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Theme: Romanian Dentistry-Quo Vadis?

Abstracts

1. Therapeutic effects of herbal extracts with antioxidant properties in the management of periodontal disease

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Nowadays it is well recognized that the complex pathogenesis of periodontal disease resides not only in the presence of the microbial plaque, the primary etiologic agent, but also in the implication of the host immune-inflammatory response, characterized by cytokines, enzymes and free radicals production, in the periodontal tissues. Therefore, more and more emphasis is laid on the development of host modulatory therapies aimed to counteract the immune-inflammatory pathways. Host modulatory agents include systemically or locally delivered pharmaceuticals and herbal extracts which are capable to restore the biological balance by controlling the release of pro-inflammatory cytokines, by blocking the activity of enzymes or by neutralizing the free radicals. Antioxidants scavenge release free radicals and prevent collateral tissue damage caused by oxidative stress, thus emerging as prophylactic and therapeutic agents. Current trends in healthcare focus on herbal products which symbolize safety, in contrast to synthetic drugs considered potentially harmful for humans and (the) environment. Recently, numerous studies have been conducted in order to investigate the antioxidant properties of herbal extracts and their efficiency in periodontal therapy. The current insights into the therapeutic benefits of herbal products recommend them as non-invasive, with few side-effects and efficient for the antimicrobial treatment. This review considers the implication of oxidative stress into periodontal disease pathogenesis, discusses the mechanisms underlying the antioxidant effects of herbal extracts and

proposes modern approaches intended for optimizing the periodontal therapy outcome.

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2. The art of teamwork - the treatment of adult patient

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In adult patients a combined orthodontic treatment and other specialties are often needed for achieving the best results and to solve clinical complex problems. Most courses of orthodontic treatment begin with a referral from a general dentist or a specialist. In this presentation I will address the following: bone loss due to extraction or periodontal disease, TMJ dysfunctions. Although esthetics are often considered the most important goal, function of the masticatory system becomes far more important in the overall treatment success.

The goals of the orthodontic treatment should be:

- good function; - facial aesthetic ; - dental aesthetic - periodontal health; - TMJ stability; - airway for breathing; - occlusion stability

3. Behind the scene in esthetic ceramic restorations

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Department of Propedeutics and Aesthetic Dentistry, Faculty of Medical Dentistry, "Iuliu Hațieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania. Today, we possess unlimited possibilities for restoring our patient's smile using the latest knowledge and techniques in all fields of dentistry: from early childhood, to teen and adult orthodontic teeth alignment, to periodontal regeneration, to implant placement and all types of esthetic restorations from the smallest

ones - the size of 0.3 mm, to the most complex ones full-arches rehabilitations on natural teeth or implants. The leading role in all these is assumed by the dentist, who coordinates the diagnostic, treatment planning, team work and complex clinical procedures. But there is also a “back-stage work and support team” in the fabrication process of these very beautiful, very fragile, but also strong ceramic restorations. Without this support staff our clinical work – especially in prosthodontics - would fail catastrophically. Most of the times, both the patient and the dentist don't look there or even do not have access to the back-stage. Therefore, we want to offer you an insider-look into this lesser known processes that have diversified immensely nowadays.

