SBI of the patients, where patients with high scores of SBI compared to the ones with 0 or very low scores at the same time had reported high level of stress related to negative life changes from the Survey form. Conclusion: With regard to our study, the perceived stress related to negative life events shows to play a role in the gingival health status of the patient, reflected on the plaque accumulation and the gingival bleeding as a sign of acute inflammation.

PP – 117**FULL-MOUTH DISINFECTION VERSUS QUADRANT ROOT PLANING IN THE TREATMENT OF CHRONIC PERIODONTITIS**

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Background: The aim of this study was to test the hypothesis that full-mouth disinfection treatment (FMD) provides greater clinical improvement compared with quadrant scaling and root

planing (Q-SRP) in patients with chronic periodontitis. **Methods and materials:** Forty patients with chronic periodontitis (25 females, mean age 49.2 ± 7.2) were included and randomly assigned into two groups: FMD group (n=20) and Q-SRP group (n=20). The FMD group received full-mouth scaling and root planing performed in two consecutive days with adjunctive chlorhexidine treatment. Patients from Q-SRP group received scaling and root planing, quadrant by quadrant at one-week intervals. Clinical parameters (plaque index – PI, gingival index – GI, sulcus bleeding index – SBI, probing depth – PD and clinical attachment level - CAL) were recorded at baseline and one month after the last intervention. **Results:** Both treatment modalities resulted in significant improvement of all clinical parameters one month after therapy ($p < 0.001$). Inter-treatment differences were only observed for GI ($p < 0.05$) and SBI ($p < 0.05$). **Conclusion:** In patients with chronic periodontitis treatment effects of FMD were slightly higher compared to Q-SRP.

PP – 118**A MULTIDISCIPLINARY APPROACH FOR GENERALIZED AGGRESSIVE PERIODONTITIS: 1-YEAR FOLLOW-UP**

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Aim: Aggressive Periodontitis (AgP) has a genetic background and it is an inflammatory and infectious disease. The treatment of aggressive periodontitis includes scaling and root planing with or without combined antibiotics. The aim of this case report is to demonstrate the effects of nonsurgical periodontal therapy and endodontic therapy in the treatment of aggressive periodontitis. **Material And Method:** A 28-year-old female patient with aggressive periodontitis has applied to Selcuk University, Department of Periodontology with gingival bleeding, tooth mobility and esthetic complaints. The pocket depths and clinical attachment levels were evaluated. Periapical lesion was observed on the apical part of 31, 32, 42 on the radiograph taken from the lower incisor part. These teeth were found vital after the vitality tests. Endodontic treatment was applied to 31, 32 and 42 due to the perio-endo lesion around these teeth. In addition, dental trauma was eliminated by stripping of these teeth. Combined antibiotic therapy was applied during scaling and root planing. The existing enamel defects on the lower anterior teeth were restored esthetically with composite materials and these teeth were splinted to eliminate mobilization. The treatment of the patient turned to do the recall phase. **Result:** Nonsurgical periodontal therapy improved clinical parameters including clinical attachment level and pocket depth. Also it provided the bone gain in areas of bone defect. Esthetic result was achieved on the lower anterior teeth by restoring the existing enamel defects and mobilization of the teeth was partially decreased. **Conclusion:** The successful treatment of perio-endo lesions in aggressive periodontitis patients by periodontal treatment combined with endodontic treatment was observed in this case.

PP – 119**PERIODONTAL TREATMENT OF CASE WITH PAPILLON LEFEVRE SYNDROME**

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Background: Papillon-Lefevre Syndrome (PLS) is autosomal recessive disease characterized by palmoplantar hyperkeratosis combined with a rapidly progressive periodontal breakdown affecting both dentitions. The aim of this presentation is to discuss the periodontal treatment approach of the cases with Papillon-Lefevre syndrome. **Methods:** Six cases with tooth mobility, advanced periodontitis and palmoplantar skin lesions were applied to Selçuk University Faculty of Dentistry, Periodontology Department. Based on clinical and radiographic findings and dermatological consultation, the cases were diagnosed with PLS. Medical examination revealed that none of the patients had systemic disease. **Treatment;** The phase I therapy including oral hygiene instruction, scaling and root planning (SRP) and systemic amoxicillin-metronidazole therapy (500 mg of amoxicillin and 250 mg of metranidazole, three times daily, chlorohexidine digluconate mouthrinse twice daily for 10 days). In addition to first phase therapy diode laser decontamination was performed simultaneously with SRP. In one of the cases, two mandibular canines' roots were submerged and in another case two implants were inserted to save alveolar bone around canine region. However, regular therapy and strict follow-up were made; tooth loss could not be prevented especially in 5 cases. **Conclusion:** There's still no real treatment to help those who suffer from this disease to keep all their natural teeth and alveolar bone, though their exfoliation and loss can be delayed. Professional approach might not be satisfactory to save the tooth and alveolar bone. Further development in the periodontal treatment of LPS cases is required and new guidelines should be established.

PP – 120**TREATMENT OF GINGIVAL ENLARGEMENT; A CASE REPORT**

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AIM: Gingival enlargements may adversely affect speech, mastication, tooth eruption, and esthetics. These enlargements can occur as a result of the administration of certain drugs, heredite, mouth breathing and poor oral hygiene. The present case report describes the treatment of a patient who had gingival enlargement because of mouth breathing. **MATERIAL AND METHOD:** The patient who had mouth breathing applied to the Department of Periodontology in Selçuk University. The patient was 22 years old. She had no systemic disease and complaint of gingival bleeding and enlargement. Clinical and radiological situation was examined. After conventional periodontal procedures, inflammation was eliminated. The enlarged tissue was surgically removed by internal bevel gingivectomy and ledge and wedge procedure. The patient was regularly monitored clinically for improvement in her periodontal condition as well as for any recurrence of

gingival overgrowth. **RESULT:** Nonsurgical therapy, surgical therapy, supportive periodontal therapy and effective oral hygiene procedures are successful in treatment gingival enlargement. **CONCLUSION:** In this case, healing was uneventful, and no recurrences occurred 3 months postoperatively.

PP – 121**EFFICACY OF SUBGINGIVAL AIR POLISHING IN PATIENTS WITH AGGRESSIVE PERIODONTITIS**

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Background: Aggressive periodontitis is one of the most severe forms of periodontal disease, resulting in the destruction of junctional epithelium and alveolar bone around teeth in a very short period of time. The early diagnosis of aggressive periodontitis and timely therapy is of outmost importance in controlling the progress of the disease. Application of the techniques of subgingival air polishing of periodontal pockets (pflow) with glycine powder has contributed to reduce damage to the root surface of the teeth and surrounding soft tissue. **Aim:** The goal of this paper was to determine the effectiveness of two different types of subgingival therapy for the periodontal tissue status at the patients with aggressive periodontitis **Methods and materials:** the study included 46 patients of both sexes diagnosed with aggressive periodontitis. The patients were divided into two groups: test group (pflow), and control group (sonic SRP). The size of the destruction of periodontal tissue was estimated by CAL and assessment of oral hygiene and gingival inflammation was performed using FMPS and FMBS. **Results:** Monitored indexes values in both groups were reduced. **Conclusion:** Subgingival air polishing showed equally good results as the SRP, while pflow was more advantageous with respect to patients acceptability, time usability and safety for the soft tissue.

PP – 122**TREATMENT OF COMPLICATION FOLLOWING ACCIDENTLY EXTRUSION OF SODIUM HYPOCHLORITE IN THE COURSE OF ENDODONTIC TREATMENT**

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Aim: The aim of this case report was to present the inadvertent effects and management of accidentally extrusion of sodium hypochlorite in to the periradicular tissues through lateral perforation of maxillary right first premolar in the course of root canal treatment and subsequently implant treatment. **Material and method:** 36 year old female patient referred to our clinic with pain and gingival recession in her right maxillar first premolar teeth after root canal

treatment. In clinic and radiographic examination necrosis of the soft and hard tissue were seen around the tooth that root canal treatment was performed. It was given antibiotics and antienflamatuar medication 2 weeks. Then 4 weeks after medical treatment tooth extraction and coronally sliding flap combine with bone grafts and membran was performed. 4 months after surgery implant treatment was performed. Veneer crown was made after 3 months. Results: Although sodium hypochlorite's adventegous properties, it may cause clinic complications caused by tissue toxicity and tooth extraction. However combination of implantation and regenerative treatment with bone grafts and membrans can solve this problem succesfully.

PP – 123**TREATMENT OF GINGIVAL RECESSION AND INCREASING THE WIDTH OF ATTACHED GINGIVA USING FREE GINGIVAL GRAFT**

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AIM: Gingival recession causes various problems such as dentine sensitivity, aesthetic problems, and root caries. Aim of this case is treatment of gingival recession and increasing the width of attached gingiva using free gingival graft procedure. **MATERIAL AND METHODS:** 34 years old female patient presented to our clinic with dentine sensitivity and esthetic problems. In clinic examination it was seen 4mm gingival recession in 41 number of tooth. After initial treatment, free gingival graft operation is planned to treatment. Clinic examination was performed after 1 and 6 months. **RESULTS:** After operation we observed a root coverage and increased attach gingival level.

PP – 124**FREE GINGIVAL GRAFT PROCEDURE ON MANDIBULER INCISOR REGION**

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Aim: A free gingival graft procedure is one of the most common approaches for increasing the zone of attached gingiva around tooth and dental implants. The aim of this poster is to present the rehabilitation of a mucogingival problem by using a free gingival graft. **Methods:** The report presents the case of a systemically healthy female patient with gingival recession and insufficient amount of keratinized gingiva in mandibular incisors region. The patient also had orthodontic problems including anterior open-bite and crowded teeth. Decision was given to apply free gingival graft to mandibular incisor region before the initiation of orthodontic treatment. The free gingival graft was obtained from palate and positioned apical to the area of recession at the level of mucogingival junction. Clinical variables, including recession depth, amount of keratinized tissue and probing depth was recorded before surgery and at post-op 4th month. **results:** From baseline to 4 months after free gingival grafting, height and thickness of the keratinized gingiva was increased and recessions reduced There was no change in probing depth after gingival augmentation procedure. **conclusion:** The free gingival graft is a treatment option available when

the height and thickness of the keratinized gingiva is insufficient. The free gingival graft is a simple and predictable technique for increasing the zone of attached gingiva.

PP – 125**IN VITRO EVALUATION OF TOOTH DISCOLORATION IN PERMANENT TEETH TREATED WITH MTA FILLAPEX SEALER**

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Background: MTA Fillapex is a mineral trioxide aggregate (MTA) based root canal filling material which was presented for clinical usage in dentistry. According to the manufacturer, MTA Fillapex provides long term sealing capacity and promotes the deposition of hard tissue at the root apex because of including MTA. In many previous studies, it was well reported that MTA based materials caused to colour discoloration. The aim the present study was to evaluate the discoloration affect of MTA Fillapex sealer in permanent teeth. **Methods and Materials:** Sixty permanent maxillary central incisor teeth were prepared for root canal filling, and they were divided into three equal groups (n=20 for each group). First group was decided as the control that teeth were not filled with any material in this group. Other two groups were filled with Gutta-percha+AH Plus or Gutta-percha+MTA Fillapex sealer. Final restorations were completed by using a composite resin material in all groups. Colour change in one-year period for each group was calculated from the CIEDE2000 (ΔE_{00}) formula. Data were statistically analyzed with 3-way ANOVA and the Tukey HSD test ($\alpha=.05$). **Results:** In MTA Fillapex group, tooth discoloration was statistically higher ($p<.001$) than both AH Plus and control groups. No significant difference was detected between AH Plus and control groups ($p>.05$). **Conclusion:** In in vitro conditions, MTA Fillapex caused to tooth discoloration in permanent teeth. On the other hand, further clinical studies are required to support these results.

PP – 126**COMBINED ORTHODONTIC, ESTHETIC AND COSMETIC TREATMENT OF MAXILLARY ANTERIOR TEETH – CASE REPORT**

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Background: Contemporary patients' requirements are for high esthetics and preserving the vitality of the teeth. Different treatment protocols can be suggested for the dental treatment. **Purpose:** To describe a case of combined orthodontic-restorative treatment of maxillary anterior teeth. **Materials and methods:** A case of a 65- year old patient was treated by combined orthodontic and restorative treatment. The orthodontic treatment included lingual orthodontic appliance and mini screws for 11 months. After that all maxillary anterior restorations were removed and replaced by new ones, after bleaching. The restorations were made by method of L.

Vanini. Results: The translucency, opalescence and color density of maxillary anterior teeth were significantly improved. The enamel and dentin shades allow high quality aesthetics. The vitality of the teeth was preserved and the position of the teeth was corrected. **Conclusions:** The combined orthodontic, esthetic and cosmetic treatment of maxillary anterior teeth is method with excellent result. The patient's expectations were satisfied.

PP – 127**ALTERNATIVE APPROACH FOR RESTORING EXTENSIVELY DAMAGED MOLARS WITH CAD/CAM:A CASE REPORT**

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Introduction: CEREC AC (Sirona Dental) systems predominantly utilize ceramic materials for their esthetic qualities, surface finish, and long-term durability and ceramic veneers, crowns and partial crowns are a primary treatment option for chairside CAD/CAM systems. After endodontic treatment extensively damaged molars teeth are restoring with partial crowns like as endocrown. Endocrowns are monoblocks that have support from pulp chamber. **Materials and Methods:** 18 years old male patient presented with severe dental structure loss after endodontic treatment on tooth 26. After discussing treatment options, risks and benefits, the patient selected to have a nano-ceramic endocrown fabricated in a single appointment with a chairside CAD/CAM system. Lava Ultimate restorative (3M ESPE), block was selected for the endocrown. Digital image scans of the preparation were made with the CEREC AC system. The restoration proposal was calculated based on the unique anatomy of the adjacent teeth using the Biogeneric Individual design process. In this case, a selective etch process was used on the preparation enamel. The endocrown was seated with dual cured resin cement. Following visible light curing, the margins were finished and polished. **Results** The postoperative situation shows the potential of this restorative approach to provide adequate function and esthetics, as well as biomechanical integrity of structurally compromised posterior non-vital teeth. This technique represents a promising and conservative alternative to full crowns for the treatment of posterior non-vital teeth that require long-term protection and stability. **Key Words:** Endocrown, CAD/CAM, Biogeneric Design

PP – 128**COLOR STABILITY OF THREE RESIN COMPOSITES POLIMERIZED WITH QUARTZ TUNGSTEN HALOGEN AND LIGHT-EMITTING DIODES**

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Background:The aim of this study to evaluate color stability of 3 methacrylate-based resin composites polimerized with Quartz Tungsten Halogen(QTH) and Light Emitting Diodes(LED). **Method and Materials:**3 methacrylate-based resin composites;Filtek Z550,Filtek Ultimate Flowable and Filtek Bulk Fill composites were used in this study.Two light curing units were used

for photopolymerisation; QTH and LED. All specimens received same amount of energy for standardization; fixed energy density is 28J/cm². Color measurements were recorded with a colorimeter (Minolta CR-321) immediately after polymerization, after 24 hours, 7 days, 15 days and 1 month of storage in artificial saliva. The color change (ΔE) was calculated according to CIE L*a*b* color system formula. One-way ANOVA and Bonferroni tests were used to compare composite groups. To determine changes in time intervals for all data, dependent samples t test was used ($\alpha=0,05$). Results: No significant differences between all composites in 24 hours. All composites showed significant differences from each other on 7th day and 15th day polymerized with LED and QTH. Filtek Z550 showed significant difference from other composites in 1 month polymerized with QTH and LED. Filtek Ultimate flowable and Filtek Bulk fill composites showed no significant differences from each other in 1 month. Dependent samples t test revealed that no significant difference between QTH and LED in 24 hours, 7th day, 15th day and 1st month. Conclusion: Polymerization with QTH and LED did not show significant influence in all composites. There was an effect of composite and time on the color stability. Keywords: bulk fill, composite resin, color stability

PP – 129

SURFACE-RETAINED BRIDGES

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Background: Fiber reinforced composite materials offer a unique treatment method for replacing missing teeth. These materials represent minimally invasive solution for saving healthy tooth structures, and have been clinically used for preparation of composite reinforced bridges with fibres. Advantages of fiber reinforced composite materials include reliability and aesthetics, as well as costs when compared with other extensive restorations. Indications for use of these materials are surface-retained bridges, inlay and onlay bridges, temporary and immediate bridges. **Methods and Materials:** GC everStickC&B glass fibre reinforcement for fibre reinforced composite (GC G-ænial, GC G-ænial Universal Flo) and self-etching adhesive (GC G-ænial Bond) were used in the study within three clinical cases. In the first case surface-retained bridge was made in order to replace missing lateral incisor, using third class preparation on canine and central incisor for retention. The second case represents closure of diastema with surface-retained bridge, using combined retention (second class preparation and surface adhesion). In the third case, extracted lower central incisors were replaced by surface-retained bridge, without preparation. **Results:** Surface-retained bridges listed in mentioned case reports were clinically evaluated through the five-year period. They showed excellent survival, without fractures, spalling and loss of function. **Conclusion:** Fiber reinforced composite restorations give acceptable clinical survival, when used in adequate thickness, and in combination with adhesive systems.

PP – 130**AESTHETIC TREATMENT OF UNILATERAL LATERAL INCISOR AGENESIS AND PEG SHAPED LATERAL INCISOR WITH COMPOSITE RESIN**

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Aim: Lateral incisor agenesis and peg shaped lateral incisors cause aesthetic problems. Patients who have these types of problems can be successfully treated by restoring the lateral incisor or repositioning and reshaping of canine to simulate the lateral incisor. Aesthetic rehabilitation of unilateral lateral incisor agenesis and unilateral peg shaped lateral incisor with composite resin presented in this case report. **Case declaration:** 20 year old woman who has aesthetic problems applied our clinic for treatment. In clinical examination it was seen that right maxillary lateral incisor was peg shaped and left maxillary lateral incisor was congenital missing. It was decided to restore right maxillary lateral incisor with direct composite laminate technique and reshape the left maxillary canine to simulate the lateral incisor with composite resin. The teeth were restored with 2 steps self-etch adhesive system (Clearfil SE Bond, Kuraray) and nanofilled composite resin (Clearfil Majesty ES-2, Kuraray). Then, finishing and polishing procedures were performed with aluminium oxide abrasive discs. The patient was observed clinically after restorative procedures completed. **Conclusion:** After 1 year follow up the teeth restored with composite resin didn't show any aesthetic problems; the teeth and periodontal tissues were healthy by clinical and radiographical observations.

PP – 131**BOND STRENGTH AND MICROMORPHOLOGY OF LASER APPLICATION ON DIFFERENT DENTIN STRUCTURES USING SIX ADHESIVE SYSTEMS**

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The aim of this study was to evaluate the effects of Er:YAG laser treatment on bond strength of different adhesives to different dentin surfaces and on their morphological status. 240 teeth without caries, 60 abraded teeth and 60 caries affected teeth were collected for this study. 360 extracted human molars were flattened to obtain dentin surfaces and they were polished with SiC papers. Teeth were grouped as follows: G1: sound-dentin, G2: abraded-dentin, G3: caries affected-dentin, G4: artificially created erosive-dentin, G5: artificially created erosive+abraded-dentin, G6: artificially created caries affected-dentin. Each groups were divided into two groups to obtain control and laser groups. Laser treatments were made by Er:YAG laser. After application of six different adhesives (AdperScotchbondMultipurpose, AdperSinglebond2), one step self-etches (AdheseOneF, G-aenial), two step self-etches adhesives (ClearfilSE, AdheSE) composite buildups were created with a composite. The teeth were sectioned into serial 1-mm² sticks, and microtensile bond strengths of specimens was measured using a universal testing machine (n=20).

Failure modes were determined under a stereomicroscope. Bond strength data were recorded in MPa. Specimens from each group were evaluated with SEM for adhesive interface and with AFM for surface morphologies. The obtained data were statistically analyzed ($p < 0.05$). Laser treatment increased bond strength only on artificial erosive+abraded dentin, but on other groups no significant increases was obtained ($p < 0.05$). For each laser and control groups highest bond strength values were performed by AdperScotchbondMultipurpose and ClearfilSE adhesives ($p < 0.05$). As a conclusion, it was found that laser treatment on different dentin surfaces didn't enhance the bond strengths of different adhesive systems.

PP – 132**DIRECT COMPOSITE RESTORATIONS: A CONSERVATIVE APPROACH TOWARDS PEG-SHAPED ANOMALIES**

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Aim: A peg-shaped anomaly is known as a developmental alteration in dental shape which incisal mesio-distal width of the crown is narrower than the cervical region. Shape anomalies usually cause discomfort, esthetic concerns and even disfunctions. In this report, three patients with peg-shaped lateral incisors treated with esthetic direct composite resin restorations were presented. **Materials and Method:** Three patients with esthetic concerns about their anterior teeth were examined and existence of peg-shaped lateral incisors were identified. **Case A:** Male (age 23), bilateral lateral incisors peg-shaped anomaly. **Case B:** Female (age 21), left lateral incisor peg-shaped anomaly. **Case C:** Female (age 18), right lateral incisor peg-shaped anomaly. After intraoral examination, direct composite resin restorations were planned for the teeth with anomalies. Without any bur use, total etch adhesive system (37% orthophosphoric acid (Prudent, USA) and Adper Single Bond 2 (3M ESPE, USA)) was applied to isolated enamel surfaces. A nanohybrid composite resin (Clearfil Majesty S2, Kuraray, Japan) in suitable dentin, classic and enamel shades were used incrementally in order to achieve a natural and desirable appearance. These restorations were performed within the limitations of occlusal contacts and in case B, C the available symmetrical lateral incisors' shapes. **Conclusion:** In regard to the treatment of shape anomalies the most sufficient method should be chosen considering every treatment option's limitations and advantages; patient's age, expectations and economic conditions. In minimal conservative treatment of these cases direct composite resin restorations provide a successful and esthetic approach. **Key words:** Direct composite restoration, peg-shaped anomaly, conservative approach

PP – 133**ANTERIOR ESTHETIC APPROACHES WITH RESIN BONDED FIBER SPLINT AND FIBER POST**

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Background Different therapeutic options can be considered for the replacement of a congenitally or traumatically missing permanent incisor in young children and adolescents. Fiber-reinforced

adhesive bridge can offer a good alternative to conventional treatment options in replacing a missing permanent anterior tooth until a more definitive prosthesis can be provided at the end of the growth period. The aim of these cases are replacement of a congenitally and traumatically missing permanent incisors with reinforced resin-bonded fiber splint and fiber post. **Materials Methods** Case A:16 years old female patient congenitally had absence of mandibular lateral incisors. Case B:14 years old female patient had a crown fracture of the mandibular central incisors with root canal treatment. In Case A, we prepared an acrylic teeth which are compatible the space of tooth morphology. This acrylic teeth placed with composite resin containing fiber splint and assistance were secured to adjacent teeth. In Case B, we made a crown restoration with incremental composite layering after the placement a fiber post. **Result Photographs** were taken at the end of the therapy and after two weeks. Also patients were given oral hygiene training. Periodic clinic control of patients are planned to assess color, form and function. Patients were told that they should refrain from making mechanical loading on the teeth. **Conclusion** Fiber-reinforced adhesive bridge technique and fiber post reinforced composites restores esthetic and function. It is more comfortable than a removable appliance, nonirritating, hygienic and also conservative. **Key words:** Fiber reinforced bridge, fiber post, anterior esthetic restorations

PP – 134**INFLUENCE OF DENTAL VISIT PATTERN ON DENTAL STATUS AND ORAL HEALTH-RELATED QUALITY OF LIFE**

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AIM: The aim of this study was to investigate the influence of dental visit pattern on the dental status and oral health related quality of life. **METHODS:** The cross sectional study included 151 consecutive patients (mean age 31.6±5.9; women: 63.6%) seeking a dental treatment at Faculty of Medicine, University of East Sarajevo, Bosnia and Herzegovina. Participants answered a questionnaire regarding their use of dental services, oral hygiene habits and oral health related quality of life (Oral Impact on Daily Performance, OIDP). According to motivation for dental attendance, subjects were classified as problem based dental attenders and regular dental attenders. Data showing the prevalence of caries were obtained through clinical examination. **RESULTS:** The problem based dental attenders¹ had more carious teeth ($p=0.005$), did not use other oral hygiene aids ($p=0.016$) and had significantly more impaired oral health related quality of life ($p=0.001$). Regarding OIDP items, there was difference between the groups only in smiling ($p=0.017$). **CONCLUSIONS:** The present study revealed that regular dental attenders had better dental status, oral hygiene habits and better oral health related quality of life than those who reported problem based dental visit. **Keywords:** dental visit pattern, dental status, oral health-related quality of life.