4. The application of RepRap three dimensional printers in the production of dental models – a pilot study

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Background: Currently it is possible to replace conventional plaster casts with virtual models that can be stored, viewed and analyzed digitally; these can provide support for obtaining physical models by using commercially available additive and subtractive systems. These systems, however, have a high purchasing price. Three-dimensional RepRap (Replicating Rapid prototype) printers represent an alternative to the commercial systems, but the applications of these printers in the dental field are limited so far. **Objective:** To evaluate the dimensional accuracy of the model obtained by additive manufacturing with the three-dimensional RepRap printer, by comparison with the plaster model. **Materials and method:** A plastic typodont of an upper arch (3M Unitek REF 600-210, 3M Unitek, USA) was duplicated using a two component low viscosity silicone material used to duplicate casts in the laboratory (Interduplicast A + B, Interdent, Czech Republic). In the resulting mold, type IV scannable CAD / CAM gypsum (Shera Hard Rock, Sheri, Germany) was poured and a plaster cast was obtained. The cast was digitized using a 3D scanner (Dental Wings 7 Series, Dental Wings, Canada) and a STL virtual model was acquired; the virtual model was adjusted for reconstruction using dedicated software (MeshLab, Visual Computing Lab - ISTI - CNR, Italy). The virtual model has been virtually sectioned into individual layers. The automatic route planning of the extrusion nozzle was done and the STL model was converted into GCODE using the Slic3r (Alessandro Ranellucci, Italy) software. The digital model was reconstructed using a three-dimensional RepRap printer (Huxley Huxy 5) using ABS 3mm filaments, of different colors. Intra-arch linear measurements were made between predetermined points on the gypsum model and printed models and the data obtained was statistically analyzed (SPSS 12, SPSS Inc., USA).

Results: No significant differences were found between the dimensions measured on the experimental models in comparison with the reference plaster cast. **Conclusion:** Intraoral digital impression systems in conjunction with three-dimensional printing have the potential to replace conventional plaster models due

to the ease of storing and handling of information, dimensional accuracy and production costs. RepRap printers can represent a viable alternative to commercial additive manufacturing systems offering similar quality products at lower costs and the ability to continuously improve performance through the development of software and hardware components.

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5. Prosthetic treatments in dental erosions

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There are many options when choosing an index to investigate dental erosion in order to evaluate the proper therapeutic attitude. BEWE score (basic erosive wear examination) is frequently used to evaluate the dental erosion risk of the patient. Comorbidities have also to be considering in pathologic tooth wear, when treatment plan is decided. Direct reconstructions are indicated in cases with poor or medium BEWE score. In advanced tooth wear by erosion mechanism, prosthetic treatments are more invasive and expensive. The choice in choosing the appropriate prosthetic option will be influenced by the correct evaluation of the tooth destruction. The treatment has to restore both function and aesthetics and to preserve remaining dental tissues when possible. Full ceramic crowns, ceramic veneers and overlays are indicated for these cases.

6. Comparative in vitro study on bonding orthodontic brackets after dental bleaching

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Objectives: Comparing shear bond strength (SBS) of the adhesive bond obtained by using 2 materials for bonding metallic brackets; testing the hypothesis that 7 days after bleaching with hydrogen peroxide 35%, the SBS values are not statistically different than the values obtained for the control group. **Materials and method:** 40 human bicuspid, randomly divided in 4 groups: Group 1 control - bonding of metallic brackets with Light Bond (Reliance), Group 2 control - bonding metallic brackets with TransBondXT (3M), Group 3 test - four bleaching sessions using Pola Office 35% and preservation for 7 days at 37 degrees Centigrade, bonding brackets with Light Bond, Group 4 test - same bleaching procedure as G3, bonding brackets with TransBondXT. SBS was tested at 6 hours after bonding with an universal testing machine, Instron (Instron Corp, USA). After bracket debonding, the ARI index was determined using a stereomicroscope. Certain enamel surfaces were examined under SEM. **Results:** One-way ANOVA did not show any

statistically significant differences between the values obtained for the two types of adhesive, neither for the control group, nor for the test group. Also, there were no statistically significant differences between values obtained for bleached teeth 7 days after bleaching compared to the unbleached teeth. By comparing ARI index between groups, the Chi-square test showed a statistically significant difference between G1, G2, respectively G3, G4, ARI being smaller for the bleached teeth.

Conclusions: The tested adhesives have similar SBS values in the four groups and 7 days after bleaching the SBS values are similar to those of the teeth that have not been bleached.