PP – 135**THE INFLUENCE OF OXALATE-BASED DESENSITIZER ON POSTOPERATIVE SENSITIVITY IN POSTERIOR COMPOSITES RESTORATIONS**

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Background Postoperative sensitivity is a complication of restorative procedure characterised by brief, sharp pain that occurs as a results of mechanical, thermal and osmotic stimuli after restorative treatment. The aim of the study was to examine clinical efficacy of oxalate desensitizer in preventing the occurrence of postoperative sensitivity after application of composite material and different liners. **Methods and materials** This clinical study included 120 patients in which two homologous contralateral posterior teeth were restored with composite material (Ceram-X Mono), with the use of oxalate desensitizer (BisBlock) and different liners (Calcimol LC, ANA Liner and Fuji II LC). Patients were divided into three groups, depending on the applied liners. In each patient, before the application of composite material in one tooth the liner was placed, while in the other tooth both the desensitizer and the same liner were used. Follow-up examinations were performed 24 hours, 7, 15 and 30 days after treatment. Sensitivity assessment has been conducted to thermal, osmotic and mechanical stimuli. **Results** In the group where teeth were restored with BisBlock, postoperative sensitivity was observed in 6.7% of the restorations, while in the group where oxalate desensitizer is not used, the sensitivity was observed in 15.8% of cases. Analysis of the incidence of postoperative sensitivity depending on the application of BisBlock, in all teeth, showed a statistically significant difference ($p < 0.05$). **Conclusion** The use of desensitizer reduced significantly the incidence of postoperative sensitivity.

PP – 136**ESTHETIC TREATMENT OF A VITAL MAXILLARY CENTRAL INCISOR USING TWO BLEACHING TECHNIQUES -CASE REPORT**

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Introduction Discolored teeth in the anterior region can cause considerable esthetic problems. Two fundamental bleaching approaches exist, dentist-supervised night-guard bleaching and in-office or power teeth bleaching. Though these two techniques are often used separately, the aim of this case report is to present the possibility to combine them successfully as one does not exclude the other. **Case Report** A 28-year-old female patient visited the clinic because of the discoloration of the maxillary right central incisor. Clinical examination and the vitality test showed that the tooth was vital. In-office power bleaching with 32% hydrogen peroxide (White Smile Power gel, Germany) activated by an LED light (Bluephase G2, Ivoclar, Vivadent) 3 x 20 min. was applied followed by a night-guard vital bleaching technique using 16% carbamide peroxide

gel (White Smile Home gel, Germany) for 7 days. Following treatment, the color of the treated tooth, verified using Vita shade guide (Vita Zahnfabrik, Germany), and from shade A3,5 become equal to the color of adjacent teeth (A1). Conclusion. Combining two different bleaching techniques can successfully bleach single discolored but vital teeth even up to 7 shades lighter. Key words: teeth discoloration, in-office bleaching, night-guard vital bleaching

PP – 137**BIOACTIVITY MINERAL TRIOXIDE AGREGATE AND INFLUENCE ON ODONTOGENESIS**

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The aim of this study was to verify the efficiency of material – mineral trioxide aggregate, MTA, in direct pulp capping Wistar rats' teeth. Methodology: The study was conducted on 15 rats, specifically 30 paired first molars on which the procedure of direct pulp capping is performed. MTA is placed on 30 molars (experimental group) while 10 molars represented control group. Histological analysis was performed in three observation periods (after 7,14 and 30 days) after placing MTA. Inflammatory changes in the pulp tissue were graded into 4 levels. Sections of the pulp were analyzed at the electron microscope at various magnification. Results: Histological analysis of 150 sections of dental pulp at healthy rats with direct pulp capping with MTA .After observation period of 7 days there is a very high cell activity and a few sectiones with inflamatory cells(only 12). After14 days indicated that fibrin matrix can be seen in 128 sections in the region of contact with the pulp capping material. There were found initial signs of inflammation in 12 sections, and inflammation was expressed in 10 sections. There weren't signs of necrosis in any sections. After observation period of 30 days, completely formed dentin bridge was observed at the site of perforation in 122 sections, initial signs of inflammation was observed in 120 sections and inflammation was observed in 8 sections. Conclusion: The results indicate a high bioactivity mineral trioxide aggregate and a strong influence on odontogenesis.

PP – 138**ENDOCROWN; AN EMERGING TREATMENT MODALITY**

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The restoration of the endodontically treated teeth (ETT) raises concerns to the contemporary clinical dentist due to the greater probability of failure in comparison to the non-ETT. The development of the adhesive systems and the evolution of materials and technology, especially the introduction of CAD/CAM systems in dentistry has led to the emergence of alternative treatment options for the ETT. The endocrown restoration, which refers to a monolithic ceramic adhesive restoration extending into the pulp chamber of an endodontically treated tooth, is an alternative treatment option recently introduced. The endocrowns are minimally invasive, since they do not demand the preparation of root canals, and they can potentially be the elected choice of treatment for the excessively damaged tooth. The purpose of this review is to comprehensively

discuss the operating mechanism of this technique and compare this to classical restorative options (post-and-core, ceramic crowns), referencing its advantages, indications and clinical applications.

PP – 139**RELATIONSHIP OF MORFOLOGICAL CHARACTERISTICS OF TEETH AND MARGINAL SEALING AND THE TREATMENT OF DEEP CARIES**

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Objective: The aim of this study was to verify the efficacy of the treatment of deep caries based on clinical obtained results but in a function of morfological groups of teeth and the influence of a good sealing of materials on the ultimate outcome of treatment in this group of teeth. **Material and Methods:.** Study was conducted at 45 teeth with deep caries. After the indirect pulp capping treatment, 45 teeth were restored with composite resin. Opsereved period was 3, 6 and 12 month. **Results:** The obtained results have shown that the successful outcome of the treatment of deep caries was more often in the teeth of the lower jaw relative to the teeth of the upper jaw. The best success in treatment was recorded in molars and premolars . Fracture frequency of one part of the crown during the treatment indicated to changes in only 11,1% teeth after 12 months, but after 3 and 6 months there was no changes in the crowns of the teeth. **Conclusion:** Based on these results it can be concluded that the more successful outcome of the treatment of deep caries was slightly higher in the group of the men in the teeth of the lower jaw. The best success in treatment was recorded in molars .

PP – 140**MICROLEAKAGE EVALUATION OF DIRECT COMPOSITE VENEERS POLIMERISED WITH DIFFERENT TECHNIQUES**

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INTRODUCTION Composite materials can be used in the form of veneers that can easily solve significant aesthetic problems of many patients, without complex prosthetic procedures and the application of ceramic veneers The aim of this study was to evaluate microleakage of direct composite veneers of abraded and fractured teeth after application of classical and soft start technique of polimerisation. **MATERIAL AND METHODS** The study was conducted on 40 extracted human anterior teeth. Teeth were extracted for periodontal resons and divided into two groups: fractured teeth (20) and abraded teeth (20). 10 teeth in each group were polymerized witi classical and soft start technique of polimerisation. Dye penetration was measured using stereo loupes

with micrometrem scale and six times magnification. **RESULTS** Linear dye penetration of direct composite veneers in fractured teeth polymerized with classical technique of polimerisation on the gingival wall was 2,75, Fractured teeth polymerized with soft start technique of polimerisation was 3,25 (μm). Average dye penetration of direct composite veneers in abraded teeth polymerized with classical technique of polimerisation on the gingival wall was 3,0 (μm), Linear dye penetration in abraded teeth polymerized with soft start technique of polimerisation was on (3,50 μm) **CONCLUSION** The lower dye penetration was observed in the group of fractured teeth polymerized with classical technique of polimerisation.

PP – 141**EVALUATION OF SURFACE ROUGHNESS OF DIFFERENT COMPOSITE RESINS POLYMERIZED WITH DIFFERENT LIGHT CURING UNITS**

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Background: The aim of this study was to assess the surface roughness of composite resins with different photoinitiator ratios polymerized with different light curing units after storage in acidic solutions. **Materials & Methods:** 3 different composite resins (Tetric Evo Ceram, Tetric N Ceram, Clearfil Majesty Esthetic) in different shades were inserted in teflon moulds of 2 mm in depth and 5 mm in diameter and polymerized with a halogen (Hilux) and two LED units (Elipar, Valo) and stored in either acidic solution or artificial saliva. 8 resin discs were prepared for each composite/shade/light curing unit. Total of 144 resin discs were prepared. Surface roughness values (Ra) were measured with a surface profilometer (Surftest SJ-301, Mitutoyo, Japan). Then the discs were inserted in asidic solution (n=4) or artificial saliva (n=4). After 7 and 14 days the surface roughness measured again. **Results:** There were no statistically significant differences between the surface roughness values for composite resins and storage solutions ($p>0.05$), but there were significant differences between shades and light curing devices ($p<0.05$). **Conclusion:** Within the limitations of this in vitro study it can be concluded that light curing units must be selected according to the photoinitiator ratios of composite resin.

PP – 142**MINIMAL INVASIVE ESTHETIC RESTORATIONS WITH DIRECT COMPOSITE RESIN :TWO CASE REPORT**

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BACKGROUND Due to patient's high esthetic expectations ,irregular tooth shape and position are major aesthetic problems.More conservative approaches are preferred to solve the esthetic problems nowadays. Such conditions have increasingly been treated minimally or even non-invasively by direct resin composite build ups.This case reports aim is to show treatment procedures in different two case with minimal invasive method. **METHODS AND MATERIALS CASE 1** A 27-year-old male patient presented to our faculty with unsatisfied aesthetic apperiance of his teeth and diastemas between 11-12 and 21-22. Tooth shape correction was suitable by minimally invasive procedures on healthy teeth of patient.Direct composite restorations were planed and shade was selected.Resine composite was

incrementally applied. Finally finishing and polishing procedures discs were used. CASE 2 A 17-year-old male patient presented to our faculty with his compliance about appearance of his peg shaped lateral teeth. Two direct composite restorations were planned. Resine composite was incrementally applied and routine polymerization steps were followed. Finally finishing and polishing discs were used. RESULTS No problem detected in restorations and periferal tissues after 6 months control. CONCLUSION These simple procedures may be a cost-effective treatment alternative to restore the aesthetics appearance of patients.

PP – 143**ESTHETIC TREATMENT APPROACH FOR ANTERIOR TEETH: TWO CASE REPORTS**

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BACKGROUND In daily practice, resin composites are the materials most commonly used for restorative dentistry. They can be used for preventive seals, microinvasive restorations, build-ups. The aim of this case report is to present different treatment approach of anterior teeth in two cases. **METHODS AND MATERIALS** CASE ONE 20-year-old female patient presented to our faculty with the complaint of her crown fracture on tooth 21. The remaining tooth structures were found adequate for direct composite restorations. Labial surface was prepared within enamel borders and routine steps were followed for successful polymerization. A2 dentin shade and A2 enamel shade materials were applied and restorations were finished with polishing discs. CASE TWO 20-year-old female patient presented to our faculty with the complaint of her esthetic appearance. Patient had peg shaped lateral (12) and congenital deficient maxiller lateral tooth (22). The peg-shaped lateral incisor was restored with direct resin composite restorations using the routine steps. Maxiller canine (23) was reshaped to simulate lateral incisor. **RESULTS** Both cases were completed with successful direct esthetic restorations. 12 months later no problem were detected on the restoration and the surrounding tissues. **CONCLUSION** Since resin composite restorations exhibit excellent physical properties, marginal integrity and esthetics, these conservative options can be chosen to preserve tooth structure. Patients satisfaction can be achieved with these minimal invasive treatment methods instead of non conservative approaches.

PP – 144**RESTORATION OF MISSING ANTERIOR SINGLE TOOTH BY USING FIBER-REINFORCED BRIDGE: A CASE REPORT**

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Restoration of Missing Anterior Single Tooth By Using Fiber-Reinforced Bridge: A Case Report Missing anterior teeth is often seen among people from various ages due to many reasons. Different treatment alternatives can be presented to patients with a single missing anterior tooth. There are a number of advantages of fiber reinforced bridge such as, being minimally damaging on supporting teeth, having short treatment periods, being cheaper compared to other

techniques. Case Report: 35 years old man, who had complaint of staining and mobility of tooth #21(FDI), came to our clinic. Radiological assessment revealed a root resorption. Electrical pulp test showed that tooth was non-vital. Due to severe mobility and periodontal conditions tooth was extracted. Extracted tooth was used as a pontic for the fiber-reinforced bridge. Following extraction and root resection, the coronal pulp tissue was removed and crown was whitened with a 37% bleaching agent (Whiteness super endo, FGM). Light-cure composite resin was used to fill the intra-coronal space. Retention grooves were placed into the pontic and the adjacent abutment teeth. Pontic and the abutment teeth were acid-etched (Etch, D-Tech™). The bonding agent (Adper™ Single Bond 2 Adhesive, 3M ESPE) was applied to the acid-conditioned surfaces and polymerized. An appropriate length of the fiber reinforced with the composite (Interlig, Angelus®) was cut and adapted to the lingual surface, followed by light curing. Light-cure resin composite (3M, Filtek™ Supreme Ultra) was used to seal the grooves. Restoration was finished and polished with a fine diamond bur and polishing discs. The patient is complaint free since 9 months of treatment.

PP – 145**FULL-MOUTH REHABILITATION OF MUTILATED DENTITION AND LOSS OF VERTICAL DIMENSION DUE TO AMELOGENESIS IMPERFECTA**

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Background: The full mouth rehabilitation of patients with a vertical dimension loss caused by structural enamel deficits associated with Amelogenesis Imperfecta (AI) represents a difficult challenge for clinicians. Management of each case of AI requires correct analysis for treatment planning and adequate material selection to both restore esthetic and improve masticatory function. The aim of this case report is to describe a full mouth restoration of a patient diagnosed with AI including case planning, bite replacement, preparation and restoration steps. **Material & Methods:** A 21-years old patient referred to our clinic because of sensitivity and esthetic problem. When the patient was examined clinically and radiographically, AI of hypomaturation type was diagnosed with caries, mutilated dentition and loss of vertical dimension. A full-mouth restoration was planned to this patient. Before the restoration, an occlusal splint was put to use by the patient to regain vertical dimension and occlusion. **Results:** After the bite replacement anterior teeth were restored with all-ceramic restorations (e-max press) and posterior teeth were restored with metal-ceramic restorations to reduce sensitivity, to regain vertical dimension, occlusion and to improve esthetic with function. **Conclusion:** The treatment of this patient not only upgraded his quality-of-life, but also improved his self-esteem. Patient remained satisfied in the 12-month follow-up examination. **Key Words:** Amelogenesis Imperfecta, All Ceramic Restorations.

PP – 146**COMPERATIVE STUDY OF THE DIFFERENT INDICATORS USED FOR REGISTRATION OF OCCLUSAL CONTACTS**

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Bakground: Articulating paper is one of the most frequently used indicators used to qualitative indicators for registration of the occlusal contacts among the practicing dentist worldwide. It's reliability often is disputed, due to the possibility of registering false positive marks or register failures. **Aim:** Comparison of the results obtained with articulating foil and paper according to the number and the size of the contacts. **Materials and Method:** Typodonts of upper and lower jaw with intact dental arches Frasaco A – 3Z were fixed in an arcon articulator Girbach. Articulating contacts were registered with articulating foil Bausch with 12 μ thickness and articulating paper Bausch with 200 μ thickness under the same load. For each study a new sheet of the occlusal indicators was used, as 10 repetitions were made for each one. After every attempt the lower jaw was dismantled from the articulator and we registered the distribution of the contacts with a camera. The number of the occlusal contacts was filled in specific tables. The marks on teeth 16 and 46 were analyzed. **Results:** The size of the occlusal contacts registered with 200 μ thickness articulating paper is bigger than those to the foil. Statistical analysis showed that there is significant difference in the number of the contacts registered with articulating paper, since $p < 0,05$. **Conclusion:** The type of the occlusal indicators has influence on the false registration marks and on the size and the number of the occlusal contacts as well. **Key words:** occlusal contacts, articulating foil

PP – 147**REHABILITATION OF ANTERIOR MAXILLARY DEFECT UTILISING BY IMPLANT SUPPORTED REMOVABLE PARTIAL DENTURE**

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The aim of this presentation is to present step by step rehabilitation of anterior maxillary defect utilising by implant supported removable partial denture. 30 years old female patient with anterior maxillary defect was need of oral rehabilitation. Clinical and panoramic radiographs were revealed the amount of remaining soft and hard tissues, respectively. She had difficulties with esthetic, function and phonation. A surgical stent was fabricated using acrylic resin material. Two 4.1mm x 10mm solid screw implants with a sandblasted, large-grit, acid-etched (SLA) surface were inserted into the border of defect. Healing caps (4.0mm diameter) were secured into position. After 3 months, the healing abutments were removed and the locator attachments were torqued into implants. A torque driver was used to tighten the ball attachments at 35N/cm to insure proper seating and resistance to dislodgment. Primary alginate impressions of both arches were taken

and poured with stone. The primary casts were used to fabricate custom trays for final impressions. Two plastic impression copings were positioned over the locator attachments. A sheet of wax is placed over the ridge and the impression copings to create space in the tray for the impression material. Custom tray was fabricated by chemically cure acrylic resin material. The custom tray was border molded using a conventional technique and final impression was made utilising polyether impression material. An interocclusal record was taken and removable denture was finished with conventional technique.

PP – 148**PROSTHETIC REHABILITATION OF THE PATIENT WITH INADEQUATE INTEROCCLUSAL DISTANCE**

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Aim: The clinical success of the fixed prosthesis depends on the characteristics of the materials used, the harmony of the natural teeth and the crowns, and also the preparation of the supportive prosthesis ensuring the retention of the prosthesis. Crown lengthening procedure is used in case of inadequate interocclusal distance in order to lengthen the crowns and increase the retention. The aim of this study is to ensure the aesthetic and functional rehabilitation of the patients with inadequate interocclusal distance caused by tooth extraction. **Case:** A patient with missing maxillary right first and second premolars, mandibular right canine and first molar applied to dental clinic with a narrow interocclusal distance. After informing the patient, patient preferred prosthetic rehabilitation over implant placement or orthodontic treatment. Endodontic treatment was performed in 44, 45 and 16 teeth and crown lengthening procedure was planned. Gingivectomy procedure would decrease the keratinized tissue, therefore apically positioned flap procedure was performed. After periodontal surgery, teeth were prepared, A-type silicon impressions were taken and metal infrastructure crowns were made. Crowns were cemented with polycarboxilate cement. **Results:** Orthodontic treatment or implant placements to rehabilitate missing teeth are conservative treatment approaches. However the cost and duration of the treatment are major disadvantages of these treatment modalities and because of this fact patients might find fixed prosthetic approaches more appropriate and favorable.

PP – 149**MULTIDISCIPLINARY APPROACH TO AESTHETIC REHABILITATION OF A COMPROMISED FRONTAL REGION**

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BACKGROUND The improvement of the frontal region aesthetics is an everyday challenge in modern stomatology, particularly in cases when not only is the dental aesthetics impaired but also

the aesthetics of the surrounding soft tissue. The solution of such cases often requires a multi-disciplinary approach. The aim of the paper is to present a modern multi-disciplinary approach to addressing problems of red and white aesthetics of the frontal region. **MATERIALS AND METHODS** The paper outlines the case of a 32-year-old female patient, who was clinically diagnosed with the impaired aesthetics of the frontal tooth region manifested through large composite fillings, tooth discoloration, 23 missing teeth, disturbed tooth line symmetry, and lower frenulum attachment. A detailed therapy plan was designed upon the clinical examination and roentgen diagnostics, and the plan comprised of labial frenulum corrections, lengthening of clinical tooth crowns on teeth 11 and 12, and tooth preparation for the purpose of completely new ceramic tooth crowns. In order to obtain a predictable therapy result, we performed a diagnostic wax-up and temporary tooth crowns were made to meet the patient's needs. **RESULTS** In compliance with the therapy plan, the adequate surgical soft tissue preparation was performed and the patient was provided with prosthetic rehabilitation with the help of 10 fully ceramic crowns. **CONCLUSION** A multi-disciplinary approach to aesthetic and functional problems of the frontal region along with a detailed therapy plan and application of diagnostic implants are key to a successful prosthetic therapy.

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CASE REPORT: AESTHETIC CORRECTION OF MALPOSED TEETH WITH METAL-CERAMIC BRIDGE

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Case report: Aesthetic correction of malposed teeth with metal-ceramic bridge It is not uncommon that a patient wants for a short time to get a satisfactorily aesthetic solution. **CASE REPORT:** A middle aged female patient came because of an aesthetic problem with her natural upper anterior teeth. Based on dental examination, X-ray analysis and models for the study, as well as consultation with the orthodontist, a plan of therapy was proposed to the patient. It was indicated extraction of teeth 12 and endodontic treatment of teeth 11 and 21. Cast posts were made on devitalized teeth 11 and 12, the lower front teeth were selectively grinded to correct the shape of the occlusal plane, faceted were 13, 11, 21, 22 and 23 and the impression was taken with addition silicon. Immediately, a temporary protective bridge was made, whose design resembled a definitive metal-ceramics bridge. After that, the metal structure of the bridge was tried, unglazed metal-ceramics bridge and cemented metal-ceramics glazed bridge. **Conclusion:** The patient was very satisfied with the aesthetic result.

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BEST PROSTHETIC REHABILITATION WITH GUIDED IMPLANTATION: CASE REPORT

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INTRODUCTION: Many patients have mobile dentures, but not all of them are satisfied in aesthetic and function. **AIM OF THE PAPER:** Precision in planning and placing of implants is the most

important condition to achieve the best position of the implant. **CASE REPORT:** A 62 years old patient with two central incisors in the upper jaw, and without any molars and premolars in the lower jaw, wished to have metal ceramic bridges. After dental examination and X-Ray analysis, the impressions for study models were taken. Using guided implantation concept with surgical stents, it was indicated to place 8 Straumann bone level implants - 6 implants in the upper jaw, and 2 implants in the lower jaw. After 3 months, prosthetic rehabilitation with metal ceramic bridges was finished. **CONCLUSION:** Guided implantation with surgical stents provides successful prosthetic rehabilitation

PP – 152**ASYMMETRY OF FACE AND JAWS-CHALLENGE FOR PRACTITIONER**

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Complete prosthodontic rehabilitation was always great challenge for practitioner. In case with both asymmetry of face and jaws accompanied with changed intermaxillar relationship and bruxism it was even more difficult to restore dentition and function and maintain stable jaw relationship. Patient 42 years old with severe periodontal disease came up to office because of tooth migration and mobility. Clinical check-up revealed severe loss in vertical dimension of occlusion, deep overbite in anterior segment with absence of upper teeth and severe abrasion of lower teeth. Correction of vertical dimension of occlusion was maintained with old partial acrylic removable denture with self-cure acrylic material. Surgical treatment of periodontal disease was provided after endodontic treatment of worn lower anterior teeth, followed with fiber reinforced composite post and core build-up. Regular check-up and periodontal healing have been planned for a half of year, but prolonged for one and a half of year until definitive restoration. After such a long period, endo-periodontal problem with five upper teeth occurred. Three lower teeth came up with periodontal abscesses and diagnosed with root fracture. Definitive prosthodontic rehabilitation was porcelain fused to metal bridge in lower jaw and metal based partial removable denture with three milled crowns in upper jaw. One year follow up showed stable occlusion, good function and satisfied esthetics.

PP – 153**MINIMALLY INVASIVE APPROACH IN RECONSTRUCTION OF ONE MISSING TOOTH**

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Preservation of healthy dental tissue is imperative in modern dentistry. The tooth loss and its reconstruction without sacrificing two adjacent teeth make a big challenge for the clinicians. Making c implant –supported crown or making inlay bridge are the only acceptable solution in accordance with the principles of minimally invasive dentistry. The paper presents the case of

male patients, 26 years old, whose coming to the clinic because of loss of the tooth 15. Clinical examination and X-ray showed insufficient vertical dimension of the bone in the area of missing tooth and that would complicate procedure of the implant insertion. The patient refused sinus lift procedure, so the treatment plan included the creation of an inlay bridge supported by adjacent teeth. The bridge was digitally designed by CAD CAM technology CEREC 3D and milled from Emax CAD block, Ivoclar Vivadent, Liethenstein and adhesively cemented with a composite cement G ICE Cem, GC, transparent. Inlay bridge made of lithium disilicate ceramics achieved exceptional functional and aesthetic rehabilitation of a patient with minimal sacrifice of healthy tooth structure. Minimally invasive prosthetic rehabilitation of young patients should be the gold standard in modern dentistry. New technology as a new materials and adhesive protocol makes these things possible.

PP – 154**DEMOGRAPHIC EVALUATION OF FIXED PARTIAL DENTURES IN PATIENTS**

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AIM: The aim of this study was to evaluate demographic status of the patients who applied for missing tooth complaint and crown destruction in Inonu University, between the years of 2010-2016. **MATERIAL&METHOD:** Age, gender, number and localization of missing tooth of the patients who were applied fixed partial prosthetic restorations in Inonu University, between the years of 2010-2016, were detected by using Dent Assist (Metasoft, Eskisehir, Turkey) program and found data were evaluated in statistical base (SPSS 22, Chicago, USA). **RESULTS:** 4055 patients (2268 female, 1787 male) were included in this study. It was found that patients who were included in this study, were mostly between 41 and 60 ages and most of them were female. It was detected that the commonly missing teeth were upper right central incisors, in all age groups and in both genders. Also maxillary premolars were generally treated by post-cores. **CONCLUSION:** Patients who were applied with missing teeth complaint were mostly in their middle ages and females.

PP – 155**BONDING STRENGTH OF CEROMER WITH DLS, NI-CR BASED AND ZRO2 AFTER LASER SURFACE TREATMENTS**

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Aim. Laser modalities instead of conventional surface treatment techniques for surface modification procedures has been suggested to obtain an adequate micromechanical bonding between super- and infra- structures. The present study was undertaken to assess the effect of surface treatment with Er:YAG, Nd:YAG, and Ho:YAG laser modalities on the shear bond strength of ceromer to different types of metal infrastructures in vitro settings. **Methods.** The study specimens consisted of 40 ZrO₂, 40 Ni-Cr based, and 40 DLS infrastructures. Each infrastructure group divided randomly into 5 treatment modalities: No treatment (controls), sandblasting,

Er:YAG, Nd:YAG and Ho:YAG laser (n=8) for each treatment modality. Direct laser sintering, Ni-Cr based dental alloy, and zirconium oxide infrastructures were prepared in the final dimensions of 7 mm in diameter and 3 mm in thickness in line with ISO 11405 standard. ZrO₂ and Ni-Cr based and DLS infrastructures were prepared. Ceromer was applied to these infrastructures after the surface treatment. Shear bond strength test was performed to test the effectiveness of surface treatments. The surface morphology was observed by a stereo microscope. Results. The Er:YAG laser in ZrO₂ and Ho:YAG laser in DLS increased the shear bond strength compared with the other treatments. The Nd:YAG laser showed lowest performance for all the other groups. The Nd:YAG laser resulted in considerably reduced shear bond strength. The stereo microscopy images showed that applying laser surface treatments modified the surface of all the infrastructures.

PP – 156**REHABILITATION OF A PATIENT WITH HISTORY OF NASOPHARYNGEAL CARCINOMA**

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Introduction Nasopharyngeal carcinoma (NPC) is a disease in which malignant cells form in the tissues of the nasopharynx. Treatment modalities include surgery, radiotherapy, chemotherapy or combination of treatment options. **Purpose** The aim of this case report is to explain the multidisciplinary treatment of a 24-year-old female NPC patient who had received radiotherapy 10 years ago. **Method And Materials** Clinical and radiographic findings revealed limited jaw opening, xerostomia, missing teeth #36, #37, #46; rampant caries, soft tissue pain on palpation. Periodontal treatment was carried out including scaling, root planning and gingivoplasty for crown lengthening on maxillary incisors, canines and premolars. An occlusal splint, three months for the adaptation to designated new vertical dimension occlusion. All mandibular and maxillary teeth except maxillary molars were prepared and restored with fixed dental prosthesis with this new occlusal vertical dimension. **Results and Conclusions** The multidisciplinary rehabilitative solution proposed was effective in resolving patient's problems. With the correct occlusal adjustment and fixed partial dentures, patient's aesthetic and functional demands were fulfilled

PP – 157**ENDOONLAY, COMPUTER-AIDED RESTORATION OF POSTERIOR ENDODONTICALLY TREATED TEETH**

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Serbia

Introduction: Endo-onlay is one of the ceramic restorative options, that engages pulpal chamber and combined with the rest of the healthy dental structure provides necessary adhesion. **Goals:** representation of endo-onlay restorations as one of the solution that minimize the risk of doing preparation in root canals and cervical region of tooth, with full rehabilitation of excessively damaged posterior endodontically threatened teeth. **Case:** Male patient 25 years old with

endodontically threated maxillar molar was advised for reconstruction of the tooth by using Endo/onlay followed by indications. Therapy has been done with Cerec CAD/CAM system with Vitablocs Mark II ceramics, with satisfying results. Conclusion: Using Cerec CAD/CAM system allows you saving some time and costs, compared to conventional methods, with satisfying aesthetics, precision, and good biomechanical performance.

PP – 158**IMPLANT-SUPPORTED PROSTHETIC REHABILITATION OF AN EDENTULOUS PATIENT: CLINICAL CASE**

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Background: The classical treatment for the edentulous patient is the complete removable denture. Depending on the shape of the regional ridge, the denture may be unstable or inadequately retained, leaving the patient dissatisfied with the functional result. The implant supported overdenture (ISO) is one solution to these problems. ISO has good stability and retention, and patients who have received them have reported improved function and satisfaction. In this case reports presents a fabrication of the ISO that using two different attachment type of a edentulous patient. **Methods and Material:** 66-year-old male edentulous patient referred to our clinic with had complaint feeling of nausea, poor satisfaction, chewing ability and retention. After clinical and radiographic evaluation bar retained palateless maxillary overdenture and locator retained mandibular overdenture planned. Two implants were placed (Implance) in the anterior part of mandible (canine regions) and four implants (Implance) were placed maxilla (canine-premolar regions). 3 months later, locator (mandible) and bar system (maxilla) attachments were connected. Vertical dimension and bilateral balanced occlusion in finished dentures were established. **Results:** First recall was attended after 24 hours. The regular follow-up was advised every six months. The patient reports greater satisfaction, better chewing performance and any complaints about of nausea. **Conclusion:** ISO offer a predictable, pleasing and cost-effective long-term solution for edentulous patients.

PP – 159**MAKING MOBILE DENTURES IN PATIENTS WITH PROGENIA- A CASE REPORT**

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INTRODUCTION Patients with this type of jaws relation have a lower toothless ridge which is in all diameters larger than the upper one. A skeletal relation of jaws, typical of the third class has been noticed. The real progenia is rare. It could be seen in 2-5% of the population and it is hereditary. **WORK OBJECTIVE** Recognizing this skeletal class in total and partial toothless patients and planning the artificial occlusion with them. Introducing the special planning rules of occlusion in these patients. **METHOD** The plan of the prosthetic therapy that has been carried out in a 63-yaer old female patient with total toothlessness of both jaws and the old inadequate dentures is

completely shown in this work. **RESULT** A number of the patients with the real progenia carry inadequately made dentures, which are about 10-15 years old. A bite and a facial physiognomy are mostly deranged. New dentures have been made for our patient with an appropriate height of the bite and regular central occlusion. **CONCLUSION** Patients with progenia jaws relation require more attention in the process of making dentures due to their specific relation of the front and lateral teeth in the position of maximum intercuspation. Most often, the contacts between lateral teeth are atypical and a total area of the contacts is reduced, although there are cases when the occlusion is normal but on the basis of the skeletal analysis, a progenia could be ascertained. **Key words:** progenia, mobile dentures, occlusion

PP – 160**ORAL REHABILITATION OF A PATIENT WITH COMPLETE UNILATERAL CLEFT LIP-PALATE USING A TELESCOPIC OVERDENTURE**

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Purpose: This clinical report presents a patient with complete unilateral cleft lip and palate (CLP) which was rehabilitated by using a telescopic overdenture. **Materials and methods:** A 44-years-old male patient was referred to our clinic with inadequate function and aesthetic appearance of his old prosthesis. It was examined a partial edentulous maxillary arch with complete unilateral CLP and mandibular arch with only one remaining tooth. While his cleft lip had been repaired, hard and soft palate were remained without any surgical treatment. A prosthetic treatment protocol was designed, because of patient's rejection of any surgical approach. After the pre-prosthetic treatments, telescope crowns and overdentures were fabricated for both arches. A speech-aid bulb was also inserted to the maxillary overdenture. **Results:** After six month, patient had no complaint and satisfied from improved speech, masticatory, velopharyngeal functions, and esthetic result. **Conclusion:** It is essential to rehabilitate an unrepaired CLP-induced defects to alter the patients living conditions.

PP – 161**OBTURATOR PRECISION ATTACHMENT FOR PALATINA DEFECTED PATIENT**

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Introduction: 50 years old woman patient treated for oral carcinoma is presented to our clinic with pain. Patient has an obturator supported by maxillary molars. Both sides of maxillary first and second molars are treated root-canal therapy **Purpose:** Our aim is re-make a new obturator for painless patient **Method and Materials:** Pus and pain are determined related by left maxillary first and second maxillary molars. Firstly, endodontic retreatment is applied for cure. But both left maxillary molars are extracted. 20 days after extraction, patient has pain about right maxillary molars' area. Right first and second maxillary molars are extracted because patient is refused

endodontic retreatment again and suggested extraction. Maxillary first and second premolars are prepared for supporting part of precision attachment. Then removable part of obturator is made. Patient is re-called for control after 2 days. Deficiency of separation oral cavity and nasal cavity is determined. Hoarse sound is heard while patient is talking. Self-cure relining material is used. Patient's complaints are ended for a month. When same complaints are determined, heat-cured relining material used. Results: Patient's lack of comfort about eating is fixed. Hoarse sound is eliminated and pure phonation is provided. Conclusions: Nasal cavity and oral cavity are separated and defect of palatine is obturated. Absence of maxillary molars and their functions are provided.

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MANDIBULAR RIDGE RESORPTION DEGREE IN SMOKING AND NON-SMOKING EDENTULOUS PATIENTS

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Background: Residual ridge resorption (RRR) is continuous process of alveolar bone loss following the loss of teeth. Wical and Swoope described a method for estimating mandibular bone resorption. The factors (systemic and local) that contribute to RRR are still not completely elucidated. The aim of the study is to determine degree of mandibular residual ridge resorption in smoking and non-smoking edentulous patients. Patients and methods: This study included 40 edentulous patients, both male and females aged between 40 and 75 years, who came to the Department of Prostodontics and Dental Implantology of Faculty of Dental Medicine in Sarajevo to have removable dentures at the students' clinical course of the curriculum. Data including smoking habits, smoking duration and the number of cigarettes a day were written in the forms. All of the patients have had ortopantomographic radiographs made by the same machine Ortopantomograph OP 100 (Instrumentarium, Tuusula, Finland). The degree of mandibular ridge resorption is estimated using Wical and Swoope Analysis Method. Results: Results of the study will be presented using charts. Conclusion: Conclusion will be based according to results of the study. Key words: smoking, residual mandibular ridge, degree of resorption

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THE APPLICATION OF RESILIENT RELINING MATERIALS IN TOTAL PROSTHESIS

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In cases of extreme resorbed alveolar processes, the mucosa loses its thickness and its absorbing effect. Purpose: The presentation of a method consisting of coating the mucosal surface of the prosthesis with an elastic material, resilient, which replaces the thickness and the low elasticity of the mucosa, through the amortization of pressure during chewing. Materials: In 50 patients, of the group age 70-90, with atrophy of the third grade and thin mucosa, relining has been done with

elastic material(Ufi-Gel P).In 37 cases there's been relining in the lower prosthesis and in 13 cases in the upper prosthesis.Patients are followed in 3-6-9-12 months period, regarding the state of the cavity,the sustainability of the prosthesis,the chewing effect, decubitis.In 16 cases the elastic materials have been used to relieve anatomical cast formations.Results:In 72% of the patients there was a noticeable increase in the sustainability of the prosthesis,in 84% a significant reduction in decubitis lesions was observed,58% increase in the chewing effect. During the controls,after 5-6 months the material undergoes a gradual disintegration,which is accompanied by the tendency to increase the number of stomatitis and candidiasis.Conclusions:Elastic materials can be used successfully in cases of visible atrophies, in non resilient mucosa,in the relief of formations and in the retentive areas.They lead into the amortisation of forces, the eliminations of decubitis and the overload of function in the sustainability of the whole prosthesis.They must be replaced periodically as a result of the material disintegration.

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ORAL ANTISEPTIC AS A THERAPEUTIC AGENT IN TREATMENT OF CANDIDA-ASSOCIATED DENTURE STOMATITIS

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BACKGROUND Antimicrobial resistency becomes a serious problem due to nonrational use of antibiotics. Infections caused by yeasts are often recurrent and we're forced to repeatedly expose yeasts to some of the widely used antifungal drugs. Saliva and muscle activity complicate achievement of optimal concentrations of drug in oral cavity and its equal spread. There are also more serious systemic conditions in which use of antifungal drugs could be of greater importance. On the other hand, oral antiseptics have proven to be efficient, not only against microbial cells, but also against biofilm and its formation. Antiseptics affect microorganisms in chemical way, without possible resistency and side effects when used in a proper, prescribed way. **METHODS AND MATERIALS** 15 patients were enrolled in this study, all of them wearing complete dentures and with clinical signs of denture-related stomatitis. Swabs of underlying mucosa and basal side of dentures were positive for the presence of Candida. They were instructed to use Listerine® mouthwash for one minute, three times a day, and to leave cleaned dentures fully soaked in Listerine® during the night. After 14 days of treatment, patients came for control check, to assess clinical improvement and take new swabs. **RESULTS** 86,67% patients showed clinical improvement, and all of them (100%) had a less number of colony forming units after therapy. **CONCLUSION** Listerine® can be used as a therapeutical agent in treatment of Candida-associated denture stomatitis.

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THE EFFECT OF DIFFERENT DISINFECTION METHODS ON SURFACE PROPERTIES OF CEROMER COATED ACRYLIC RESIN

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Background: The purpose of this study was to evaluate the surface roughness and micro hardness of ceromer-coated and non-coated acrylic resins which applied different disinfection procedures. **Methods and Materials:** One hundred acrylic test samples (10×10×2 mm) were prepared. Half of the samples were coated with GlymoTeos. Five groups were formed including ten coated and ten uncoated samples. Four different disinfection procedures (chlorhexidine, glutaraldehyde, sodium hypochlorite, and microwave) were applied on four groups. Fifth group (control group) samples were immersed in distilled water. Samples were subjected to surface roughness and micro hardness tests. The obtained data were analyzed with SPSS and surfaces of samples were examined by SEM. **Results:** In terms of surface roughness and micro hardness values, there were no statistically significant differences between before and after disinfection applications coated and uncoated acrylics surfaces. However, SEM results showed that there were some changes in the surface of coated group applied glutaraldehyde. **Conclusion:** There weren't any effect of the disinfection methods on coated and non-coated acrylic resin, but SEM photos showed some changes on the coated acrylic surfaces in the glutaraldehyde group. **Key words:** Acrylic resin, ceromer coating, disinfection, surface roughness, micro hardness.

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THE EFFECT OF NANOPARTICLE ADDITION TO ACRYLIC RESIN ON MICROORGANISM ACCUMULATION

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Background: Nano-structured materials have been receiving considerable attention as a results of their unique physical, chemical and biological properties, and functionality due to their nano-scale size. The purpose of this study was to evaluate the effect of addition Al₂O₃ ve SiO₂ nanoparticles with weight percentage of 3% and 5% to heat cured acrylic resin on microorganism accumulation. **Methods and Materials:** One hundred twenty specimens (10 mm in diameter and 3 mm in height) of heat cured acrylic resin divided into five groups (n=24). Group1: Heat-cured acrylic resin without additives (control group). Group 2: Heat-cured acrylic resin with 3% Al₂O₃. Group 3: Heat-cured acrylic resin with 5% Al₂O₃. Group 4: Heat-cured acrylic resin with 3% SiO₂ . Group 5: Heat-cured acrylic resin with 5% SiO₂. Then each group was divided into subgroups according to

polymerization technic (short and long polymerization). Specimens were placed in tubes containing sterile water and contaminated water was taken using micropipette and inoculated on sheep blood agar medium for *S.mutans* and Sabouroud dextrose agar for *C.albicans* and kept in incubator for 1 day at 37 °C. Following the incubation period, colonies on media were counted. The data were analyzed with Two-way ANOVA and Tukey HSD tests ($p=.05$). Results: According to Two-way ANOVA, there were significant differences between groups and within groups ($p<.05$). In spite of long polymerization showed higher microorganism accumulation in *C.Albicans* group, short polymerization showed higher microorganism accumulation in *S.Mutans* ($p<.05$). Conclusion: The nanoparticle addition within the heat cured acrylic resin increased to microorganism accumulation.

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THREE-DIMENSIONAL ANALYSIS OF HUMAN TEMPOROMANDIBULAR JOINT DURING JAW OPENING - FINITE ELEMENT

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Prosthetic rehabilitation, reconstruction of the occlusion, craniomandibular dysfunction therapy are not possible without proper knowledge of the anatomy and physiology of the temporomandibular joint (TMJ) and complete orofacial system. Teeth occlusal loading as well as loading of all craniofacial structures respectively, present an important factor for proper functioning and developing of mentioned structures. Overloading on the other hand may be an etiological factor for developing pathological conditions in the craniofacial structures. Distribution of the occlusal loading throughout craniofacial structures is not well documented so far, while some scientific investigation emphasize the relation between TMJ loading and craniomandibular dysfunctions. The aim of this research was to analyse occlusal loading distribution inside the TMJ structures, especially during jaw opening, the loading of the discus articularis is increasing gradually from rotation movement until initial opening of 20 mm interincisal separation. During the translation movement of TMJ condil, the loading is intensive over anterior part of intermediate zone and anterior anulus of discus articularis. The rotation movement of the condil induces less loading of discus articularis than translation movement. As far as the translation movement is concerned the observed loading values are greater in the position of maximum jaw opening. Also, the greatest loading values are observed in the region of anterior intermediate zone and anterior anulus of discus articularis.

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DO COMPLETE DENTURES CHANGE QUALITY OF LIFE?

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The use of removable dentures could cause problems in oral functioning and esthetics for elderly people and have impact on their quality of life. One way of capturing the personal and social context

of patients is to use quality of life measures. The aim of this study is to evaluate the changes in oral health-related quality of life (OHRQoL) reported by wearers of removable acrylic dental prostheses (RDPs) before and after prosthetic treatment. Material and method: sample consisted of 43 patients (21 women, 22 men), mean age 68 years, who were wearing removable complete acrylic dentures and seeking new ones. Serbian version of the OHIP- Oral Health Impact Profile questionnaire, which belongs to the OHRQoL tests, was used and consisted of only 13 questions. The design of the questionnaire was: every answer scored from 0 to 4, depending on the extent to which a given patient was struck by hardship, at its sole discretion. The maximum score was 52 points. The greater the score was, the greater was the negative impact of oral condition on the quality of life. The performance of the dentures was evaluated before treatment and one month post-treatment when the participants answered whether the prostheses had generated better, equal or poorer effects. Answers were statistically analyzed. Results showed that discomfort during wearing complete dentures could have significant impact on quality of life. Conclusions are potentially useful in both the clinical encounter and in quality improvement and ensure that treatment and evaluations in clinical practice focus on the patient.

PP – 169**DEMOGRAPHIC EVALUATION OF PARTIAL REMOVABLE PROSTHESIS PATIENTS**

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AIM: The aim of this study is to research demographic status of the patients who were applied removable prosthesis in Inonu University, between the years of 2010-2016. **MATERIAL&METHOD:** Information of sex, age, classification of edentulousness (Kennedy I-IV, upper or lower jaw) was obtained by using dent Assist (Metasoft, Eskisehir, Turkey) program and x-rays of the patients who had prosthetic treatment and these information were evaluated in statistical base (SPSS 22, Chicago, USA). **RESULT:** 2563 patients (1386 female, 1177 male) were included in this study. As a result of this research, it was detected that patients who use removable prosthesis were mostly aged 60-100 which, most of them are males. **CONCLUSION:** While there is a meaningful correlation between age of the patients and removable prosthesis usage, there is no meaningful difference between the genders. When tooth loss patterns were evaluated, it was seen that classification of the edentulousness is mostly Kennedy class I in lower jaw. Considering all Kennedy classifications, there is no meaningful correlation between upper and lower jaws. In both jaws the most rare tooth loss pattern was Kennedy class IV. There is a significant difference between genders, considering the appliance of partial prosthesis on both jaws.

PP – 170**THE EFFECTS OF DIFFERENT BEVERAGES ON PMMA DENTURE BASE MATERIAL SURFACE QUALITY**

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Background: The objective of the current study was to determine the surface feature changes resulting from the testing process of five different beverages (water, raki, cola, whiskey and

mineral water) in both heat polymerized and injected-polymerized PMMA denture base resins. **Methods and Materials:** For the study, 50 heat polymerized and 50 injected-polymerized PMMA denture base resin specimens were used. All of the specimens were treated with five different beverages for 120 days. The surface roughness and hardness of the samples were measured by a profile meter before and after the beverage treatment. The obtained data were analyzed with SPSS, and surfaces of the samples were examined by a Scanning Electron Microscope (SEM). **Results:** As a result of this study, no significant differences were found between the heat polymerized and injected-polymerized PMMA acrylic resin denture base materials with regard to the roughness and hardness test values obtained before and after the study treatment ($p>0.05$). When the surface roughness of the samples before and after the treatment was evaluated, a statistically significant reduction in the surface roughness was observed in the heat polymerized acrylic resin group after the treatment with cola and mineral water, and in the injected-acrylic group after the treatment with raki and mineral water. A statistically significant decrease in the surface hardness values was observed in both groups after the soda treatment. **Conclusion:** The beverages change the surface morphology of both heat polymerized and injected-polymerized PMMA denture base resins. **Keywords:** polymethyl-methacrylate, beverages, surface roughness, surface hardness, scanning electron microscope.

PP – 171**PARTIAL AND COMPLETE DENTURES-SIGNIFICANT FACTOR OF ORAL HEALTH IN ADULT POPULATION IN MACEDONIA**

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Background. Oral health condition is significant component of quality of life. In adult population, due to their specific need and disease significant changes in the structure of the disease occur. Difficulties in chewing, speech and aesthetic with lost teeth lead to the need of incorporating partial and complete dentures. **Materials and methods.** In this cross-sectional study, total of 165 patient at Gerontology Institute in Skopje and 170 patients at university dental clinic in Skopje were examined and questioned. Both groups were aged 65 and over. Chi-square, Fisher-exact test, Mann-Whitney test, Kruskal-Wallis t-test for independent samples and Analysis of variance were used as statistical programs with statistical significance of $p<0,05$. **Results.** From the analyzed results we could see that there is a substantial difference in oral health at the institutionally sheltered patients compared with those from the dental clinic. There were 43.6% vs. 26.5% with upper and lower complete dentures, and 20.0% vs. 20.59% with upper and lower partial dentures. **Conclusion.** The GOHAI questionnaire score shows that institutionally sheltered patients have unsatisfactory oral health. This is indicated by the highest score of 40 and maximum score by Licker-scale of 48. **Key words.** Adult population, oral health, GOHAI questionnaire, total dentures, partial dentures.

PP – 172**SUBJECTIVE ASSESSMENT FOR DENTAL TREATMENT NEEDS AMONG INSTITUTIONALIZED ELDERLY**

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Background: Among the adult population the need for dental care and certain preventive measures can be enhanced, especially among the oldest one. Among residents in long-term care institutions, in most cases in the oral cavity only a few teeth are left, and most of them have need of treatment. The goal was to evaluate the subjective need for dental treatment among institutionalized elderly. **Material and method-** this research was conducted in the "Mother Teresa" department, within the PHI Gerontology Institute "XIII-th of November" Skopje. All 73 institutionalized persons older than 65 years were examined. Adequate survey with appropriate questions subjective assessment for need of dental treatment was made among the institutionalized elderly. **Results:** 61.64% of respondents gave his subjective opinion that have need for dental intervention, while the remaining 38.36% from the institutionalized elderly people had no need for dental interventions. In terms of what kind of interventions, most needed treatment subjectively considered by the subject were different prosthetic activities (53.23%). Only one form the examined persons (1.61%) subjectively noted the need for treatment of gingival and periodontal diseases or need for checkup. **Conclusion-** The need for dental interventions among institutionalized elderly is high, with a predominance of different prosthetic interventions. **Key words:** treatment needs, institutionalized elderly, gerodontology, elderly

PP – 173**LASER STIMULATION OF OSTEOGENESIS IN THE TREATMENT OF PERIAPICAL LESION – CASE REPORT**

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Aim Our aim is to report an interesting case with severe periapical lesion of a molar that beside the root canal treatment have undergone laser stimulation to enhance the osteogenesis and full bone regeneration has been accomplished. **Material and methods** A patient at 52 years has Periodontitis chronica granulomatosa diffusa exacerbata on tooth 47. Beside the pain on percussion, tooth mobility 2 degree has been detected. The X-ray showed severe periapical lesion around the distal root, bifurcation and apical part of mesial root. After administration of antibiotics and at the end of the root canal treatment dental physiotherapy took place. Low level laser therapy (LLL) with diode laser has been conducted. We used power density of 100 mW/cm², 2 min irradiation at the vestibular and 2 min at the lingual side of the periapical lesion, 5 procedures. This treatment course has been conducted on the 1 month, 3 month, 6 month, 12

month. Results The regeneration process has been tracked for 3 years and full bone regeneration has been observed. Conclusions Dental physiotherapy is an important part of the complex treatment of periapical lesions. Low level laser therapy is a powerful tool for stimulation of bone regeneration

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EFFECTS OF LOW-LEVEL LASER THERAPY FOLLOWING SURGICAL EXTRACTION OF THE LOWER THIRD MOLAR

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Background: The aim of this study was to evaluate and compare the effects of single- and two-dose low-level laser therapies (LLLT) on postoperative swelling, trismus, and pain after the extraction of mandibular third molars. Methods and materials: Forty-five patients were randomized into three treatment groups, each with 15 patients. Group 1, the control group, received routine management; Group 2 received a single dose of LLLT immediately after surgery; and Group 3 received two doses of LLLT immediately after surgery and on the second day. In this study, a gallium-aluminum-arsenide (GaAlAs) diode laser device with a continuous wavelength of 810 nm was used. The laser therapy was applied extraorally at the insertion point of the masseter muscle by using a 1×3 cm handpiece. Immediately before the surgery and on postoperative days 2 and 7, 3D evaluation of postoperative swelling was made (3dMD, Atlanta, GA). Additionally, pain levels and trismus (interincisal mouth opening) were measured on postoperative days 2 and 7. Results: There were no statistically significant differences detected in average swelling or trismus between the groups. Average visual analog scale (VAS) measurements were not statistically significant at postoperative day 2, but were statistically significant different between the groups at postoperative day 7 (p=0.008). Conclusion: This study demonstrated that although there were beneficial effects of single or two-dose LLLT on swelling, trismus, and pain level, only pain level was significantly decreased at postoperative day 7.

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ULTRA TIN CAD/CAM VENEERS : MINIMAL INVASIVE WAY TO IMPROVE YOUR SMILE

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The veneers have been routinely used to restore and enhance the appearance of natural dentition. The traditional pathway for fabricating veneers consisted of making conventional polyvinyl siloxane impressions, producing stone casts, and fabricating final porcelain prostheses on stone

dies. Recently, digital computer-aided design/computer-aided manufacturing scanning has become commercially available to make a digital impression that is sent electronically to a dental laboratory or a chairside milling machine. This paper presents a case of female patient, 25 years old, with compromised aesthetic of maxillary front teeth due to malposition of the central and lateral incisors . Since the patient refused orthodontic treatment, we started treatment with diagnostic models and wax-up. After production of a mock-up teeth preparation were made through it to enable minimally teeth grinding, Removable composite veneers were prepared and gradually replaced by ceramic veneers. Modern, three-dimensional presentation by use of the Cerec 3D system facilitates construction of veneers seen in relation to the other teeth. A very helpful aspect is that the mock-ups can be adjusted to patients' needs during the complete production process. After individualization and gazing , there is no recognizable esthetic difference from veneers produced by a laboratory. High-quality esthetic veneers can be produced in a single treatment session only by means of chairside CAD/CAM technology. The CEREC 3D system, provides a versatile, relatively simple, user-friendly method for fabricating esthetic restorations chairside without involving a dental laboratory.

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RELIABILITY OF THE VERTICAL MAGNIFICATION FACTOR OF PANORAMIC RADIOGRAPHS IN DIFFERENT POSITIONING MODALITIES

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BACKGROUND: Panoramic radiography is a very popular and widely accepted technique because all the teeth and the supporting structures are shown on one image, technique is reasonably simple and the radiation dose is relatively low. The purpose of the present study was to evaluate the effects of skull positioning on the magnification factor (MF) of panoramic radiographs according to tooth regions. **METHODS AND MATERIALS:** For the study 28 stainless steel pins were located on a dry skull to every tooth location. Panoramic images of the skull obtained in 25 different positioning modalities. Positioning angles were changed both in lateral and forward-backward planes. The measurements of vertical dimensions of the pins were made twice by the same observer and MFs were calculated by dividing the radiographic measurements to digital caliper measurements as gold standard. **RESULTS:** The data was analysed by using descriptive statistics and ANOVA tests. For all positioning modalities MF increased from anterior to posterior tooth regions. The difference between magnification factors were statistically significant in maxillar premolar and maxillar molar regions for lateral position changes and for the forward-backward position changes the differences were statistically significant in maxillar anterior, mandibular anterior and mandibular premolar regions ($p < 0,05$). **CONCLUSION:** Changing the skull position effects the MFs significantly in some regions of the jaws. When manufacturer's MF (1,15) considered for anterior regions mean value error is smaller than 1 mm and clinically in acceptable range and for posterior regions MF is slightly higher.

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EVALUATION OF MANDIBULAR CONDYLE SHAPE BY DENTAL PANORAMIC RADIOGRAPHSDerya Icoz, Faruk Akgunlu*Selcuk University, Faculty of Dentistry, Department of Radiology; Konya Turkey*

BACKGROUND: The aim of this study was to assess the shape and symmetry of mandibular condyle shape by using dental panoramic radiographs. Although cone-beam computed tomography and magnetic resonance imaging have been started to use widely in dentistry panoramic radiography is still a popular imaging tool. In the present study the relationships of condylar symmetry and condylar shape with age and gender were evaluated. **METHODS AND MATERIALS:** 600 mandibular condyles on 300 panoramic radiographs (167 females and 133 males) of patients aged between 12 to 80 years (mean age was 40,85) were evaluated. The radiographs were divided six groups according to ages. Mandibular condyle shapes were assessed according to classification of Chaudhary et al as oval, diamond, bird beak and crooked finger shapes. Data were analyzed by using descriptive statistics and chi-squared tests on SPSS 15.0 software programme. **RESULTS:** For the study sample oval (%57,8) and crooked finger(25,8) shapes are more frequent and they followed with bird beak (11,8) and diamond (4,5) shaped condyles. While the difference between gender and symmetry was not significant ($p=0,667$) the difference between gender and condyle shape was significant($p=0,00$). The symmetry of the condyles was statistically significant between age groups ($p=0,012$). **CONCLUSION:** The most frequently seen condyle shape was oval for both genders and condylar asymmetry incidence increases with age.

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A RARE ENTITY OF KERATOCYSTIC ODONTOGENIC TUMOUR IN A PEDIATRIC PATIENTGülsüm Köşten¹, Ali Hanttash², Bengi Oztas¹, Mehmet Hakan Kurt¹*¹Ankara University Faculty of Dentistry, Department of Dentomaxillofacial Radiology; ²Ankara University Faculty of Dentistry, Department of Maxillofacial Surgery; Ankara, Turkey*

Introduction Keratocystic odontogenic tumours (KOT) are mostly seen in mandible and at least 50% of KOTs form in the angle of mandible. The KOTs often expand alongside to the medullary cavity which is the path of least resistance. Thus, they can be detected during routine radiographic examination. KOTs appear as well-defined radiolucency, with unilocular or multilocular areas. Case A 13 year old male patient was attended to our clinic with a swallow in the mandible at anterior region. A huge well demarcated multilocular radiolucent lesion was detected after panoramic examination. Cone beam computed tomography was taken for planning the treatment protocol. All adjacent teeth were vital. An incisional biopsy was made to establish definitive diagnosis and it was compatible with KOT. **Discussion** Not only the incidence has been recorded between ages 20 to 30 years, but also large series have shown peaks between 50 and 70 years. Our patient was younger than reported before (13 year old). Despite, KOTs often extending forwards into the body and upwards to the ramus of mandible; the lesion was located at the anterior region and extended downwards to the basis of mandible. **Conclusion** The KOTs may

confuse with an ameloblastoma or radicular cysts. Although clinical and radiographic features may allow fairly accurate preoperative diagnosis, definitive diagnosis has to be made only by histopathology. Hence clinical signs often fail to appear until the cyst is well advanced, clinicians should make a routine radiographic examination to detect pathologic lesions in the jaws.

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EVALUATION OF COMPLICATIONS OF MESIODENS WITH CONE-BEAM COMPUTED TOMOGRAPHY (CBCT) : 7 CASE REPORT

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The term mesiodens refers to a supernumerary tooth present in the midline of the maxilla between the two central incisors. Mesiodens can occur singly or multiply. The most frequent location is maxillary anterior region (mesiodens), where 80% of supernumerary teeth were found. Mesiodens may give rise to a variety of complications such as impaction, delayed eruption and ectopic eruption of adjacent teeth, crowding, diastema, axial rotation, radicular resorption of adjacent teeth and dentigerous cyst requiring surgical or orthodontic intervention. In this present study; complications of mesiodens were evaluated with CBCT.

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DENTIGEROUS CYST ASSOCIATED WITH MESIODENS: A CASE REPORT

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Introduction: Dentigerous cysts are the most commonly encountered cysts of the jaws, after radicular cysts and are usually associated with crowns of unerupted teeth. Most common localizations of dentigerous cysts are; mandibular molar region (especially third molar), maxillary canine region and maxillary third molar region. They are rarely associated with other teeth. They present as unilateral, solitary lesion and bilateral, multiple cysts are usually associated with a systemic disease or a syndrome. Dentigerous cyst associated with mesiodens is uncommon. **Case Report:** A 22-year-old female patient administered to our clinic with pain and swelling in the maxillary anterior region with a 6-month duration. Intraoral examination confirmed swelling and sensitivity on palpation. Radiological examination was made with panoramic radiography and revealed a large radiolucent lesion associated with a mesiodens. Cone-beam computerized tomography revealed a well-defined radiolucent lesion, with thinning of the buccal cortical bone. Enucleation of the cysts was performed under general anesthesia. Histopathological examination of the lesion confirmed dentigerous cyst diagnosis. **Conclusion:** Dentigerous cysts may form large bone defects. Therefore during routine examination of unerupted teeth and supernumerary teeth such as mesiodens, radiological examination and follow-up is mandatory.

PP – 181**MORPHOMETRIC ANALYSES OF SELLA TURCICA USING CONE BEAM CT**

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Background: The purpose of this study was to assess morphological shape and morphometric analysis of the sella turcica using cone beam computed tomography in different planes of section (coronal and sagittal). **Material and methods:** CBCT images of 177 subjects which 51 males and 126 females in the age group of 11-73 years were included in the study population. Linear dimensions which include the length, depth, diameter, interclinoid distance were measured and the shape of sella turcica was analyzed. **Results:** Sella turcica had circular morphology in 69.5% of the patients while flattened shape of sella turcica was observed in 16.4%, oval shape of sella turcica in 14. There was no significant difference in the all measurements of sella turcica between males and females ($p>0.05$). Diameter ($p<0.01$), depth ($p<0.001$), length ($p<0.05$), interclinoid distance ($p<0.05$) of the sella turcica differed significantly with age. **Conclusions:** The anatomical structure of sella turcica can be studied effectively in CBCT images. Linear dimensions and shape of sella turcica in the current study can be used as reference standards for further investigations. **Key words:** Sella turcica, CBCT

PP – 182**STAFNE BONE DEFECT AT CORONOID AND MANDIBULAR INCISORS REGIONS: AN UNUSUAL TWO CASES**

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Backgrounds Stafne bone defects are nonprogressive yet nonhealing bone cavities situated near the angle of the mandible. The aim of these presentations are to report two stafne bone defects in the coronoid and mandibular incisors regions. **Material and Methods** One of the cases was a 38 year old female and the other case was a male aged 65 years old. The patients' medical histories were not significant. There were no signs or symptoms about the lesions clinically. The imaging modalities included panoramic radiograph, cone beam computed tomography (CBCT) and magnetic resonance imaging (MRI). Lesion in anterior mandible appeared to have relationship with the canine tooth that gave positive responses to the vitality tests. Furthermore, the tooth had internal resorption. **Results** The lesions were considered as stafne bone defect because of radiographic image, asymptomatic nature and pathological findings. **Conclusions** Stafne bone cavity was an incidental finding, presenting no evolutionary changes, and as such conservatory therapy based on periodic controls was indicated. Currently, complementary techniques such as CBCT and MRI are sufficient to establish a certain diagnosis. Associated with stafne bone defect, some complications such as internal resorption may be appeared.

PP – 183**METASTATIC BREAST CANCER TO BILATERAL MANDIBULAR RAMUS REGIONS: A CASE REPORT****Guldane Magat, Sevgi Ozcan, Hayriye Cetmili*****Necmettin Erbakan University, Faculty of Dentistry; Konya, Turkey***

Backgrounds Metastatic carcinomas to the jaw bones are uncommon and comprise to about 1% of all malignant oral neoplasms. The purpose of this report is to present a rare case of a metastatic breast carcinoma to bilateral mandibular ramus regions. **Material and Methods** The present case report is about a 40 year old female patient with the complaints of a parasthesia in the right mandibular area of last month duration. She was referred to our department by her oncologist with the differential diagnosis of osteonecrosis or metastasis. She had undergone modified radical mastectomy for invasive lobular carcinoma of the left breast. Oral cavity examination did not reveal the existence of any ulcer or fistula. Panoramic, CBCT and PET were used for diagnosing the lesions. In panoramic radiography and CBCT images, there were lytic lesions on the both of right and left coronoid, condyle and ramus of the mandible. PET results showed us fluoro-2-deoxy-Dglucose(FDG) uptake in the mandible and vertebrae. **Results** On the basis of the patient's medical history and paresthesia of the lower lip and chin, metastatic disease was highly suspected. The patient was referred to her oncologist for further treatment since it was not amenable to surgical management. **Conclusions** The general dentist or dental specialist should maintain a high level of suspicion while evaluating patients with a history of cancer. Paresthesias of the lower lip and the chin should be considered ominous signs of metastatic disease.

PP – 184**INCIDENTAL FINDINGS OF SUPERNUMERARY TEETH IN YOUNG PATIENTS ON CBCT****Aleksandrija Djordjevic, Suzana Zivanovic, Miona Sekulic*****Integrated Academic Studies of Dentistry, Faculty of Medical Sciences, University of Kragujevac; Kragujevac, Serbia***

Introduction Supernumerary teeth are usually asymptomatic and discovered during clinical exams or using radiography. Radiography is important method in diagnosis and precise localization of supernumerary teeth. The introduction of Cone Beam Computed Tomography (CBCT) in orofacial radiography created new diagnostic possibilities in dentistry, including potential opportunities for interpretation of the evolution of supernumerary teeth in comparison to the Two-Dimensional Panoramic radiograms. Aim of this study was to show the role of CBCT in identification and localization of supernumerary impacted teeth and pathological atypical creation. **Material and Methods** This study involved the retrospective analysis of 60 CBCT images. All patients were received and examined at the Faculty of Medical Sciences in Kragujevac, Integrated Academic Studies of Dentistry. All radiographic images were made in period from June 2015 to January 2016. The presence of supernumerary impacted normal and atypical teeth in the maxillary and mandibular jaws was analyzed. All images were made for planning of orthodontic treatment. **Results** Based on 60 reviewed images, there were present three supernumerary

impacted teeth and atypical pathologically formations. After using a Three-Dimensional Computed Tomography, it was diagnosed precise localization of supernumerary impacted teeth related to the surrounding structures and atypical pathological formations. Conclusion Using CBCT it is possible to plan and use less invasive surgical interventions, smaller incisions and apply conservative flap which reduce the possibility of morbidity during the surgical treatment and prevent potential complications of the orthodontic treatment. Key words: supernumerary teeth, impaction, computed tomography

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AN INTERESTING ANATOMIC VARIATION PRESENT IN THE MEDIAN OF THE MANDIBLE

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Anatomic variations of the mandible include some structures, such as bifid mandibular canal, accessory mental foramen, buccal foramen, lateral lingual bony canal and median lingual bony canal. Median lingual bony canal is seen in the median region of the mandible. This canal is denoted as superior or inferior genial spinal bony canal according to its vertical location. While one genial spinal bony canal is found almost in each individual, multiple genial spinal bony canals are seen rarely. Buccal foramen is seen in both anterior and posterior region of the mandible. Buccal foramen appearing in the median region of the mandible is a rare anatomic variation. To our knowledge, the interrupted connection of genial spinal canal and buccal foramen is not reported in the literature. Anatomic variations have been started to be observed more frequently with the increased use of cone-beam computed tomography. The diagnosis of these anatomic variations are important for prevention of complications before surgical procedures. The aim of this case report was to present an accessory canal, which was localized at the inferior of the genial spin and opening to both lingual and buccal sides of the mandible, which was identified in the cone-beam computed tomography images.

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CT FINDINGS OF FLORID OSSEOUS DYSPLASIA: A CASE REPORT

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CT findings of Florid Osseous Dysplasia: a case report Abstract Background: Periapical osseous dysplasia is localized changes in normal bone metabolism. Normal cancellous bone is replaced by fibrous tissue, amorphous bone and abnormal bone trabecule. Florid osseous dysplasia (FOD) is a condition that exist in three or four quadrants of the jaws or widespread throughout one jaw. This condition occurs in middle age and shows female predilection and rarely causes expansion of the jaws. This paper presents CT findings of expansile FOD lesions of the mandible and also describes the differential diagnosis and the possible complications of FOD. Methods and materials: An 57-

year-old female was referred to our clinic for a routine examination. Panoramic radiography showed bilateral radiopaque lesions in the posterior region of the mandible. CT scan was performed, biopsy was taken from the lesion. Results: Panoramic radiography showed radiopaque lesions in the edentulous region of the left and right posterior mandible. Also mixed lesions were detected in the apical region of the mandibular anterior teeth. CT scan showed bone density mass that causes the expansion of the mandible. The case was diagnosed with FOD, which was later confirmed by the histopathologic examination, and is currently undergoing periodic follow-up. Conclusion: FOD is a condition that causes the expansion of the jaws rarely. CT imaging is important in the identification of the lesion and differential diagnosis.

PP – 187**THE IMPORTANCE OF RADIOGRAPHY BEFORE DENTURE THERAPY: REPORT OF TWO CASES**

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The use of X-rays is an integral part of clinical dentistry and radiographs are often referred to as the clinician's main diagnostic aid. Radiographs should be made only when a clear diagnostic need exists for the information the radiograph may provide. They often are the first method used to screen edentulous or partially edentulous patients before denture therapy. However, routine radiographic examination of these patients is being questioned because of the cumulative effects and cost of radiation exposure. This report presents two cases that were not examined radiologically prior to denture construction. A 55-year-old male was fully edentulous in both arches and had worn his new complete dentures two months ago. Panoramic radiography revealed eight impacted teeth, four in the maxilla and four in the mandible. A 51-year-old male had bridges constructed approximately four years ago in the maxilla and mandible. Panoramic radiography revealed eleven impacted teeth, five in the maxilla and six in the mandible. In conclusion, even a patient had worn denture or bridges; radiographic examination should be made when patient did not give a definitive history about his/her radiological condition.

PP – 188**RECCURENCE OF PYOGENIC GRANULOMA OF THE TONGUE: A CASE REPORT**

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Pyogenic granuloma (PG) represents an exuberant tissue reaction to mild irritation and might be related to hormonal factors and certain kinds of drugs (cyclosporine, carbamazepine). Clinically PG appears bright red, fleshy, soft, smooth or lobulated. The base may be pedunculated or sessile. PGs are commonly seen on the gingiva and less frequently on the lip, buccal mucosa, tongue and edentulous ridge. A 62-year old male patient presented to the clinic with a 1-month history of mass on tongue. The patient had asthma, chronic obstructive pulmonary disease and coronary

artery disease, was taking acetylsalicylic acid and salbutamol inhaler. Intraoral examination showed a fleshy, soft, lobulated and pedunculated lesion on the tongue. There was bleeding on provocation. Based on the clinical examination, diagnosis was made as PG and surgical excision was performed. Histopathology confirmed the PG diagnosis. The lesion relapsed in 13 days. The recurrent lesion was surgically excised and the second histopathology was same as the initial lesion. The patient was monitored for a year and no recurrence was noted.

PP – 189**3D PRINTING GUIDE IMPLANT PLACEMENT**

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Introduction: Cone Beam Computer Tomography (CBCT) was promoted as a new concept of radiological diagnostics and with the advancement of technical characteristics of different devices and accompanying software, it has become the gold standard when it comes to diagnostic methods of the craniofacial region. CBCT radiological technique has special place in currently the most attractive branch of dentistry, implantology, where preoperative planning, quantitative and qualitative analysis cannot be imagined without the use of this technique. Case report: M.D., a 36-year old patient, was indicated for prosthetic-implant rehabilitation in her mandible. After the creation of a CBCT image, we measured the dimensions of the bone segment and selected appropriate implants for their placement. (two on positions 36 and 37, and three on positions 45,46 and 47). Device software was used for virtual implant placement on optimum positions and it helped with their parallel placement. Pre-implant therapy plan was emailed as DICOM to Simplant, together with a plaster model which will be used to make a guide, which, in turn, will be used for pilot drill preparation. After the guide was designed, we received the request to confirm 3D printing of the guide, which had previously been emailed. Several day later, we received our guide with registered mail. Prior to the surgical procedure, it was necessary to check guide stability inside the patient's mouth and perform corrections, if necessary. Pilot drill preparation was performed through the mucosa and guide sleeves, and then we proceeded with traditional flap technique. Control scan shows optimum implant placement, both from surgical and aesthetic aspects.

PP – 190**THE EFFECT OF SMOKING IN PERIIMPLANTITIS**

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The effect of smoking in periimplantitis nowadays, considering the fact that smokers present a consider number of our everyday practice, we thought that it could be convinient to study the effect of nicotine on the periimplantitis, especially on the marginal bone loss The purpose of this review is to provide the reader with the practical acknowledges on the connection between implant treatment and smoking effect on it. This study emphasis the effect of smoking as a

potential risk factor. **Material and method:** The information presented in this review is based on a survey of English language literature during the year 1996-2014. The literature research was conducted using MedLine. The article does not seek to analyze statistically any of the data from the review articles, but relies on the original data. **Conclusions :** smokers have higher failure rates and complications in implant therapy. these rates are higher in mandible. Complications were noticed more during surgical procedures such as sinus lifting and also during the process of healing.

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ACCURACY OF DIFFERENT IMPLANT IMPRESSION TECHNIQUES: REVIEW

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Background: The impression accuracy in implant prosthodontic is crucial to avoid complications as abutment screw loosening, screw bending and fracture in implant restorations. Purpose of this study was to compare the research on this topic. **Methods and Materials:** An electronic search was performed of MEDLINE, EMBASE, and Cochrane Library databases for the time period of 2000-2015. for a eligible published studies reporting on the accuracy of implant impressions with the key words implant, accuracy, impressions etc. In addition, journals were hand searched for appropriate articles. After the examination of all relevant articles, 35 were selected to be included in the review process. We reviewed two basic impression techniques, direct (pick-up, open tray) and indirect (transfer, closed tray) technique, and impact of splinting and non-splinting techniques to the accuracy. Materials most frequently used in the studies were polyether and vinyl polysiloxane (VPS). **Results:** Most of the studies (33/35) compared both open and closed tray impression techniques and more than a half (19/33) revealed an open tray technique more accurate. Majority of the study (32/35) examined the accuracy of splinting and non-splinting technique and showed splint method better and more accurate. About a third of reviewed articles (12/35) explored the accuracy of two different materials, and most of them (10/12) concluded that both materials are equally accurate. **Conclusion:** The open tray impression technique showed more accuracy than the closed one. The splinted technique was more accurate compared to the non-splinted method. Different impression materials (polyether and VPS) had no impact on accuracy.

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RECONTOURING THE EMERGENCE PROFILE OF PERIIMPLANT SOFT TISSUE BY CUSTOMIZED PROVISIONAL RESTORATION: A CASE REPORT

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Background: Harmonious soft tissue profile and a natural looking restoration are as important as osseointegration for the success of implant therapy in the esthetic zone. **Purpose:** The aim of this case report is to describe a method for obtaining desired peri-implant soft tissue contours by a

screw retained provisional crown in mandibular anterior region. **Method and Materials:** A 19-year-old female patient with a complaint about insufficient esthetic implant restoration was referred to Department of Prosthodontics of Ordu University Faculty of Dentistry. After detailed clinical and radiographically examination, recontouring the emergence profile of peri-implant soft tissue and changing the old porcelain fused metal restoration to an all-ceramic crown was decided. Firstly, for the appropriate soft tissue contours a customized provisional abutment and a provisional screw retained restoration was fabricated. Emergence profile was scalloped by creating additional pressure on the soft tissue with periodic adding composite resin material to the temporary crown. After 9 weeks a customized zirconium abutment with a Ti-base and a lithium disilicate all ceramic crown was fabricated. **Results:** Nine weeks after placing the provisional restoration, the gum reformed with harmony between the peri-implant gingiva and adjacent dentition. **Conclusion:** Recontouring the peri-implant soft tissue with a provisional restoration is a non-surgical, simple and acceptable method for the successful esthetic implant restorations.

PP – 193**PRIMARY IMPLANT STABILITY: PIEZOELECTRIC SURGERY VERSUS CONVENTIONAL DRILLING**

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Primary implant stability: piezoelectric surgery versus conventional drilling **Background.** Piezoelectric surgery is a relatively new method in oral surgery and implantology which utilizes ultrasonic vibrations for precise and atraumatic osteotomy. Sufficient primary stability of dental implants is often reported as main factor of successful osseointegration. The aim of this study was to compare primary stability levels of dental implants placed with the use of conventional and piezoelectric osteotomy. **Methods and materials.** Five fresh bovine ribs were used for the preparation of twenty implant sites (n=20). Ten implant sites were prepared by conventional drilling technique – Control group; other ten implant sites were prepared with piezosurgery device (Piezosurgery white, Mectron, Italy) and factory set for implant preparation (Implant prep kit) – Piezo group. Twenty bone level implants (Blue Sky, Bredent, Germany; 3.5 mm in diameter and 10 mm in length) were implanted in prepared sites with 35 Ncm torque. Resonant frequency analysis was performed in order to determine primary implant stability levels with the use of Osstell Mentor ISQ (Osstell AB, Sweden). Four values of implant quality stability (ISQ) were measured per implant. **Results.** The arithmetic mean and standard deviation of the average primary stability level in the Control group was 78.0 ± 1.6 , while in the Piezo group this level was significantly higher, 79.8 ± 0.6 ($p = 0.003$). **Conclusion.** Both piezoelectric and conventional implant site preparation techniques provide sufficient level of primary implant stability, but with the use of piezoelectric technique this level is significantly higher.

PP – 194**ORAL REHABILITATION IN AN EDENTULOUS PATIENT USING IMPLANT SUPPORTED PROSTHESIS**

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BACKGROUND Various treatment modalities have been developed in order to recover functional and aesthetic component of edentulous patients. The adequate rehabilitation method varies from patient to patient and depends on the following parameters - amount of the remaining alveolar bone, anatomic structure positions, oral hygiene status, age and patient selection. **METHODS AND MATERIALS** Male patient, 58 years old, reported with dental bridge movement and moderate pain in the posterior part of the mandible. Full oral examination with panoramic radiograph was performed. Dental implants in maxilla were explanted due to advanced peri-implant disease which caused dental bridge movement, same as maxillar teeth which were affected by chronic periodontitis. Mandibular dental implant was also removed and the remaining periodontitis affected lower jaw teeth. 6 months later 4 dental implants were placed in the anterior mandibular region and splinted with cantilevered bar. Removable complete prosthesis was relied on the bar. **RESULTS** Patient was handed a removable prosthesis which in concordance with the prosthesis done in the upper jaw made the patient fully prosthetically rehabilitated. At the 6-months follow-up patient had no issues concerning prosthesis stability, which is the main problem people using regular complete denture complain about. **CONCLUSION** Implant supported prosthesis relied on a cantilevered bar provides a great retention and stabilization in edentulous patients where financial aspect prevents fixed prosthodontics usage. Both patient and the surgeon are satisfied with the outcome.

PP – 195**INCREASING OF INSUFFICIENT INTEROCCLUZAL DISTANCE WITH ALVEOLOPLASTY PRIOR TO THE IMPLANT: CASE REPORT**

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Aim: Alveoloplasty may be required for patients who have insufficient interoccluzal distance for implantation. The aim of this case report was to presented insufficient interoccluzal distance increased via sinus lift surgery combined with the alveoloplasty to perform the implant and prosthetic rehabilitation. **Material and methods:** 45 years old female patient referred to our clinic with missing teeth complaints. In clinic and radiographic examination it was seen left maxillar top of crest touched the teeth of the mandible and there was no adequate interoccluzal distance. Alveoloplasty was created with removing bone from the top of the left maxillar crest in order to perform the implant. Left maxillary sinus was filled with extracted autogenous bone grafts which removing from top of the left maxillar crest. Thereby obtaining a sufficient vertical height to perform the implant. Two implant were performed in 24 and 26 number of teeth region at 6

month after alveoplasty surgery. After healing period, there was made a prosthetic treatment which included production of a metal-ceramic restoration. Results: It was not observed any complications after surgical procedures, it was obtained adequate inter-occlusal distance for prosthetic rehabilitation after alveoplasty. After the 1st and 3rd month clinical examination periods, no functional or esthetic problems were reported by the patients.

PP – 196**FULL MOUTH IMPLANT TREATMENT OF PATIENT WITH AGGRESSIVE PERIODONTITIS: CASE REPORT**

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Aim: Generalized aggressive periodontitis is a disease that may cause edentulous at a young age when untreated. Dental implants are one of the best methods used in the treatment of tooth loss today. This case report is presented implant-supported fixed prosthetic therapy in patients who have total tooth loss because of generalized aggressive periodontitis. **Material and methods:** 35 years old male patient referred to our clinic because of oral malocclusion and tooth mobility. In clinic and radiographic examination the patient was diagnosed with aggressive periodontitis then it was decided to pull all teeth. 14 dental implants were placed instead of taken teeth. The fixed prosthetic restorations were made 3 months after surgery. **Results:** It was observed that implants placement in patients with generalized aggressive periodontitis and early prosthetic loading give successful results.

PP – 197**MODERN SURGICAL – PROSTHETIC APPROACH TO FUNCTIONAL AND AESTHETIC FULL ARCH REHABILITATION OF EDENTULOUS MAXILLA**

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BACKGROUND Dental implant prosthetic rehabilitation of toothless patients, represents the standard of modern dentistry. In order to achieve optimal conditions for surgical placement of dental implants, very often it is necessary to use autologous biomaterials such as platelet-rich fibrin (PRF), represents an indispensable part of the modern surgical implant placement protocol. **MATERIAL AND METHOD** By clinical examination and X-ray analysis of a female patient age 52, the toothless upper jaw has been identified with a significant loss of vertical and horizontal bone dimension. The treatment plan included placement of six Straumann bone level implants at the tooth position 13,14,16, 23,25,26, augmentation of artificial bone, application of collagen membrane and PRF. 6 months after, a fixed complete dentures supported by hybrid abutment (TiBase, Zirconia ceramics) and 12 non-metal zirconium crowns vestibular veneered by lithium disilicate ceramic, was made. **RESULTS** 6 months after the successfully implant placement prosthetic rehabilitation has been conducted by using modern highly esthetic non-metal

restorations. **CONCLUSION** Modern protocols of implant placement and implant supported non metal prosthetic rehabilitation is a viable treatment option for completely edentulous patients.

PP – 198**DEMOGRAPHIC EVALUATION OF IMPLANT PATIENTS**

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AIM: The aim of this study was to evaluate the demographic status of the patients who were applied implant treatment in Inonu University, Faculty of Dentistry between the years of 2010-2016. **MATERIAL AND METHOD:** Localization of the implants, restoration type after the treatment, age and gender of the patients who were applied implants, were detected by using Dent Assist (Metasoft, Eskisehir, Turkey) program. This data was evaluated in statistical base (SPSS 22, Chicago, Turkey). **RESULTS:** 4036 patients (2127 female 1909 male) were included in this study. It was detected that, patients were mostly females, and aged between 41 and 60. In the age group between 20 and 50, it was found that localization of the implants were generally at 1st molar region in both jaws and in the age groups between 51 and 100 at mandibular canine region. **CONCLUSION:** It was found that, number of implants applied were increased according to the increasing age. Choice of prosthetic treatment were altered by localization and width of the edentate region, situation of alveolar bones, and gender of the patients

PP – 199**IMPLANTS INSTALLATION AT PATIENTS WHO ARE RECEIVING MONOCLONAL ANTIBODIES FOR OSTEOPOROSIS**

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Purpose The purpose of this paper is to present the potential complications during implants installation at patients receiving monoclonal antibodies and the necessary precautions must be taken by the dental surgeon. **Results** While bisphosphonates are the main class of drugs used to treat osteoporosis and other diseases, nowadays, monoclonal antibodies have been introduced as one of the latest and most advanced options in the treatment of immunological disorders of the musculoskeletal system, such as osteoporosis. Monoclonal antibodies are pure antibodies with a predetermined specificity. Their production takes place in the laboratory. 'Aggressive' dental procedures such as implants installation are the main factor causing osteonecrosis at those patients. **Conclusion** Monoclonal antibodies have been associated with osteonecrosis of the jaw during implants installation whether administered alone or combined with bisphosphonates. However, an extensive research is required in order to fully understand their reasoning and interaction with bisphosphonates.

PP – 200**INJURY PREVENTION OF INFERIOR ALVEOLAR NERVE DURING SURGICAL PLACEMENT OF IMPLANTS THROUGH RADIOGRAPHIC CONTROL.**

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Purpose The purpose of this paper is to highlight the necessity of a detailed preoperative planning (clinical Radiographic control) in the rehabilitation of patients with implants in order to avoid severe complications such as injury of the inferior alveolar nerve (with a probability ranging from 0-4%). **Method** Clinical laboratory examination for the determination of bone quality (osteoporosis). Radiographic examination of the width-height-density of bone with CBCT that gives accurate information. **Conclusion** The detailed clinical laboratory testing of bone mass as well as the information received from CBCT, contribute to the prevention of severe complications including the injury of inferior alveolar nerve. In our work, we elaborate all the parameters which must be followed by the dental surgeon during implant installation.

PP – 201**NASOPALATINE DUCT CYST – CASE REPORT**

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Abstract Introduction: Nasopalatine duct cyst (NPDC) is a rare pathological intraosseous lesions of the maxilla which occurs in approximately 1% of the population. NPDC is the most common developmental epithelial non-odontogenic cyst. The origin of NPDC is, however, still a source of considerable debate. **Aims:** The aim of this study is to emphasize the importance of a thorough radiological diagnosis, as well as the complete surgical enucleation. In the differential diagnosis we must distinguished it from other maxillary anterior radiolucences. **Case report:** We presented a case of a 55-year-old female patient with a nasopalatine duct cyst, which has been misdiagnosed and treated as alveolar abscess. Clinical examination showed/revealed toothless upper jaw, fluctuant swelling in the anterior region of the palate, painful on palpation. After a complete preoperative diagnosis that include, an anamnestic data, clinical examination, radiological diagnostics, including 3D CBCT, we approached to surgical part of the therapy. The treatment of choice was enucleation (Partch II) with palatal approach. Postoperatively, antibiotics and analgesic drugs were prescribed. On the first and the second postoperative checkup (second and seventh postoperative day) our patient had paresthesia of the anterior palatal zone innervated with n. nasopalatine. Histopathological examination confirmed clinical and radiological diagnosis. **Conclusion:** Nasopalatine duct cyst is a rare pathological lesion with slow growth and evolution.

With this study we determinate the importance of the appropriate diagnostics so we can choose a correct therapy. After a correctly applied surgical treatment - enucleation, recurrence is rare.

PP – 202**CALCIFYING ODONTOGENIC CYST- CASE REPORT AND LITERATURE REVIEW**

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Background: Gorlin Cyst is an uncommon lesion that desmostrates considerable histopathology diversity and variable clinical behaviour. Although it is widely considered a cyst, some authors prefer to classify it as a neoplasm. It is an odontogenic cyst that may appear as two types, cystic and surrounded by epithelium of benign nature, and the other, locally aggressive neoplasm. **Purpose:** The aim of our study is to present an interesting case of calcifying odontogenic cyst (COC) with asociacion with unerupted third molar. **Material and methods:** We report a case of 46-year-old man with COC of the mandible that was presented to our department. The patient was referred to us for clinical evaluation, diagnosis and treatment of a painful swelling of the lower jaw. The panoramic radiograph showed a well defined, non-corticated radiolucency in the left mandibula around crown of unerupted third molar. The superior margins of the lesion were indiscernible and there was a focus of irregular calcification in the superior part of the radiolucency. A decision for odontectomy and excisional biopsy was taken. **Results and Conclusion:** The patient underwent operation under local anesthesia – odontectomy and enucleation of the leasion with peripheral osteotomy, the histopathological findings were conclusive with COC. No recurrence was seen after 2 years follow up. **Key words:** calcifying odontogenic cyst, diagnosis, treatment, oral surgery

PP – 203**ODONTOMA – REPORT OF TWO CASES AND LITERATURE REVIEW**

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Background: Odontomas are mixed odontogenic tumors composed of mineralized tissue of ectomesenchymal origin. According to the World Health Organization (WHO) ranks, the odontomas are classified into two main types: complex and compound. They are usually detected in routine radiographs and may be related to various causes, and are rarely associated with impacted teeth. **Purpose:** The aim is to present two clinical cases of complex odontoma that prevent appropriate eruption of permanent teeth. **Material and methods:** We present two cases of complex odontoma associated with a retained permanent tooth. The orthopantomography and CBCT revealed circular and ovoid in shape amorphous radiopaque masses, surrounded by a thin radiolucent zone in association with impacted permanent tooth. **Results:** The treatment of choice was extraction of the primary first molar, enucleation of the odontoma and the preservation of

the first premolar. The complete removal of the complex odontoma was successfully performed, since after few months of follow-up the maxillary permanent teeth resumed its eruptive process. The result of the biopsy confirmed cases of complex odontoma. Conclusion: Odontomas are tumours of the dental tissues and may interfere with the eruption of the associated tooth. The early diagnosis, followed by a proper treatment at the right time, will result in a favorable prognosis and a desirable development of occlusion. Key words: odontoma, complex, enucleation, ectomesenchymal

PP – 204**EFFECTIVE MANAGEMENT OF RESIDUAL CYSTS USING SURGICAL ENUCLEATION**

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Introduction. Residual cysts are the most common odontogenic cystic lesions of inflammatory origin and are managed either by surgical enucleation or by marsupialization. We illustrate the possibility of complete healing of cystic periapical lesions in permanent and mixed dentition with conservation of vital structures. This article aims to report clinical case of residual cysts of huge proportion in region foramen mentale treated with technique enucleation. Proximity to the neurovascular bundle must be taken into account when choosing the operation technique. Material and method 55 year old female patient for x-ray diagnosis of a lesion occurred because of numbness in the region of premolars, and then gain access to the surgical removal of the aforementioned lesions, histopathology confirmed residual cyst. Result Radical cystectomy has achieved success in the elimination of symptoms caused by the cyst. Conclusion. Cystectomy can be recommended for such cases where marsupia generally preferred. Key words Residual cysts – Surgical enucleation – Marsupialization –

PP – 205**RETROMOLAR INTUBATION DUE TO FAILED RHINOPLASTY IN SAGITTAL SPLIT SETBACK PATIENT**

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Patient with mandibular deformity was referred to university maxillofacial surgery clinic for planning sagittal split setback surgery from faculty orthodontic clinic. Orthognathic surgery was planned as a first surgery concept according to patient's individual and orthodontist request. But, patient had been operated failed rhinoplasty twice by her plastic surgeon. Naso-trekeal intubation had not been advised in this patient by anesthesiologist because of adverse effects and damage to rhinoplasty. Additionally, maxillofacial surgery team advise to anesthesiology team to carry out intubation using retromolar region by using spiral intubation elastic tube. As a little bit evaluating the retromolar space by anesthesiologist and surgeon, as a consensus, this procedure had been told to patient and her guardian. The patient was taken to theater under general anesthesia using number 7 spiral tubes through retromolar space. Intubation tube was fixed to right side

commissure and one of the assistant was followed up the air way route in all period of surgery and until patient extubation As a conclusion, this technique can be used in this kind of orthogantic surgery with enough passage at retromolar region.

PP – 206**FREQUENCY OF INFRABONY DISTAL DEFECTS OF THE THIRD MOLARS**

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Infrabony distal defect (IDD) of the third molars is considered one of many reasons for the third molar extractions. Apart from specific symptoms, presence of IDD can cause an increasing rate of descending mediastinitis, a complication of odontogenic infection during the third molars' extraction. Since available literature suggests that age is one of the main contributing factor for the presence of the third molars' IDD, the aim of our study was to find out its frequency among different age groups. This study consisted of 584 patients aged 29-61 years (mean age: 43 years old). Patients were divided into four subgroups according to their age: group I (29-31 years old), group II (39-41 years), group III (49-51 years), group IV (59-61 years). All patients' underwent their panoramic radiographs (OPTs) examination. The obtained data were statistically analyzed. This study demonstrated that frequency of the third molars' IDD in each group; group I, II, III and IV was 8.04%, 6.43%, 3.96% and 0.00%, respectively. The frequency was highest among group I patients. Therefore, for this group of patients the early third molars' extraction (before appearance of the first symptoms) can be recommended, in order to avoid later extraction and increased risk of infection dissemination.

PP – 207**RISK FACTORS ASSOCIATED WITH INFERIOR ALVEOLAR NERVE INJURY FOLLOWING SURGICAL REMOVAL OF LOWER THIRD MOLAR**

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TITLE: Risk factors associated with inferior alveolar nerve injury following surgical removal of lower third molar. **BACKGROUND:** Evaluation of the literature data regarding injuries of the inferior alveolar nerve made during surgical removal of third molars with the aim of defining risk factors which can have influence on the occurrence of this phenomenon. **MATERIAL AND METHODS:** A PubMed literature search was conducted using following terms: inferior alveolar nerve injury, inferior alveolar nerve damage, sensory impairment of the inferior alveolar nerve. Inclusion criteria for this study was observing inferior alveolar nerve injury during surgical removal

of lower third molar with listed risk factors. Eventually, 30 articles published between 1990 and 2015 were selected according to the inclusion criteria. RESULTS: The researched studies included a total of 51112 extractions of lower third molars in 45506 patients. Nerve injury was present in 792 cases, of which 735 were a transient and 57 permanent nerve injuries. Various parameters and signs were shown as significant in prediction of inferior alveolar nerve injury, these are: lingual position of mandibular canal, darkening of the root, interruption of cortical line, diversion and narrowing of the mandibular canal, horizontal and mesioangular position of lower third molar, increased depth of impaction and surgeon experience. CONCLUSION: Although inferior alveolar nerve injury is in most cases transient complication of surgical removal of lower third molar, it is very uncomfortable for patients. According to this it is necessary to conduct preoperative evaluation of predictive factors and try to prevent this occurrence.

PP – 208**LATE POSTOPERATIVE COMPLICATIONS OF IMPLANTATION IN THE UPPER JAW AND THEIR CONSEQUENT TREATMENT**

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Background Complications in implantology mostly derive from bad preimplantation planning, wrong indication, using incorrect surgical technique or placing an inadequate permanent abutment. Late postoperative complications consist of gingival recession, chronic sinusitis, chronic pain, osteomyelitis, implant fracture and periimplantitis. Methods and Materials Female patient, 65 years old, reported with pain and swelling in the right buccal region as her chief complaint. After clinical examination and examining the x-ray documentation the patient was diagnosed with peri-implantitis along with an abscess in the upper right quadrant as well as with the presence of intraosseal implant in the left maxillary sinus cavity. Treatment plan consisted of controlling the infection and the surgical procedure of explantation of both of the implants with simultaneous sinus lift procedure with lateral window approach technique. Bone grafting was done with the use of bone substitute of bovine origin along with the resorptive membrane. Results Patient recovered from the procedure itself as it was planned with no postoperative complications. On the 5 months follow-up, after clinical and x- ray examination the ridge shows adequate vertical dimension which allows implantation in the upper jaw and full prosthetic rehabilitation. Conclusion Late postoperative complications of implantation can cause serious problems which require extensive surgical treatment. Setting correct indications and thoroughly planning the procedure is essential. Patient is satisfied with the outcome of the treatment and the clinical results are satisfactory as well.

PP – 209**TOTAL PROSTHETIC RESTAURATION IN MAXILLA WITH RIDGE AUGMENTATION**

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BACKGROUND Total prosthetic restauration in the upper jaw can be achieved with either removable complete denture or with implant borne bridge or removable denture. However,

implant borne prosthetic work does require certain vertical and horizontal ridge dimension. When the ridge dimension is inadequate, surgical preprosthetic ridge augmentation procedure is inevitable. **METHODS AND MATERIALS** Patient, female, aged 40, reported with multiple teeth mobility. After clinical and x-ray examination the patient was diagnosed with periodontal disease in terminal stage. Treatment plan consisted of multiple extractions in both upper and bottom jaw as well as of maxillary ridge augmentation and subsequent implantation. Total of 7 maxillary teeth were extracted and simultaneously the ridge was augmented in the upper right quadrant using bovine bone graft as the bone substitute which was supported with titanium mesh overlaid with resorptive membrane. After 6 months titanium mesh was recovered and 8 intraosseous implants were placed in the maxilla. After another 6 months implants were fully osseally integrated and loaded with permanent implant borne metal ceramic bridge. **RESULTS** Ridge augmentation procedure provided the vertical and horizontal dimension needed for implantation in the upper jaw and prosthetic rehabilitation afterwards. **CONCLUSION** Overall treatment lasted approximately 12 months. Patient is now fully functionally and esthetically rehabilitated contrary to the initial state.

PP – 210**CLINICAL VALUE OF PATHOHISTOLOGICAL RESULTS OF ODONTOGENIC KERATOCYSTS**

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BACKGROUND: Odontogenic cysts are relatively common lesions and form a major part of total biopsies received by pathology service. Odontogenic keratocyst (OKC) is the one of the rare odontogenic cysts, which has been reclassified into keratocystic odontogenic tumor (KCOT) and orthokeratinized odontogenic cyst (OOC). According to this classification, KCOT is lesion with locally aggressive clinical behaviour, high mitotic rate, with genetic and chromosomal abnormalities and high recurrence rate as well. Opposite to the previous fact, OOC is described as less aggressive lesion with low mitotic rate and limited growth potential. **PURPOSE:** The aim of this study is to review etiology, pathohistological features and behaviour of odontogenic keratocysts in order to provide clinicians with an appropriate interpretation of pathohistological results, diagnosis and treatment. **MATERIALS AND METHODS:** Pathohistological results were used to collect data about odontogenic keratocysts, their features and behaviour. **RESULTS:** The preliminary results of the research showed that lesions with parakeratosis (KCOT) have higher recurrence rate, while those lesions with orthokeratosis (OOC) have lower recurrence rate and better prognosis as well. **CONCLUSION:** It is important to make an appropriate pathohistological distinction between KCOT and OOC in order to manage adequate treatment and reduce recurrence rate.

PP – 211**LATE COMPLICATION AFTER CYSTECTOMY OF THE MAXILLA****Dzenad Ganiola***Clinical Center of Montenegro; Podgorica, Montenegro*

The authors made a brief review of the described in the accessible literature complications after postoperative interventions in connection with jaw cysts of odontogenic origin. A case of not typical complication is described, which set in 9 years after the operation, in connection with maxillary cyst in the region of 11 i 12. It manifests it self as a strong headache with pain, that irradiated to the region above the right eye. It is accompanied by sweating of the right face side, The authors try to find a logical explanation for its origin. Key words : radicular cyst, cyst, complication, maxilla

PP – 212**EVALUATION OF THE PSYCHOSOCIAL FACTORS OF TEMPOROMANDIBULAR DISORDER (TMD) AND TMD-FREE PARTICIPANTS****Serkan Polat¹, Nilüfer Tülin Polat²***¹Inönü University, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery; ²Inönü University, Faculty of Dentistry, Department of Prosthodontics; Malatya, Turkey*

BACKGROUND: Studies have associated psychological factors with temporomandibular disorder (TMD). The aim of this study was to evaluate psychosocial factors of TMD patients and TMD-free participants. **METHODS and MATERIALS:** The Revised Symptom Checklist-90 (SCL-90R) was used to evaluate the psychological symptoms in TMD and TMD-free subjects. Also occupational groups were assessed by questionnaire. **RESULTS:** There were no statistically significant difference in age, paranoid ideation and psychoticism scores between TMD and TMD-free females ($p>0.05$). According to somatization, anxiety, hostility, phobic anxiety, additional items, global severity index and positive symptom distress index, the differences were statistically significant ($p <0.01$). There were no statistically significant difference between TMD and TMD-free male subjects scores and age ($p>0.05$). The vast majority of the female subjects hadn't any occupation and vast majority of them had TMD. Otherwise the majority of the male subjects also hadn't occupation, but majority of them hadn't TMD. **CONCLUSION:** With limitations of the present study, it was concluded that the females were more vulnerable to the psychosocial impact as etiological factors of TMD.

PP – 213**BONE PRESERVATION FOLLOWING TWO STAGE SURGERY OF LARGE KERATOCYSTIC ODONTOGENIC TUMOR IN CHILD-CASE REPORT****Jelena Stepić, Marko Pejović, Miroslav Dragović, Marko Magić, Snježana Čolić***Department of Oral Surgery, School of Dental Medicine, University of Belgrade; Belgrade, Serbia*

Background: Keratocystic odontogenic tumor (KCOT) is fast growing, aggressive and highly recurrent lesion. An aggressive management of large KCOTs in children could have an adverse

effect on the eruption process and the development of involved jaws. Therefore, less aggressive surgical treatment might be beneficial for pediatric patients. Aim/Hypothesis: The aim of this case report is to present effectiveness of decompression with subsequent orthodontic extrusion and bone preservation. Material and methods: Eleven year-old boy with large KCOT, extending from the midline to the distal aspect of the right lower second premolar and displacing the unerupted canine to the base of mandible and the adjacent teeth laterally was referred to our department. Decompression with preoperative biopsy was performed. After period of 10 months KCOT was enucleated and bone defect was treated by Carnoy's solution. Control panoramic radiographs showed complete bone healing. After five years recurrent lesion was observed between canine and lateral incisor. Additional surgery was conducted and recurrent KCOT removed. Because of the high risk of a new recurrence around inadequately positioned canine its extraction using minimally invasive approach of orthodontic extrusion was done. Bone defect was managed using GBR procedure in order to preserve adequate bone volume. Results: Spontaneous bone apposition during decompression provided safe enucleation without endangering adjacent vital anatomical structures and complete bone regeneration of the remaining defect. Conclusion and clinical implications: Prerequisites for an implant placement after enucleation of large aggressive cystic lesion could be created by combining decompression, orthodontic extrusion and socket grafting.

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PAPILLON–LEFÈVRE SYNDROME

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PAPILLON–LEFÈVRE SYNDROME is characterized by periodontitis and palmoplantar keratoderma. The severe destruction of periodontium results in loss of most primary teeth by the age of 4. and most permanent teeth by age 14. Hyperkeratosis of palms and soles of feet in first few years of life. Destructions of periodontium follows almost immediately after the eruption of last molar tooth. The teeth are involved in roughly the same order in which they erupt. Mutations in the cathepsin C gene located at human chromosome 11q14.1-q14.3 are the cause of PLS. The disorder is inherited in an autosomal recessive manner. This means the defective gene responsible for the disorder is located on an autosome and two copies of the defective gene (one inherited from each parent) are required in order to be born with the disorder. The parents of an individual with an autosomal recessive disorder both carry one copy of the defective gene, but usually do not experience any signs of symptoms of the disorder. Therapy was in the past Retinoids and antibiotics, and they were used as well as extractions of all teeth and construct complete denture. A newer alternative conventional management of the disease is treatment transplanting bone external surface of the parietal bone to the patient's mouth, affording the patient the opportunity to lead a normal life.

PP – 215**DEPRESSION IN PATIENTS WITH TEMPOROMANDIBULAR DISORDERS**

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Introduction: Temporomandibular disorders (TMD) are very common in general population and these disorders are found more frequently in women. **Objective:** Objective of this study was to identify difference of scores on Depression scale among women with and without TMD as well as with different types of TMD. **Material and Methods:** In this prospective study we interviewed 146 women with Depression scale, which is part of Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD). We examined subjects and established diagnosis of various TMD according to criteria defined by RDC/TMD. **Results:** Of 146 patients, 71,2% had normal findings on clinical examination, 11,0% had myofascial pain (MP), 12,3% had disc dislocation (DD), 4,1% had arthralgia/osteoarthritis/osteoarthrosis (A/OA/OA) and 1,4% combination for two disorders (MP/DD and A/OA/OA and DD). Mean values on depression scale was 1,4 for combination of two disorders, 1,26 for MP, 0,64 for DD and 0,6 for A/OA/OA. One way ANOVA showed statistically significant difference among diagnostic groups ($F=3,12$; $p=0,025$). LSD post hoc identified women with MP syndrome as group with significantly higher scores on depression scales in comparison with other groups (MP syndrome vs. normal findings ($p=0,009$); MP syndrome vs. DD ($p=0,006$), MP syndrome vs. A/OA/OA ($p=0,034$) while other groups did not show different values of Depression scale between each other (normal finding vs. DD ($p=0,325$); normal finding vs. A/OA/OA ($p=0,458$); DD vs. A/OA/OA ($p=0,899$)). **Conclusion:** Women with myofascial pain syndrome had higher scores on Depression scale than women in all other defined groups.

PP – 216**EFFECT OF DIFFERENT SOLUTIONS ON COLOR STABILITY OF DIFFERENT DENTURE BASE MATERIALS**

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Aim: The aim of the study was to evaluate the color change of certain brands of denture base materials when they were contacted with tea, coffee and coca cola solutions. **Materials and Methods:** Four types of denture base materials and three different solution (tea, coffee, cola) were used in this study. Forty specimens from each type of test material were prepared (10 mm diameter, 2 mm thickness) in accordance with the manufacturer's instructions. All specimens were polished using no. 600 silicone–carbide sand paper. Ten specimens from each type of acrylic resin (heat-polymerized, chemically polymerized (pink), chemically polymerized (transparent) and deflex) were stored in each solution in 37° C in a dark environment. Colorimetric measurements were done on the 1st, 7th, and 30th days. Color differences among specimens immersed in distile water (control group), and staining solutions were evaluated over time. Spectrophotometer was

used to evaluate the colour change. Color differences were characterized using the CIE L*a*b* color space. Results: The data collected for the change in color were evaluated and compared for the different groups using One-way Analysis of Variance test. Statistically differences were found between denture base materials and solutions ($p < 0,005$). Conclusion: Within the limitations of this in vitro study, the following conclusions were drawn: (1) Discoloration of denture base materials increased proportionally with immersion period. (2) The most chromogenic staining solution was found to be the coffee solution.

PP – 217**BODY POSTURE STABILITY AMONG DENTISTS DURING WORK**

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Background: Occupations such as dentistry are highly demand. Because of the narrow work area (the oral cavity), it is challenging for the dentist to find the optimal body posture during their work and most of them work in a non-neutral posture to gain better visibility during treatment. Inclination signals from the back were recorded in order to determinate postural data of dentists during work in sitting and standing positions. Methods and materials: The study included ten dentists, age (33 ± 3.4) in postgraduate studies. Posture acquisition was performed by using a wireless sensor system with high performance 12-bit digital tri-axial accelerometers. Sensors were placed on the ¼ of the horizontal line at the level of the 7th thoracic vertebra, symmetrically on both sides of back. Results: During the examination the dentists were sitting with an anteroflexion of the back of less than 20° during 74% of time, and standing 62% of time with a back flexion of less than 20°. Dentists worked with a back lateroflexion to the left side of less than 20° for 65% of time in standing, and 50% of time in sitting position. Conclusion: In our study, we measured back anteroflexion and lateroflexion, and we found that tilt of less than 20 degrees is most prevalent, in forward, as well as in lateroflexion, whether sitting or standing.

PP – 218**PROSTHODONTIC REHABILITATIONS OF PATIENTS WITH SEVERELY ADVANCED PERIODONTAL DISEASE: 2 CASE REPORTS**

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Background: Periodontal disease progressively destroys the supporting tissues of the teeth. In later stages of the disease the break down of the periodontium may have progressed to a level where treatment frequently must involve extraction of one or several teeth. In such cases prosthetic rehabilitation is often needed to restore function and aesthetics. This case reports describe prosthetic rehabilitations of patients with severely advanced, rapidly progressing marginal bone loss treated by fixed and removable dentures. Methods and Materials: In case-1 a

62 year-old male patient presented with maxillary and mandibular partially edentulism. In maxilla tooth-retained overdenture and in mandible anterior porcelain-fused metal fixed restorations, in mandible posterior a removable denture were planned. The teeth were prepared in chamfer margin form. Vertical dimension and bilateral balanced occlusion were established. In case-2 a 45 year-old male patient present with partially edentulism in anterior zone. Porcelain fused-metal fixed restorations were planned. The teeth were prepared in chamfer margin form. Hygienic final restorations were cemented. Results: The restorations were presenting acceptable functional, phonetic and aesthetic results. The prostheses were attended to be hygienic and the patients were informed to apply oral hygiene procedures properly. Recall evaluations were done at the first week, first month and sixth month after treatment. Satisfying oral hygiene status were observed for all patients. Conclusion: Hygienic restoration design, patient motivation, education and post treatment follow-up are critical for successful treatment outcome for the patients who have periodontal disease.

PP – 219**THE EVALUATION OF FLEXURAL STRENGTH OF INLAY-RETAINED-DENTURES CONSTRUCTED WITH DIFFERENT BRAND MONOLITHIC ZIRCONIA MATERIALS**

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Background: The purpose of this study is to evaluate the flexural strength of inlay-retained fixed partial dentures (IRFPD) produced from three different brands of monolithic zirconia material, based on two different types of cavity preparation. **Methods and Materials:** In a model of the missing right and left mandibular first molar, a tube-shaped cavity on one side, and a box-shaped cavity on the other side were prepared. Seventy-two epoxy resin model was prepared. Twenty-four IRFPD were fabricated from each monolithic zirconia (Zirconia Prettau, Katana Zirconia and Copran Zr-i monolith) for each preparation type. Each restoration was cemented to its own epoxy resin model with resin cement. Thermocycle was applied to the half of each group. Samples were subjected to the flexural strength test. The obtained data were analyzed with SPSS programme. Fracture zones were examined by SEM. Differential Thermal Analysis (DTA) was applied to a sample from each group. **Results:** There were no statistically significant difference between the flexural strengths of all brands with both cavity designs and pre and post-thermocycle applications. However, SEM and DTA results showed that there were some changes in the structure of monolithic zirconia after one-year of aging. In all groups, there was no significant difference in the stability of restoration between the two cavity types. There was no statistically significant difference in terms of the strength of each brand in the same cavity design. **Conclusion:** Monolithic zirconia inlay-retained restorations used in the study were found to be suitable for a single posterior tooth loss.

PP – 220**SOURCES OF STRESS IN DENTISTRY. FREE TIME, HOBBIES AND PROFESSIONAL SATISFACTION AMONG DENTISTS IN BULGARIA**

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Aim: To determine the level of professional satisfaction among Bulgarian dentists and the most common sources of stress. **Methods:** An anonymous questionnaire was mailed to a random sample of 1427 dentists from 107 settlements in Bulgaria (Nov-Dec 2012). The questionnaire was consisted of 37 items regarding dentists' socio-demographic characteristics, motivation for choosing dentistry and work-environment factors. Overall level of job satisfaction was assessed by using a 3-point scale – satisfied, partly and dissatisfied. The dentists were asked to indicate the most significant stressors in their practice as they ranged them according to their self-assessment. To search for statistically significant associations between job satisfaction and dentists' free time and hobbies the statistical package IBM SPSS Statistics 19.0 was used ($p < 0.05$). **Results:** A total of 436 dentists responded to the survey (response rate 30.5%). Bulgarian dentists experienced high level of professional satisfaction – 290(66.5%) were completely satisfied, 130(29.8%) - partly satisfied and 16(3.7%) were dissatisfied. The first three and most important stressful factors that dentists indicated were associated with communication with nervous, conflict and emotionally aroused patients, complications in treatment process and administrative barriers. Dentists that did not have free time demonstrated the highest levels of job dissatisfaction ($p < 0.05$). There was not statistically significant association between having a hobby and professional satisfaction ($p > 0.05$). **Conclusion:** Although there are evidences about negative stress consequences, this group of Bulgarian dentists found their way for effective coping with professional stress, which leads to better professional performance and quality of life.

PP – 221**USAGE OF ENDODONTIC IRRIGANTS BY DENTISTS WITH VARYING YEARS OF PROFESSIONAL EXPERIENCE: A SURVEY**

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Background:Endodontic irrigants have an essential role for removing debris, microorganisms, and the smear layer. The aim of this study was to determine information about usage of irrigants in relation to years of professional experience collected from dentists using a questionnaire. **Material and methods:**The survey contained questions about the most frequently used irrigants, their concentrations and the spectrum of disinfectants used in Endodontics. Additionally, information about age, gender, years of professional experience and main topics of continuing

education was collected. The statistical analysis was performed using IBM SPSS Statistics 22.0. Results: 219 replies were evaluated (response rate 27,3%). The majority of dentists (31.1%) had 21-30 years of professional experience. 18.7% had over 30 years. Most dentists reported their continuing education to cover mainly general dentistry, whereas about 1.2 % especially endodontics. Dentists with long-standing professional experience used H2O2 more often – 78%. Dentists with less experience used 17% EDTA – 53.6%. A significant difference was not found for usage of sodium hypochlorite and 2% chlorhexidine. 82% used conventional needle 27G for intracanal irrigation and 60% never used ultrasonic irrigation. Conclusions: The analysis of the responses concerning the usage of irrigants showed that many general dental practitioners do not follow quality guidelines for endodontic irrigation protocols.

PP – 222**USAGE OF INTRACANAL MEDICAMENTS BY DENTISTS WITH VARYING YEARS OF PROFESSIONAL EXPERIENCE: A SURVEY**

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Background: The use of different intracanal medicaments applied between patient's visit is to eliminate the residual microorganisms from the infected root canals, to reduce the pain and inflammation, and to eliminate the periapical exudate. The aim of this study was to determine information about the usage of intracanal medicaments in relation to years of professional experience collected from dentists using a questionnaire. **Material and methods:** The survey contained questions about the most frequently used intracanal medicaments. Additionally, information about age, gender, years of professional experience and main topics of continuing education was collected. The statistical analysis was performed using IBM SPSS Statistics 22.0. **Results:** 219 replies were evaluated (response rate 27.3%). The majority of dentists (31.1%) had 21-30 years of professional experience. 18.7% had over 30 years. Most dentists reported their continuing education to cover mainly general dentistry, whereas about 1.2 % especially endodontics. 89% of dentists with less experience (under 10 years) used Calcium hydroxide . Dentists with long-standing professional experience used Chlorphenolcamphor - 29.3% when treating pulpitis, and Tricresolformalin -36.6% for infected root canals. A significant difference was not found for usage of Iodoform. The dentist prescribed antibiotics more often when the diagnosis is acute apical abscess -57.1%, phoenix abscess -57%, and submucosal abscess – 64.3%. **Conclusions:** The analysis of the responses showed that general dental practitioners with long-standing professional experience used phenol based intracanal medicaments more often.

PP – 223**CAD/CAM PROTOCOL FOR A SINGLE ALL-CERAMIC CROWN DESIGN WITH 3SHAPE SOFTWARE**

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Introduction. CAD/CAM (computer aided design/computer aided manufacturing) is a technology of prosthetic restorations design by the help of a computer software and their fabrication by milling of proper material (ceramics, laboratory composite, acrylic resin, metal alloy). **Purpose.** The aim of this presentation is to describe the clinical and laboratory CAD/CAM design protocol of single all-ceramic crowns with 3Shape Dental System software. **Materials and methods.** The clinical protocol of taking a digital impression with TRIOS (intraoral) scanner and the laboratory scanning of dental stone models with 3Shape WIELAND Dental D 800 (laboratory) scanner were presented. The used materials and instruments were mentioned. The design process of a single all-ceramic crown with 3Shape Dental System was followed out. **Results and discussion.** All single design steps were described: choice of the insert direction, the margin line outlining, the cement gap releasing, the choice of an optimal crown shape, the primary position and shaping, the final shaping, the choice of distance to the adjacent teeth and antagonists, the smoothing and finishing. **Conclusion.** 3Shape Dental System software provides especially precise and accurate design and fabrication of CAD/CAM single crowns. **Key words:** CAD/CAM protocol, design, single crowns

PP – 224**AGE-SPECIFIC IMPACT OF ANXIETY ON ORAL SELF-ASSESSMENT AND ATTENDANCE PATTERNS**

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IM: The aim of the present study was to compare state and dental anxiety levels, associated with oral health self-assessment and attendance patterns among two age groups of dental patients. **MATERIAL AND METHODS:** A total of 131 dental patients were administered questionnaires. Of these 71 were in the age group 30-40 and 60 in the age group 20-30. The questionnaire consisting of 29 items was divided into 4 groups concerning respondents' socio-demographic characteristics, (DAS) and STAI-T, self-assessment and attendance patterns items. **RESULTS:** STAI-T scoring showed that 10% of 20-30 years old and respectively 4.65% of 30-40 years old females had high levels of anxiety. About males STAI-T scoring showed 4.65% of 30-40 years old men experienced high anxiety and no one in the younger age group. High levels of dental anxiety were scored only in 30-40 years age group – 4.65% of females and 7.14% of males. Results of self-assessed oral health level among 20-30 years old patients showed 28.33% rated their oral health as excellent, 40% as very good, 31.66%-good, and only 1.67% (1 female)-bad. The data about the other group was 57.75% rated their oral health as excellent, 28.17% as very good, 6.63%-good, and equal parts 4.23-bad and very bad. The majority of the respondents-22 (53.3%) of 20-30 years old visited their dentist each six months and the majority of second group patients – once per year. **Conclusion:**

The results indicated there were differences in studied phenomena associated to age-specific psychological characteristics of respondents.

PP – 225**SOFT AND HARD TISSUE CHANGES DURING TREATMENT WITH REMOVABLE FUNCTIONAL APPLIANCE OF CLASS II**

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Aim of the study: To evaluate soft and hard tissue changes in growing patient treated with functional appliance. **Materials and methods:** Two groups of 10 growing patients Class II, division 1, with mandible skeletal retrusion. The patients in the first group were treated with Trainers. The second group patients were treated with Klammt's elastic open activator. All patients had lateral cephalograms at the beginning of the treatment and after they achieved Class I molar relationship. All cephalograms were traced using Audax software program. **Results:** Treatment with removable functional appliance during growth reduces the sagittal skeletal discrepancies. Vertical effects of craniofacial growth pattern are small but statistically significant. The soft tissue changes differ from the skeletal changes and it is hard to predict them using quantitative measurement. **Conclusion:** Treatment of class II, division 1 growing patient with removable functional appliance may favourably effect the sagittal skeletal discrepancies.

PP – 226**THE IMPACT OF CBCT PROFICIENCY IN DIAGNOSIS OF FURCATION DEFECTS**

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Background: The use of cone-beam computed tomography (CBCT) has expanded rapidly in recent years. Since CBCT allows assessment of dento-maxillofacial structures in three-dimensional manner, its use may be very tempting in alveolar bone furcation defects diagnosis. The aim of this study was to determine the impact of clinical experience and experience with CBCT on furcation defects detection in patients with periodontitis. **Material and Methods:** Fifteen patients with chronic generalized severe periodontitis were included in the study. In total, 168 furcation sites were analyzed on CBCT images by a previously trained senior year undergraduate student (E1) and a PhD student with three years of CBCT experience (E2), and compared to clinical findings (probing). CBCT images were analyzed on two separate occasions, within a 7-day interval. Furcation defects were assessed both clinically and on CBCT images, using a dichotomous scale (present/absent). Intraexaminer agreement for each examiner was calculated by using Kappa coefficient (k). Interexaminer agreement and agreement between CBCT and clinical findings for both examiners were calculated. **Results:** Kappa coefficient value for both examiners indicated a good intraexaminer agreement (k1=0.75; k2=0.94). Interexaminer agreement of CBCT image analyses was present in 72.6%. Agreement between CBCT image analyses and clinical findings for

both observers was calculated (48.8% for E1, and 51.2% for E2). Conclusion: It can be assumed that clinical experience and CBCT proficiency do not have an impact on furcation defects detection on CBCT images, if an appropriate training was previously performed. Keywords: CBCT, furcation defect, periodontitis

PP – 227**EFFICACY OF DENTURE CLEANERS ON SURFACE ROUGHNESS AND CANDIDA ALBICANS ADHERENCE OF DENTURE BASE MATERIALS**

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Purpose. The purpose of this in vitro study was to investigate the effect of denture cleansers on the surface roughness and Candida albicans adherence of surface sealant agent coupled denture base resins. **Methods.** One hundred and twenty specimens were fabricated from 2 polymethyl methacrylate (PMMA) (Meliodent; Acron MC) and 1 polyamide (Deflex) denture base materials. The surface of all specimens were coated with a sealant agent (Palaseal) and divided into 4 groups (n=10) according to overnight cleaning procedures: distilled water (control), 5% sodium hypochlorite (NaOCl) and two different sodium perborate (Corega; Rapident). The surface roughness values of specimens were measured with a profilometer before (Ra0) and after 90 days immersion in denture cleaners (Ra1). Then the specimens were incubated with Candida albicans suspension (ATCC 90128) for 24 hours at 37°C and Candida colony-forming units (CFU) (Cfu/mm) were counted. Data were statistically analyzed. **Results.** The type of denture base material and cleaners were significant on CFU and both variables and their interactions were also significant on Ra values (P<.05). Significant differences were found, between the Ra0 and Ra1 values of 5% NaOCl applied Acron MC, Deflex and also Rapident applied Deflex groups (P<.05). There was no significant difference among the test groups for CFU values (P>.05). **Conclusions.** The 5% NaOCl and Rapident denture cleaners may be destructive for sealant agent on surface of some denture base materials. By the way, denture cleaners were not effective on the Candida albicans quantification of surface sealant agent applied denture base materials.

PP – 228**CLINICAL FEATURES AND MANAGEMENT OF CROUZON SYNDROME. A REVIEW OF THE LITERATURE**

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Background: Crouzon syndrome is a rare genetic disorder with autosomal dominant inheritance. The underlying pathological process is premature synostosis of the cranial sutures with

subsequent phenotypic alterations of the affected person. The aim of this study was to present the features and management of individuals with Crouzon syndrome. **Methods and materials.** A review of the literature has been conducted in order to resume the overall characteristics of Crouzon syndrome such as cranio-maxillofacial malformations, clinical features, dentoalveolar characteristics, aesthetic impairments, and psychological background. Moreover, the different therapeutic procedures, which combine surgical and orthodontic interventions, will be analyzed. **Results:** Patients with Crouzon syndrome present a varying degree of craniosynostosis resulting in hypoplastic midface with orbital proptosis, exophthalmos, hypertelorism, Class III skeletal and dental discrepancy, shortened anterior-posterior and transverse dimensions of maxillary dental arch and impacted teeth. Concurrent abnormalities of ear, eyes, nose, mouth, musculoskeletal, neurological and respiratory system may be present. Lefort III osteotomy alone or in combination with Lefort I have been proposed for the correction of midface deficiency. Distraction osteogenesis with external fixation has been lately the treatment of choice to minimize postsurgical relapse. Pre-surgical and post surgical orthodontic treatment is necessary to establish ideal jaw and occlusal relationships. **Conclusion:** Facial and functional malformations in individuals with Crouzon syndrome could be significantly improved after a series of surgical and orthodontic procedures in almost all cases. A multidisciplinary treatment approach would provide the best outcomes in affected patients.

PP – 229**MANAGEMENT OF CLEIDOCRANIAL DYSPLASIA: A COMPREHENSIVE GUIDE FOR MULTIDISCIPLINARY REHABILITATION**

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BACKGROUND Cleidocranial dysplasia (CCD) is an autosomal dominant inherited skeletal disorder. It has various clinical manifestations such as skeletal malformations, auditory and respiratory problems and dental abnormalities. Thus, CCD patients should be treated by a variety of medical and paramedical specialists. **MATERIALS AND METHODS** The up-to-date literature was reviewed regarding the approaches used for treatment of the oral and maxillofacial abnormalities which are the main complaint of CCD patients. Also, the previous review was conducted in order to find information considering the treatment of other common findings in CCD patients. **RESULTS** Today, there are four basic approaches, namely the Toronto-Melbourne, the Belfast-Hamburg, the Jerusalem and the Bronx approach so as to treat the CCD related oral and maxillofacial abnormalities. These approaches are based on the combined and carefully planned use of Craniofacial Surgery, Orthodontics and Prosthodontics. Moreover, there are some special treatments aiming at the other abnormalities that usually come along with CCD. Responsible for these ones and also, for supporting the CCD patients are various specialists such as otolaryngologists, orthopaedists, physiotherapists, neurologists, speech therapists, gynecologists, psychologists, social workers and geneticists. **CONCLUSION** CCD is a very complicated clinical condition which requires a special multidisciplinary treatment. Dentists play an important role in that because, most of the times, they are the first who encounter a CCD patient and subsequently,

they are responsible for informing and guiding the patient or the relatives to the next stages of the therapy.

PP – 230**AN ANTIOXIDATIVE CAPACITY OF SEVERAL LUTING CEMENTS MEASURED BY TWO DIFFERENT METHODS**

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Background Considering the clinical steps before the temporary/definitive cementation procedure of the fixed restorations (creating the finishing demarcation, thread insertion and impression taking), it is very important to take care of gingival health as well as architecture of the gingival margin. Subsequently, act of luting might be another harmful factor to slow down the surrounding tooth tissue healing. Hence the aim of this study was to investigate the antioxidative capacity on several temporary/definitive luting cements. **Materials/methods** A) 10 specimens of temporary eugenol and noneugenol materials and B) 10 specimens of definitive luting cements were tested. The samples of prepared luting cements were plunged upon setting into the saline solution. Antioxidative capacity (AC) were measured after 24 hours of dwelling by 1) ABTS chromogene test spectrophotometrically with ascorbic acid standard and 2) HPMC method. **Results** The most significant and the highest AC value was noted for Kariofil ($p < 0,01$) in comparison to non-eugenol ones and Ketac cement versus other definitive luting cements ($p < 0,01$). **Conclusion** Ex tempore mix of simple ZOE cement exposed the most powerful AC among A) group as well as the conventional GIC formulation among B) samples. **Key words:** antioxidative agent, glass ionomer cement, polycarboxylate cement, composite cement, eugenol, luting cement

PP – 231**MAXILLAR DEFICIENCY TREATMENT WITH HYBRID HYRAX APPLIANCE: CASE REPORT**

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AIM: Rapid palatal expansion (RPE) is used for the treatment of skeletal crossbites. Conventional RPE appliances has several adverse effects such as buccal tipping of the anterior teeth, decreasing the anterior bite. The aim of this subject is overcoming these drawbacks and treating maxillar deficiency with hybrid hyrax appliance. **MATERIAL AND METHOD:** 16 years old girl applied our clinic with suffering from moderate crowding and anterior openbite. As we examined the patient, she had maxillar deficiency with dark buccal corridors, -3.5 mm anterior openbite and rotated anterior teeth. Two miniscrews (8 mm height and 1.6 mm diameter) were inserted to the both sides of the median palatal suture. Hyrax appliance was cemented to the first molars. After completing the screw turning program, maxillar and mandibular brackets were bonded. Subsequently, removing the hybrid hyrax appliance, for molar intrusion, one palatal miniscrew

inserted to the posterior side of the maxilla. **RESULTS:** After the treatment, the patient had a normal overbite (1.5 mm) and overjet (2 mm) relationship and a stable occlusion. Sufficient expansion was achieved in the maxilla after expansion protocol. Also miniscrews provided good anchorage for expansion. After maxillary molar intrusion, simultaneous counterclockwise rotation of the mandible occurred. **CONCLUSION:** Hybrid hyrax appliance is an effective appliance for rapid palatal expansion. Orthodontic treatment can be started early because the appliance doesn't include the anterior teeth. Also, it is comfortable and hygienic for patients.

PP – 232**TREATMENT AND 2 YEARS FOLLOW-UP OF A POST-PEAK PATIENT WITH CLASS III MALOCCLUSION: CASE REPORT**

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BACKGROUND: Skeletal Class III malocclusion characterized by maxillary retrognathism is commonly treated by orthopedic appliances such as face mask in growing patients. This case report presents treatment and 2 years follow-up of a post-peak patient with Class III malocclusion who was treated with face mask therapy combined with rapid maxillary expansion. **METHODS AND MATERIALS:** The female patient was 12 years 6 months of age and at PP3u developmental stage. Clinical examination revealed Angle Class III molar relationship, -1 mm overjet, 5 mm overbite, 12.2 mm crowding in maxillary arch, 1.6 mm crowding in mandibular arch and impaction of upper left canine. Cephalometric analysis revealed skeletal Class III malocclusion with SNA:77.2°, SNB:80.7°, ANB: -3.5°, SN-GoGn:32.7°, Mx 1-SN:101.3°, IMPA:88.6°. The patient was treated by a bonded acrylic-splint rapid maxillary expander with Petit type face mask, with a protraction force of 500 gf per side. The total treatment time with face mask was 4 months. Following, impacted canine was erupted in 4 months with fixed orthodontic appliances. **RESULTS:** The total treatment time was 32 months and at the end of this time, skeletal Class III malocclusion was corrected, Class I canine and molar relationships with ideal overjet and overbite were achieved, the profile was improved. **CONCLUSION:** Face mask therapy combined with rapid maxillary expansion is an effective treatment method in post-peak stages. Overbite has decreased slightly after 2 years retention period due to tongue thrusting.

PP – 233**CEPHALOMETRIC ASSESSMENT OF JAW BASE PARAMETERS IN ADULT BULGARIANS WITH NORMAL OCCLUSION**

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Background Determination of normal mean values refines diagnosis and treatment planning of dentofacial deformities. The aim of this study is to evaluate the main cephalometric indicators for assessment of the bases of the mandible and maxilla on lateral cephalometric radiographs of persons

with completed growth and normal sagittal relationships. **Methods and materials** For the realization of the pilot study, 390 adult Bulgarians were examined. Of the total number of examined subjects, 90 cases with normal occlusal relationships - Angle Class I, who have not undergone orthodontic treatment, were purposefully selected. Lateral cephalometric radiographs of the selected subjects were taken. We studied 90 lateral cephalometric radiographs of adult Bulgarians. The following cephalometric indicators were estimated: ANB—angular indicator for assessment of the sagittal relationship between the jaws; WITS—linear indicator for assessment of the relationship between the jaws; S-N and Ba-N—linear measurements for assessment of the cranial base; ANS-PNS—linear indicator for assessment of the maxillary base; Go- APMa – linear indicator for assessment of mandibular size. The Schwarz method was used for the cephalometric analysis. **Results and Conclusion** The mean values of S-N and Ba-N parameters did not differ between age groups. A gender-based cephalometric analysis of indicators found that there are statistically significant differences. Only the ANB angular parameter did not show any statistically significant difference between genders. The results of our study confirm previous research on the topic presented in specialized literature.

PP- 234**COMPARISON OF DEGREE OF ROTATION OF UPPER FIRST MOLARS IN CLASS I AND CLASS II**

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Introduction Upper first molars are often rotated, which decreases the space in the dental arch up to 4mm. **Aim** The aim of the study is to compare the magnitude of mesiopalatal rotation of the maxillary first molars in dental Class II and Class I malocclusion using two measurement approaches. **Methods and Materials.** Maxillary casts of 70 patients with permanent dentition were included and divided equally into two groups (dental Class I and ClassII). Photographs of the dental casts were taken from occlusal view of each maxillary arch with occlusal plane parallel to the film in the camera. The magnitude of the molar rotation was evaluated based on 2 methods: angle of Friel and angle of Henry. We used t-test to asses statistical significance. **Results** We established bigger rotation of the left molars than the right ones in Class I and Class II cases. According to Henry the rotation of the 1st molar is normal in Class I and significant in Class II, while Friel's analysis shows no difference between both groups of the study. Consequently Henry's angle is more reliable than Friel's angle. **Conclusion:** We concluded that Class II malocclusion presents greater mesiopalatal rotation than ClassI. The orthodontic correction of upper 1st molar rotation could gain 2-4mm in arch perimeter and may provide improvement in molar relationship.

PP – 235**CASE REPORTS : EFFECTS OF MALOCCLUSIONS ON PERIODONTAL HEALTH**

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Introduction: Many patients seek orthodontic treatment for aesthetic and functional improvement. These patients mostly present with malposition of the anterior teeth. Does

orthodontic treatment improve periodontal health in addition to the aesthetic benefits? Do malocclusions harm the periodontium? Is it possible correcting malocclusions with orthodontic treatment to support periodontal health? Aim: The purpose of this study is to establish a correlation between the presence of a malocclusion and periodontal disease. Materials and methods: These are case reports of a 8-year-old girl and boy having pseudorecession caused by anterior crossbite. In these cases there was no root exposure. Nevertheless, pseudo-recession denotes a risk of developing true gingival recession unless causal and predisposing factors are addressed. Results: A combined approach of orthodontic therapy and biofilm control appears to improve the health of periodontal tissue. Proper axial tooth position eliminated any trauma from occlusion and made possible of increase in marginal gingiva with a pleasant aesthetic outcome. Conclusion: Malpositioned teeth negatively affect the health of periodontal tissues, which draws attention to the importance of a multidisciplinary approach that includes primarily periodontal and orthodontic care to improve the oral health of patients.

PP – 236**MULTIDISCIPLINARY TREATMENT TO CORRECT ANTERIOR CROSS BITE OF AN ADULT PATIENT (CASE REPORT)**

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The aim of this presentation is to show how multidisciplinary team work can achieve best results even in adult patients with anterior cross bite. Case report: Patient: SH.A, female, 23 years old. The patient had anterior cross bite. The patient had a compromised oral health, teeth 36 and 46 had been extracted. She had always refused to perform orthodontic treatment for many years from her younger ages, but this time, she was ready to undergo all necessary treatments to correct the aesthetic aspect and masticatory function as well. Method of treatment. After a multidisciplinary team consultation, we concluded that the prosthetic rehabilitation and the compensation of the anterior cross bite could not be completed on one stage treatment. Frontal teeth crowns would burst too long and the longitudinal axis would procline beyond an acceptable esthetics. We started with orthodontic therapy to corrected anterior cross bite. This was accomplished by means of a mobile device with a saggital screw. Six weeks later, the anterior cross bite was corrected, so we continued with the prosthetic rehabilitation of the upper dental arch (a ceramic bridge was applied) and esthetic fillings at the mandibulary anterior teeth. Full therapy lasted 10 weeks. Conclusion: The key of success in this case was the multidisciplinary team work and the cooperation of the patient.

PP – 237**TREATMENT OF SKELETAL CLASS II MALOCCLUSION IN A GROWING PATIENT WITH FORSUS™ FATIGUE RESISTANT DEVICE**

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Background: This presentation shows the skeletal Class II malocclusion treatment in a patient with deepbite, decreased lower anterior facial height and retrognathic mandible. Methods and

Materials: A 12-year-old, female Class II patient with a retrognathic mandible admitted to our clinic. The extraoral and intraoral examination findings showed that convex profile, retroclined maxillary incisors, and the Class II molar and canine relationships. Pre-treatment cephalometric values confirmed a Class II skeletal malocclusion with a ANB of 5.4°, FMA of 29.4°, and SN-GoGn of 39.2°, IMPA of 87.2°. Firstly, MBT brackets were bonded and the leveling was started with 0.016" Ni-Ti arch wires. Forsus™ device was placed at the end of the leveling and alignment phase of the treatment, when a 0.016x0.022" SS arch wires were inserted. The active phase with Forsus™ device was 4 months and undertaken until Class II occlusion was overcorrected to an edge-to-edge incisal relationship. **Results:** At the end of the treatment, functional occlusion, ideal overjet and overbite with skeletal Class I relationships and a straight profile were obtained. The pre- and post-treatment cephalometric findings showed that the molar relationships were corrected mainly dentoalveolar changes, with significant mesial movement of the lower incisors (IMPA of 97.4°). **Conclusion:** Although skeletal Class II relationship was corrected significant mesial movement of the mandibular dentition, the Forsus™ Fatigue Resistant Device is recommended as an effective and comfortable fixed functional appliance for the treatment of mandibular dentoalveolar retrognathism without surgical intervention.

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MANAGEMENT OF A CLASS II MALOCCLUSION USING CERVICAL HEADGEAR:A CASE REPORT

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Introduction: To present the treatment of a patient with a Class II malocclusion by using cervical headgear. **Method:** The patient, a Turkish woman aged 11 years 6 months. The patient who has a skeletal Class II malocclusion and deepbite and mesofacial type of growth pattern. The patient had class II canine and class II molar relationship. Her lips were competent and retrusive relative to the esthetic plane. Her nasolabial degree increased. The facial photographs indicated a convex facial appearance. Pretreatment cephalometric confirmed a class II skeletal relationship with a SNA of 81, 9°, ANB of 4,7°, FMA of 25, 8° and SN-GoGn of 34, 9°, nasolabial degree of 140°, Cervical headgear was used with a fixed appliance. **Result:** After active treatment SNA of 78, 1°, ANB of 1, 8°, nasolabial degree 134,5°. and functional occlusion with optimal overbite and overjet with skeletal Class I relationship were obtained. The patient was satisfied with her facial profile. Class I canine and the molar relationship, good alignment and levelling of the maxillary and mandibular teeth are achieved. **Conclusion:** The headgear therapy is an effective treatment method for who patient have maxillary protrusion and class II malocclusion. Patient cooperation in wearing the headgear for 18-20 h per day can explain the successful treatment response.

PP – 239**THE TREATMENT OF CONGENITALLY MISSING MAXILLARY LATERAL INCISORS WITH ORTHODONTICS TREATMENT AND DENTAL IMPLANTS**

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INTRODUCTION All of congenitally missing teeth are nearly %20 maxillary laterals. Treatment choices are space closure with fixed orthodontic treatment or opening space for prosthetic treatment / dental implants. Implants are generally preferred to replace congenitally missing lateral incisors in adolescent orthodontic patients. In this case report; our aim is the planning of maxillary lateral incisor implants for congenitally missing laterals with the aid of orthodontic therapy. **Case Report** The 18 years old patient referred us due to aesthetic problems. The patient had insufficient midface profile and anterior diastemas.. The patient's SNA is 81.4, SNB is 80.1 and ANB is 1.3 and she has horizontal growth pattern and interincisor angle is 124 degree. Because of the insufficient midface profile we chose opening spaces. The fixed orthodontic treatment lasted 13 months and later dental implants were placed. 6 months later after operation crowns were placed over implants. **Results** The all treatment lasted 19 months. With the aid of fixed orthodontics treatment enough space for dental implants were gained. Thus anterior diastemas are eliminated, ideal overjet and overbite are obtained. **Conclusions** Dental implants are a treatment of choice for most patients with congenitally missing laterals.

PP – 240**DIAGNOSIS AND TREATMENT OF COMPLICATED CROWN FRACTURE DUE TO INDIRECT TRAUMA**

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Background: Complicated crown fractures can be seen in both anterior and posterior teeth. They may occur in two ways; direct or indirect. In direct trauma, forces directly affect the tooth and this occur mostly in anterior teeth. In indirect trauma, the force affect the lower jaw and the posterior teeth are affected indirectly. However, traumas happened indirect mechanism are less observed than direct ones. The aim of this case report is to present the complicated crown fracture of a 2.5 years old girl, which happened due to indirect trauma. **Methods and Materials:** In this case presentation, the dentoalveolar injury of a 2.5 years old girl has been defined. The patient was brought to our clinic by her parents because of tooth pain. The mother said that her child had no health problems, and she fallen down in a home approximate five days ago. Tissue injury was observed under the chin in the extra oral examination. Periapical radiography was taken for radiographic evaluation and fracture was observed in tooth 84. After obtaining parental consent, it was decided to extract the tooth under sedation. It was implemented a fixed space maintainer. **Result:** Mandibular right first primary molar tooth was early extracted, the space maintainer was fixed. **Clinical observations** are ongoing. **Conclusion:** It should be noticed that posterior teeth can

be effected by dental injuries which caused by indirect mechanism, complicated/uncomplicated crown or root fractures may occur, patient age and post trauma time period is important in the treatment plan.

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IN VITRO STUDY OF ROOT-END MARGINAL ADAPTATION OF FIVE SEALERS USING SCANNING ELECTRON MICROSCOPY

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Background:The use of suitable root-end filling materials is very critical. The aim was to evaluate the root-end marginal adaptation of three bioceramic sealers: Total Fill BC Sealer, MTA Fill Apex, and Zinc phosphate cement without retrograde filling, and two sealers - Biodentin and MTA, as a root - end filling material, using SEM. **Methods and Materials:**Sixty extracted single root teeth were standardized to 15 mm length, chemo-mechanically prepared with Revo-S to AS40 and filled with bio-ceramic sealers and a group with phosphate cement. Apical resection of 3 mm was made. Depending on retrograde filling or not, the teeth were divided into the following groups: I. After apical resection without retrograde filling (n=12 each group): 1st group - Total Fill BC Sealer, 2nd group - MTA Fillapex, 3rd group – Zinc phosphate cement. II. After apical resection, ultrasonic preparation of the retrograde cavity and retrograde filling: 4th group - MTA, 5th group - Biodentin. The results were statistically analyzed with IBM SPSS 22.0. The level of significance was set to P<0.05. **Results:**There was a significant difference in the groups without retrograde filling: the highest value was found in Adhesor – 25.17 µm, the lowest is MTA Fillapex -3.17 µm. There was a significant difference in the groups with retrograde filling: the highest value was found in MTA – 1.72 µm, Biodentin showed the lowest – 1.08 µm. **Conclusion:**Retrograde filling with Biodentin and MTA after apical resection is a prerequisite for successful apical sealing. **Acknowledgements:**This research was supported by Medical University-Sofia.

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EFFECTIVENESS OF IRRIGATION PROTOCOLS IN REMOVAL OF CALCIUM HYDROXIDE IN ROOT CANALS

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Introduction: Calcium hydroxide is widely used in endodontics as a temporary root canal filling. This medicament increases significantly pH and optimizes the treatment outcome. Its total removal before final obturation is very important. Otherwise it could affect the hermetic filling and respectively the endodontic success. In this case we observe calcium hydroxide removal after different irrigation protocols. **Aim:** To evaluate the most effective irrigation protocol of calcium

hydroxide removal from root canals. **Materials and methods:** In this study 42 single root canal teeth were observed. They were randomly divided into two groups (n=21 each). Each group was divided according to the technique applied for calcium hydroxide removal - manual irrigation, irrigation and RevoS rotary instrumentation and passive ultrasonic irrigation. After calcium hydroxide removal following the procedures above, teeth were separated longitudinally in buccal-lingual direction and remnants of medicaments were observed in apical, middle and coronal part of each tooth. All of the specimens were observed using scanning electron microscopy and evaluated by a specified scale. The results have undergone statistical analysis. **Results:** In the case of calcium hydroxide in the apex and in the middle with highest average is RevoS, followed by US and irrigation. In the coronal part the highest average belongs to RevoS, irrigation and US. In all groups the highest average is represented by control group. **Conclusion:** There is not a universal technique for removal of intracanal medicaments and more than one protocol is required.

PP – 243**TWO YEAR CLINICAL EVALUATION OF COMPOSITE RESTORATIONS OF NON-CARIOUS CERVICAL LESIONS USING "ALL-IN-ONE" BONDING SYSTEM**

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The aim of this study was to evaluate the two year clinical performance of resin composite (Filtek Ultimate) restorations of non-cariou cervical lesions using all- in- one bonding system (Single Bond Universal). **Material and methods:** A total of 48 restorations with composite (Filtek Ultimate) using an all-in-one bonding system (Single Bond Universal) were placed to restore non-cariou cervical lesions in 21 patients (group age 26-72). Each patient received 1-3 restorations. Restorations were evaluated at baseline, 1 year and 2 year after placement, using modified US Public Health Service criteria: color match, marginal discoloration, secondary caries, anatomical form, marginal adaption. At baseline, restorations were considered as acceptable for all criteria. **Results** At baseline and after 12 months all the restorations were examined. After 24 months 42 restorations from a total of 48 were examined because a patient with two restorations did not come at recall and 4 fillings were lost. The retention rate was 92%. No secondary caries, loss of anatomic form was observed. Regarding marginal discoloration 6 restorations were rated Bravo. Regarding marginal adaption 4 restorations were rated Bravo. Regarding color match 3 restorations were rated Bravo. No post-operative sensitivity were reported. **Conclusion** Clinical results show that composite restorations using all-in-one bonding system have satisfactory clinical performance at non-cariou cervical lesions.

PP – 244**FRACTURE RESISTANCE OF ENDODONTICALLY TREATED TEETH RESTORED WITH BULKFILL FLOWABLE MATERIAL AND RESIN COMPOSITE**

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Background: To determine and compare the fracture resistance of endodontically treated teeth restored with a bulkfill flowable material (SDR) and a traditional resin composite. **Materials and**

Methods: 30 maxillary and 30 mandibular first molars were selected based on similar dimensions. After cleaning, shaping and filling of the root canals and adhesive procedures, specimens were assigned to 3 subgroups for each tooth type (n=10): Group A: control group, including intact teeth; Group B: access cavities were restored with a traditional resin composite (EsthetX; Dentsply-Italy, Rome, Italy); Group C: access cavities were restored with a bulkfill flowable composite (SDR; Dentsply-Italy), except 1.5 mm layer of the occlusal surface that was restored with the same resin composite as Group B. The specimens were subjected to compressive force in a material static-testing machine until fracture occurred, the maximum fracture load of the specimens was measured (N) and the type of fracture was recorded as favorable or unfavorable. Data were statistically analyzed with one-way analysis of variance (ANOVA) and Bonferroni tests ($P < 0.05$). **Results:** No statistically significant differences were found among groups ($P < 0.05$). Fracture resistance of endodontically treated teeth restored with a traditional resin composite and with a bulkfill flowable composite (SDR) was similar in both maxillary and mandibular molars and showed no significant decrease in fracture resistance compared to intact specimens. **Conclusions:** No significant difference was observed in the mechanical fracture resistance of endodontically treated molars restored with traditional resin composite restorations compared to bulkfill flowable composite restorations.

PP – 245**MULTIPLE FRACTURE – A CHALLENGE FOR PROSTHETIC REHABILITATION (CASE REPORT)**

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Introduction: Full rehabilitation of the mouth especially after a multiple fracture is a difficult challenge. **Aim:** The aim of our case report is to present the treatment of a patient after a severe dental trauma caused by a car accident **Material & Methods:** Our patient was a female, 20 years old. She had multiple fractures of the upper jaw after a car accident. In the following 4 years after the accident she performed many surgical interventions. At last, she had a partial denture which simply replaced the lost teeth, but it was not aesthetic and functional. The patient insisted to have a fixed prosthetic solution. Both alveolar ridges were very compromised because of the accident and surgical interventions. First we tried to level the alveolar ridge. After extraction of teeth 14, 15, 16 and 17, the height of the alveolar ridge diminished of about 5 mm and at the same jaw we applied implants in the areas of teeth 11,13,15,16. Fixed bridges were applied on both jaws. Different shades of ceramic were used for a better esthetics. **Conclusions:** Facial deformity can affect both physically and psychologically the patient. As a matter of fact, the dental rehabilitation is the most successful one, but anyhow this can be achieved only if some principles and rules are followed. The multidisciplinary team work is necessary in difficult cases.

PP – 246**SOFT RELINING MATERIALS - DO WE KNOW ENOUGH ABOUT THEM****Ilian Hristov, Georgi Todorov, Dobromira Shopova, Stilyan Hristov, Zhivko Georgiev*****Medical University Plovdiv, Faculty of Dental Medicine; Plovdiv, Bulgaria***

Introduction: A situation of severe, uneven, nonsymmetrical resorption of mandibular ridge is quite a challenge. Such cases may become even complicated if there is a narrow, sharp alveolar ridge, thin mucosa, exostoses, painful areas around linea mylohyoidea and foramen mentale. Overdeveloped torus palatinus and retentional tuberae maxillae could also be a problem. The even distribution of masticatory forces, when having such anatomo-topographic conditions is quite complicated. The prosthesis must transfer the masticatory pressure in a different way, when there are such unfavorable conditions in the mouth. The aim of the current investigation is to get the colleagues acquainted with the soft relining materials, their nature, properties, and application. **Materials and methods:** VERTEX SOFT (VERTEX), ELITE SOFT (ZHERMACK), TISSUE CONDITIONER (GC), MOLLOPLAST B (DETAX). Relining of ready to use dentures in a direct or indirect method. Fabrication of new two-layer prosthesis entirely in laboratory conditions. **Results:** The achieved results are quite encouraging. The retention and stability are grater. The patients' comfort and confidence are higher. **Conclusion:** Despite their indisputable advantages, the soft relining materials have disadvantages as well (they are getting coloured very easily, become riggid quite soon, the connection with the basis is not reliable etc.). We consider that the two-layer dentures are a reasonable alternative to implant wearing overdentures, for patients with allergies, post-surgical prosthesis etc.

PP – 247**HYGIENE OF REMOVABLE DENTURES RECOMMENDED BY DENTISTS****Nikola Milanov, Todor Uzunov*****Medical University of Sofia, Faculty of Dental Medicine, Department of Prosthetic Dentistry; Sofia, Bulgaria***

The aim of the study was to determine the degree of knowledge and use of means for hygiene and disinfection of removable dentures by dentists who treat patients with partial or complete edentulism. **Material and Method:** The study was conducted among 149 dentists practicing in the city of Sofia, of which 39% men and 61% women. The average work experience of the people who participate in this study was over 10 years. To accomplish the aim a questionnaire with 9 questions has been created. All the questions are oriented towards estimation of the degree of knowledge of hygiene means of removable dentures, most often recommended and used by dentists. **Results:** A statistical data processing and analysis of the average of the responses received to groups of questions has been done. All of the surveyed dentists recommend different means of hygiene for removable dentures. More often the use of effervescent tablets 90.6 %* and brush and paste cleaning 82.8 %* have been recommended. Patients mostly prefer cleaning with brush and paste 75%* and effervescent tablets 64%*. An evaluation of the need for new means for efficient and

easy hygiene of removable dentures has been done. Conclusion: The main means of hygiene for removable dentures recommended by dentists to their patients have been clarified. From the analysis of the data obtained from the survey, we found the need for additional, more effective means of hygiene for removable dentures. Keywords: removable dentures, hygiene

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DIGITAL MAP FOR DETERMINATION OF THE FACIAL TYPE

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Digital design is a tool by which we can achieve predictable clinical results in terms of aesthetics in prosthetics. Objective: Analysis of the characteristics of the four main face types - strong, dynamic, delicate and calm (by the classification of Hippocrates) by mathematical modeling to create digital maps determining the facial type. Material and Method: Photo images were made to 42 men and 49 women aged between 18 and 30 years. They were photographed in full face in a state of maximum smile and in standardized conditions. The individuals were categorized into four main types. Four main elements characterizing the face were determined: facial contour, eyes, nose / eyebrow, mouth, each of which determines 25% of the total type. Each image was processed with dental software for facial analysis (visagiSMile). Digital maps were created for each tested face by digitally marking 27 facial landmark points. Mathematical models based on those data were constructed. Results: The facial features of a particular individual is a combination of several types. In 64.3% of men and 59.2% of women are established features of two types. Conclusions: 1. Through mathematical modeling are created four types of digital facial maps corresponding to the four main facial types: strong, dynamic, delicate and calm. 2. The created digital facial masks can be used for digital facial analysis by the algorithm C5.1 - classification tree with 84.337 percent reliability of the determined facial type. 3. The created software allows the clinician to classify the facial types quickly and accurately.

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THE EVALUATION OF FRACTAL DIMENSION, AREA FRACTION AND VOXEL VALUE: PANORAMIC RADIOGRAPHY AND CBCT

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BACKGROUND: Fractal dimension (FD), area fraction (AF) and voxel value (VV) evaluations on CBCT images might be a useful diagnostic tool for bone alterations. The aims of this study are to compare between the FD and AF values on digital panoramic radiography and CBCT and to examine association between the FD, AF and VV on CBCT. MATERIAL AND METHODS: Thirty edentulous human hemimandibles were scanned by panoramic machine and CBCT. A region of interest (ROI) was selected from panoramic radiographs and CBCT images. Image processing was applied to correct for lighting irregularity, and the box-counting method was used to calculate FD and AF. In addition, VV of ROI on

CBCT was calculated, too. RESULTS: Intra-observer agreement was perfect. The statistically significant differences were observed between the panoramic and CBCT FD and AF values. A statistically significant high correlation between FD and AF values of panoramic radiography, and FD and AF values of CBCT were determined. There was a statistically significant weak correlation between panoramic radiography and CBCT in aspect of FD values. There were no statistically significant correlation between panoramic radiography and CBCT respect to AF values. No significant correlation between the VV and FD and AF on panoramic radiography and CBCT were found. CONCLUSIONS: New studies included micro-computed tomography (micro-CT) should be made.

PP – 250**ATYPICAL LOCALIZATION OF IMPACTED TEETH**

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Impacted teeth constitute a large part of total cases in oral surgery. The eruption of impacted teeth is often impossible due to a lack of space, improper position and obstacles in the way of eruption or associated etiological factors. In a small number of cases, impacted teeth can be found in remote areas, trapped deep in the jaw bone, when their extraction can be extremely complicated. Among them, cases of lower impacted wisdom teeth precede, after that upper canine and then all the other. These impacted teeth are often accidentally discovered on x-ray imaging because they, in many cases, do not cause any discomfort to patients. Different symptomatology may occur if the impacted tooth is found to be in a close relation with some anatomical structures of jaw bone (mandibular canal, mental foramen, incisive canal, maxillary sinus, tooth root, etc.) when it can cause neuralgic pain and resorption or displacement of adjacent teeth. Degeneration of impacted tooth follicle can lead to follicle cyst forming and, consecutively, obligatory surgical intervention. In the scientific world, there is no consensus whether asymptomatic impacted teeth should be surgically extracted when there is a risk of serious complications. The aim of this paper is to present a series of cases of atypically localized impacted teeth. In some cases, they were discovered by chance on X-ray images, while in some cases they were discovered due to variety of present symptoms.

PP – 251**THE EFFECT OF DENTAL ALLOYS ON THE THICKNESS OF THE FILM OF CEMENT AFTER CEMENTATION**

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The most important conditions for a restoration, from biological and functional aspects, are its integration into the dynamics of the tissue with which is in direct relation. Whwn it cornes to fixed dental prothesis there must be respected all the princeples of a microsurgical work. Grinding teeth creates a stub of a particular form. Enemal substance is removed, and spacious dentin wound is created which need to be protected in further procedure, and also we need to prevent the penetration of the stroke to the pulp. Nevertheless, we need to pay special attention on border area to periodontal in order to preserve the integrity of periodontal disease and prevent the formation of consecutive illness.

PP – 252**ORTHODONTIC-SURGICAL TREATMENT OF SKELETAL MALOCCLUSION - CASE STUDY**

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Introduction: Orthodontic-surgical treatment of skeletal malocclusion refers to the treatment of adult patients whose growth and development was completed. It is usually carried out in order to get a satisfactory aesthetic appearance of patients but satisfactory occlusion, which is also achieved in those patients, should not be ignored. **Aim:** to achieve stable occlusion, optimal facial aesthetics, and stability of the achieved result and thus meet the expectations of the patient. **Materials and methods:** The patient was a female, aged 20 who had aesthetic problems and disorder of masticatory function. There was disharmony in facial aesthetics, crowded and rotated teeth in the upper and lower intercanine space and deviation of the lower jaw to the right which resulted in facial asymmetry. **Results:** Orthopantomographs and telerradiographs of the face were taken. The analysis of the soft tissues on the telerradiographic image showed clear disharmony between the upper middle and lower third of the face. Correction of this malocclusion was carried out in several phases. The patient was first treated with fixed orthodontic appliance in the upper and lower jaw for 14 months. The treatment was completed with steel arches 19x25. Then she underwent Le-Fort I osteotomy. After that the mandible and maxilla were immobilized for 6 weeks. Finally, the retention was continued with upper and lower retainer and bonded 3-3 retainer in the lower jaw. **Conclusion:** The patient was satisfied with the aesthetic and functional treatment results. Improvement in aesthetics was due to the shortening of the lower part of the face.

PP – 253**POSSIBILITIES OF ORTHODONTIC TREATMENT ON ELDERLY PATIENTS WITH II2 CLASS BY ANGLE**

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INTRODUCTION: The aim of this work is to show how hard is to solve some very complicated and hard cases of prosthetic, by orthodontic way. **CASE REPORT:** Patient age 67 years old occurred in a general dental clinic with a request for a prosthetic resolution for her situation. After observation and detailed analysis of the case, in order to assess the fulfillment of the requirements of the patient, her therapist said that it would mean devitalization of the large number of tooth and extractions to help get useless facilities for extensive prosthetics. With orthodontic examination it was confirmed the orthodontic diagnosis and the plan was the extraction of two premolars in the upper jaw. By setting a fixed orthodontic appliance, the orthodontic treatment has started. After leveling we started the closure of the extracting space with the distalisation front teeth. After just eight months with orthodontic treatment we got a good situation. Aesthetic result was satisfying. **CONCLUSIONS:** The possibilities of orthodontic treatment are huge even with the elderly patients. In this way it is possible to avoid the huge prosthetic work with some

patients. Because of this it is very important elementary orthodontic education of a dentist with other specialties in order to identify these kind of patients and send them to the right address.

PP – 254**THE IMPORTANCE OF PARENTAL INVOLVEMENT IN PRESERVING ORAL HEALTH OF SCHOOL CHILDREN**

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Aim: to point out to parents the importance of preventive and prophylactic measures, to motivate them and emphasize their duty and responsibility for the improvement of oral health of their children. **Materials and methods:** The study was conducted at the beginning of the school year 2015/16 and included all first grade students at two primary schools in Tivat as well as their parents. It was carried out in order to educate parents about prevention of oral diseases, particularly dental caries. The lecture was given on preventive and prophylactic measures. Parents and their children were provided with training on maintaining good oral hygiene, techniques of oral hygiene (demonstrated on a dental model), regularity and frequency of oral hygiene, duration of tooth brushing, proper diet, the use of fluoride and the importance of sealing fissures of the first permanent molars. They were also given brochures with basic tips on maintaining and improving oral health. **Results:** Dental examination of children was conducted using the method by Drury (probe and dental mirror) after six months. In the meantime dental examination and sealing of fissures were carried out by children's dentists. The results showed that providing oral health education to parents has achieved expected success. **Conclusion:** Dental health care for school children is the best way for the implementation of preventive and prophylactic measure because it includes all children regardless of their social status, gender and ethnicity. It enables early diagnosis and treatment of the mouth and teeth but only with active involvement of parents.

PP – 255**DENTAL HEALTH CARE FOR CHILDREN WITH DISABILITIES AND SPECIAL NEEDS**

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Introduction: Children with special needs are those who have or are at increased risk for a chronic physical, developmental, behavioral or emotional condition and who also require health and related services of a type or amount beyond that required by children generally. **Aim :** The aim of this retrospective study was to determine most usually oral health problems with children with special needs and dental services that we provided them with in Clinical Centre of Montenegro during the period from 1.1. 2014 - 31.12. 2015 **Methodology :** 352 children with special needs , aged 1 to 18 years , were included in this study .They were examined during 2014 to 2015 year on Department of preventive and child dentistry in Clinical Centre of Montenegro. Data was received from the records of patients. **Results :** Oral health problems : - tooth eruption -dental caries - Periodontal disease - Malocclusion - Damaging oral habits - Tooth anomalies - Trauma and injury to the face and mouth Often, dental services that we provided these children with were: -

Prevention Measures - 32,1% - Restorative dental treatments - 17.6 % - endodontic treatments - 3,69 % - tooth extraction - 26,4 % Conclusion A child with special needs are also responsible to take care of their mouth. Providers need to develop a special care plan and may need to seek professional guidance or obtain appropriate training in order to care for children with disabilities and special needs.

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DIRECT PULP CAPPING WITH PLATELET RICH FIBRIN

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Background There are very few data about the effects of endogenous growth factors in vital pulp therapy and still they are controversial. The aim of this study was to examine the histological effects of platelet rich fibrin (PRF) on exposed tooth pulp of a Vietnamese pig. **Material and method** The study comprised of 20 Vietnamese pig teeth. After class V preparation on the vestibular surfaces of incisors, canines and first premolars, pulp was exposed. In the experimental group, the perforations were covered with PRF (which was obtained by centrifugation of 10 ml venous blood of the experimental animal) and the control with MTA® (Dentsply Tulsa Dental, Johnson City, TN, USA). All cavities were restored with glass ionomer cement (GC Fuji VIII, GC Corporation, Tokyo, Japan). The observational period was 28 days, after which the animal was sacrificed. Histological preparations were made. A light microscope was used to analyze the presence of dentin bridge formation, tissue reorganization, inflammation and the presence of bacteria in the pulp. **Results** The formation of the dentin bridge was observed in the both groups. Angiogenesis and many odontoblast-like cells, which are responsible for the formation of the dentin bridge, were observed. Inflammation of the pulp was moderate to severe in the experimental group. Neither necrosis nor bacteria were observed in the pulp in either case. **Conclusions** Histological analysis indicated a favorable therapeutic effect of PRF in direct pulp capping of Vietnamese pigs.

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CLINICAL USE OF METAL POST- CASE REPORT

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Background: Some teeth are severely mutilated because of caries or trauma. In case of an evident horizontal loss of clinical crown, most of the teeth could be unable to retain the final restoration without some additional support. Among other means, after endodontic treatment the use of endodontic posts can now be avoided in many cases. **Aim:**The aim of this case report was to show our management on teeth with evident loss of clinical crown from caries without set a prosthetic

rehabilitation. In our study we have a 58 year old patient with evident loss of clinical crown on the right maxillary central incisor. After presenting and explaining the therapy alternatives, because of the economic condition of the patient a decision was Logan metal post and nanocomposite felling for upgrades the teeth. Conclusion: Endodontic posts fabricated from metal have favorable biomechanical properties. Quartz fiber- or glass fiber-reinforced composite posts have elasticity characteristics that are similar to dentin, but because of the economic condition of the patient we decide to set metal Logan post. The posts can be processed in one time-saving surgery visit that eliminates the dental laboratory steps, due to the direct technique in combination with an adhesive composite buildup. This technique is also a procedure that is gentle to the tooth substance: thin dentine walls are stabilized by the plastic buildup composite and the composite resin cement.

PP – 258**THE USE OF CBCT IN ENDODONTICS**

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Abstract: Radiographic techniques of teeth and jaws which shows threedimensional structures significantly contribute in improving diagnosis and treatment in all fields of dentistry. For this purpose is used cone beam computed tomography (CBCT). From all indications for dental and jaw, portion of the recording in endodontics is as high as 23%. In purpose of setting a precise diagnosis, preoperative use of CBCT consists in obtaining accurate information on the teeth morphology. This radiographic method allows easy identification of the presence of periapical lesions, based on the comparison of the difference in density lesion even differential diagnosis of the same. The advantage of CBCT is also easier identification of present fractures, particularly fractured lines oriented vestibular-orally. Intraoperative use of CBCT occupies a special place in identification and assessment of locations *fausse route*, as well as extractor instrument in the root canal. The importance of CBCT is in precision diagnostics of teeth injuries, internal and external resorption. Postoperative value of CBCT is in evaluation of therapy success and also in ability to monitor healing process of periapical lesions in function of time. Precise diagnostic is the base for selection of appropriate therapies and the clinical success of the same. Current use of CBCT in endodontics is to serve as an additional diagnostic tool to conventional radiographic methods. In the future CBCT can take a significant place in modern endodontics in using a virtual threedimensional lerning. Key words: CBCT, endodontics

PP – 259**ORAL HEALTH STATUS AMONG DENTAL MEDICINE STUDENTS AT UNIVERSITY OF “GOCE DELCEV”-STIP**

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Aim: The main aim of this study was to make evaluation and correlation of the DMF (Decayed, Missing, and Filled) index, Ramfjord index and s-OHI index among the students from fourth and

fifth year of Dental medicine. **Material and Methods:** All 71 students from fourth and fifth year of Dental medicine were included in this study. In the first phase each of the students have received and filled a questionnaire for their own oral hygiene. All subjects were clinically examined in the second phase and DMF, s-OHI and Ramfjord index data were noted. Obtained values were statistically evolved. **Results:** According to clinical examination and as well the data from questionnaire survey, DMF index and Ramfjord Index were on satisfactory level in correlation with oral hygiene. The expected results are due to the level of education of the examinees, which are at the final years of their studies. **Conclusion:** Oral hygiene is the very important factor that affects DMF index and Ramfjord index especially because dental plaque is main etiological factors for caries and periodontal diseases appearance. Dental medicine students are intensively paying attention for their oral health according with their higher level of education. This is influencing on their oral health. **Key words:** oral hygiene, oral health, students, DMF index, Ramfjord index

PP – 260**ENDO PERIODONTAL LESION-A CASE REPORT**

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Background:The pulp and periodontium are in a very close anatomic relationship. Endodontic-periodontal lesion is a clinical manifestation of the pathologic/inflammatory intercommunication between pulpal and periodontal tissues via open structures such as apical foramina, lateral, accessory canals, and dentinal tubules. When one of these two tissues is infected, microorganisms circulate between them and infection of one tissue may cause pathology of another or exacerbate the current disease. The treatment of endodontic-periodontal combined lesions requires both endodontic therapy and periodontal regenerative procedures. With advancements in new techniques and materials different treatment choices are available, providing a superior prognosis. This case report evaluates the efficacy of hydroxyapatite/ β -tricalcium phosphate (HA/ β -TCP) combined with enamel matrix derivative (EMD) in the management of furcation defect associated with an endo-perio lesion in a right mandibular first molar. A 33-year-old male patient with an endo-perio lesion in the right mandibular first molar was initially treated with endodontic therapy. Following the endodontic treatment, the furcation defect was treated using (HA/ β -TCP) along with (EMD). **Conclusion:** At the end of 6 months, there was a gain in the clinical attachment level and reduction in probing depth. Radiographic evidence showed that there was a significant bony fill. **Keywords:** furcation, endo- perio, (HA/ β -TCP), (EMD)

PP – 261**CLINICAL EVALUATION OF CLASS II BULKFILL COMPOSITE RESTORATION**

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Abstract The aim of the study is to evaluate the clinical performance of the Class II restorations using a bulkfill resin based composite vs a nanofilled composite. **Material and method:** Patients were selected on the basis of requiring a Class II restoration. We performed 100 restorations in 50 patients 18-62 years old Each patient received at least two Class II restorations . All cavities were

divided in four groups. Group I: One-step SE adhesive (Schotchbond™ Universal) was applied and than the cavity received the flowable Filtek bulkfill in increments up to 4 mm as needed to fill the cavity 2 mm short of the occlusal cavosurface. The occlusal part was completed with a nanohybrid resin composite (Filtek Z 550). Group II: SE adhesive (Schotchbond™ Universal)+ Filtek Z 550 IGroup III: Schotchbond™ Universal was used as TE adhesive system. The cavity was filled up with Fitek bulkfill flow. Group IV: TE Schotchbond™ Universal + Filtek Z 550. Results: The restorations were evaluated for 3 years using USPHS criteria. Chi-square tests were performed to assess possible associations between characteristics and technique and system for each year of study. Kaplan-Meier survival estimates were calculated for both techniques, and for each system within each technique. Hazard ratios were calculated using Cox proportional hazards models. Significance was observed at p-value 0.05 or less. Conclusion: The 4-mm bulk-fill technique showed good clinical effectiveness during the 3-year follow-up. No statistical differences were found between the two composite filling techniques.

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IMPLANT AND ROOT SUPPORTED OVERDENTURES AS IDEAL METHODS FOR THE RESTORATION OF THE EDENTULOUS MANDIBLE

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BACKGROUND Complete dentures have been for years the treatment of choice for the restoration of edentulous patients. Nowadays, the development of osseointegration offers an excellent and evidence based alternative for selected edentulous patients, through implant-supported overdentures. However in some cases, the preservation of few natural teeth or roots, instead of implants, offers an additional low cost alternative. **METHODS AND MATERIALS** The aim of this presentation is to discuss the advantages and disadvantages of implant- and root- supported overdentures through the comparative presentation of two clinical cases. A 67- and a 69-year-old patient with completely and partially edentulous mandibles, were selected for the fabrication of implant and root-supported overdentures respectively. **RESULTS** The restoration of the mandibular edentulism with both recruiting methods led to well-functioning appliances without any complications. Both patients received detailed oral hygiene and denture use instructions, and reported satisfaction during the follow up appointments. **CONCLUSION** The simple design, the high levels of retention and the ease of adjustment are the main reasons that often urge the clinician to select implant or root supported overdentures as alternatives to the traditional complete dentures in elderly patients.

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ROOT CARIES AMONG INSTITUTIONALIZED ELDERLY

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Background-cervical caries or root caries is one of the most common types of caries among the elderly, especially among the institutionalized elderly. Due process of apical migration of

epithelial attachment and present gingival recession, primary site of this type of caries occurrence is cervical region. Goal- to determine the prevalence of cervical caries among institutionalized elderly. Material and method- this research was conducted in the "Mother Teresa" department, within the PHI Gerontology Institute "XIII-th of November" Skopje. All of the institutionalized persons (total number - 73 subjects) older than 65 years were examined. Clinical examination was performed and the prevalence of root caries among respondents was determined. Results- The research indicates that the examined institutionalized people older than 65 years in which there were natural teeth, prevalence of root caries was 54.05%. The average number of root caries defects was $1,16 \pm 1,4$. Among the overall examined population the presence of root caries of teeth was 26.03%. Root caries is more common in the lower jaw (the frontal teeth mostly - 34.14%) than on the upper jaw. According to the processed data in this examination tooth which is usually encompassed from root caries is left lower canine. In only one patient (1.74% of the) was observed definitive restoration of the root caries. Conclusion- institutionalized elderly showed a high prevalence of root caries, with only a low number of carious lesions which are repaired with definitive filling. Keywords: root caries, institutionalized elderly, gerodontology, dental cement caries

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USE OF DIODE LASER IN GINGIVAL HYPERPLASIA – A CASE REPORT

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The aim was to remark the indications about diode laser in gingivectomy as an adjunct to nonsurgical periodontal treatment in a subject undergoing fixed prosthodontic treatment with the dental crown. Case report: Initial therapy was full mouth scaling, by hand and ultrasonic instrumentation and oral hygiene instructions. Female patient (39 years old) visited our clinic. Diagnosis was gingival hypertrophy from the 1.3 to 2.3. Patient was advised diode laser gingivectomy (810 nm) as an adjunct to nonsurgical treatment. The diode laser gingivectomy was performed under local anaesthetic, applied for 5 minutes prior to operation. The gingivectomy was made with a power output of 1.2 W, continuous wave (CW). Results: Useful of diode laser renders these procedures more than effective for majority of patients. Ablation was performed using light brushing strokes and the tip was kept in continuous motion. Conclusion: Laser treatment can be completed quickly, painlessly, and with minimal side effects to the patients.

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CAD-CAM RESTORATIONS ON ENDODOTICALLY TREATED TEETH – COMPARISON BETWEEN IPS E.MAX AND LAVA ULTIMATE

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Most of the endodontically treated teeth need a long-term restoration like crown or endocrown. The study shows results for 5 years of endodontically treated teeth and restored with crowns and

endocrowns. To preserve the tooth for a long period of time we have to select an appropriate material from conservative, endodontical and periodontical point of view. Aim: The aim of the clinical report is to show results of endodontically treated teeth and their clinical survival during the years. Material and Methods: Endodontically treated teeth restored with crowns and endocrowns using Lava Ultimate (3M Espe) and IPS. e.Max CAD (Ivoclar Vivadent) and CEREC 4.2. Results and discussion: Root canal treatment and restoring the teeth using a CAD/CAM system with materials IPS e.max CAD and Lava Ultimate can be used for long-term restoration as a method of choice, if they are properly selected.

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LOCAL IMMUNE RESPONSE'S CHARACTERISTICS IN DEPENDENCE OF SURFACE IMPLANTS IN PATIENTS WITH PERIIMPLANTITIS

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Introduction The cytokines are important mediators of physiological and pathological processes in perimplant tissue. Continuous, dynamic balance between domestic local immune response in potential subgingival pathogen has influence at processes in soft tissue, as influence in metabolism of connective and bone tissues. It is considered that surface of dental implant, their physical and chemical composition can affect diversity of local metabolism of perimplant tissue. **Research goals** This study's goal is to analyse local immune response relative to different surfaces of implants and to follow the local mediator's profile at patients with periimplantitis. **Results** The analysis of the cytokines detected in patients' samples with different surfaces of implants relative to periimplantitis showed different local immune response on existing inflammation. **Conclusion** Characteristics' differences of local immune response between two different implant surfaces are shown that surface of implants, their physical and chemical composition can be affected on local metabolism of perimplant tissue and considered to be an important element of reaction between implant and tissue.

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THE EFFECT OF VARIOUS IRRIGATION NEEDLE SIZES ON THE AMOUNT OF APICALLY EXTRUDED DEBRIS

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Background: The aim of this study was to investigate the effect of different needle sizes on the amount of extruded debris. **Methods and Materials:** Forty-eight extracted human single-rooted mandibular premolars were used in this study. Reciproc R25 canal file was used to prepare all the samples. Then, the samples were allocated randomly to four groups (n:12). These groups were 27 Gauge (G), 28 G, 30 G and 31 G. The original weight of the empty Eppendorf tube was subtracted to obtain the net weight of the dry debris. One-way analysis of variance (ANOVA) followed by a

Tukey's post-hoc test for multiple comparisons were used to statistically analyze the amount of extruded debris. Results: There was no statistically significant difference among the 27 G, 28 G, 30 G and 31 G groups regarding the amount of extruded debris ($p > 0.05$). Conclusion: Needle type and size had no significant effect on apically extruded debris.

PP – 268**THE EFFECT OF VARIOUS REVOLUTIONS PER MINUTE IN ONESHAPE ROTARY FILE ON APICALLY EXTRUDED DEBRIS**

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Background: The aim of this study was to investigate the effect of various Revolutions Per Minute (RPM) usage in OneShape rotary files on the amount of extruded debris. **Methods and Materials:** Thirty-six extracted human single-rooted mandibular premolars were used. Canals with a diameter larger than #15 were excluded. The buccal cusp of each tooth was flattened with a high-speed bur and all the teeth were reduced to 15 mm. The air pressure inside and outside the tubes was balanced. Then, all the stoppers with teeth and needles were attached to Eppendorf tubes. The rotations of the instruments were performed based on a constant 2.4 N torque at all samples. The samples were allocated randomly to three groups (n:12). These groups were 300 RPM, 400 RPM and 600 RPM. Firstly, One Shape (25size; 6% taper) canal file with 300 RPM was used to prepare. Similarly, other samples were prepared with 400 and 600 RPM using One Shape 25 rotary files, respectively. The original weight of the empty Eppendorf tube was subtracted to obtain the net weight of the dry debris. One-way analysis of variance (ANOVA) followed by a Tukey's post-hoc test for multiple comparisons were used to statistically analyze the amount of extruded debris. Results: There was no statistically significant difference between the 300, 400, and 600 rpm groups in the amount of debris extruded ($p > 0.05$). Conclusion: RPM had no significant effect on apically extruded debris.

PP – 269**CLOSURE OF DIASTEMA AND GINGIVAL RECONTOURING USING DIRECT ADHESIVE RESTORATIONS: A CASE REPORT**

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Background: Adhesive resin composite technology enables dentists to add composite material to tooth surfaces to close gaps and reshape tooth form without cavity preparation. Gingival contouring should be evaluated as well. Therefore, periodontics may also be included in the multidisciplinary approach for the correction of diastema. **Materials and Methods:** This case report describes the management of a 47-year old woman patient with multiple diastemas in the maxillary and mandibular anterior areas. A gingivectomy was performed to improve the relationship between height and width of the dental crowns. Diastema were closed with Clearfil

Majesty Esthetic(Kuraray,Japan)composite resin. Previous restoration in right maxillary central incisor was repaired after reduction of composite resin where marginal degradation was evident.During restoration, incisal edges were characterized with translucent composite resin.Dentin shade of composite resin was applied to create mamelons.Application of final layer of enamel shade was used composite resin.Definitive restorations were done after finishing and polishing procedures. Results:Direct composite resin restorations were used to close the remaining spaces between the teeth, since they are a more conservative therapy.Before considering the use of composite resins in the management of anterior diastema and before any treatment is performed, complete explanation of the treatment options should be provided to the patient.Direct composite resin restorations were preferred in this situation over indirect porcelain veneers due to the higher cost of the indirect procedure. Conclusion:A multidisciplinary planning approach, including restorative dentistry and periodontics has an important role in the final outcome of the treatment.An integrated periodontal and restorative approach may enhance the esthetic results when restorative therapy alone is not feasible.

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