7. The importance of early detection of dental erosion in children

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Introduction: Dental erosion is represented by the loss of dental hard tissue due to acid attack. It is a dental disease increasingly common among both adults and children. It may be a clinical sign of general diseases or can signal the onset of loco-regional or general disorders of the body. Objectives: This presentation aims to achieve a review on the etiology, symptoms and complications, methods of prevention and treatment of dental erosion in children, as well as insisting on the importance of early detection. Methods: The first part of the paper consists in a synthesis of the literature on the subject and the second part shows data from an observational study conducted in the Pediatric Dentistry Clinic of the „Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca. Results: The frequency of dental erosion is dependent on factors such as age, sex, area of origin and educational level of parents and the best treatment for children is prevention and early interceptive treatment.

8. Etiopathogenesis and diagnosis of dental erosion

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Dental erosion is an irreversible tooth loss (enamel, dentin, cement) caused by an acidic chemical process, with no bacteria implication and no mechanic factor, trauma or decay associated. The etiology of dental erosion is complex, multiple etiologic factors are incriminated acting individually or in association; in most cases we are dealing with a multifactorial etiology: intrinsic and extrinsic. The diagnosis criteria in dental erosion is dental tissue loss with no decay mechanism involved in the areas outside dento-dental contact zones, with glossy, smooth, rounded aspect. The final diagnosis regarding the etiologic factor is based on complete and correct anamnesis. Today's lifestyle predisposes the contemporary individual to the etiopathogenetic actions of

dental erosion, acidic drinks, sodas, stress, which determines gastro-esophageal reflux. Under these circumstances, the role of the dentist is extremely important to ensure the prophylaxis and diagnosis of dental erosion and to identify and eliminate the etiologic factor by specific quiz (tests) and interdisciplinary collaboration (with the dietician or gastroenterologist).

9. Ceramic restorations in lateral quadrant. Using CAD/Cam technologies, CEREC Omnicam

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In the dental office, CAD / CAM systems allow us to do in a very short time period – all ceramic restorations, such as: inlays, onlays, single crowns and bridges. All these reconstructions are made from prefabricated ceramic blocks available in many colors. Over time, in the 27 years since the first Cerec system - now reached the 5th generation - it confirmed the accuracy and strength, becoming the most important restorative treatment option in the United States and becoming a distinct branch in modern dentistry. The phrase "CEREC one visit dentistry!" defines very well the system characteristics. But is the quality of prosthetic restorations as good as the ones made by the lab? The presentation will show how to use the CEREC Omnicam system, advantages and disadvantages after three years of clinical experience.

10. Modern endodontics: continuous forms and hybrid techniques

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The mechanical treatment is a decisive step that the dentist has to perform during a correct endodontic treatment. The advent of new Ni-Ti instruments simplified this stage, therefore predictable endodontics became accessible for every dentist. Even so, with all the technological innovations and advancements that developed during the last years, the principles of good endodontics remained the same. One of the most important aspects of an adequate root canal treatment is to obtain a safe glide path prior to the shaping procedure. This has the same importance now, as it had more than 20 years ago.

11. The legislation and the organization of the dental practice

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The profession of dentist is defined by the legal authorities as a liberal profession, which confers regulated freedom for this medical profession. Critical analysis of the current legislation in the domain of medical practice and professional medical training reveals equivocal and contradictory aspects. Paradoxically, the most attractive asset of the Romanian medical university education system, i.e. the medical practice of the students, is very unfavourably regulated from all points of view. The right to practice the profession was amended by the Romanian College of Dentists by internal decisions. The balanced repartition of the providers of medical services is impossible under the circumstances of the present provisions of the law. This influences the population's access to dental services. The organization and functioning of the professional public right authority must be submitted to a profound reform in order to increase efficiency and sustainability of territorial structures with small communities of specialists, which at present face a difficult situation. The cooperation between the professional authority and the state authority is much to often deficient. However, in this context, a project of the malpractice law has been elaborated subsequent to a correctly developed partnership. This project is regrettably awaiting publication for more than one year, although it has been submitted to public debate. Promoting oral health is an objective desideratum, which is not taken into consideration by the legislative and executive authorities. The negative effects of the health policies are perceived at present and will aggravate the oral pathology of the population, especially of the youth on medium and long-term. The complex context of justified requirements for changes in legislation imposes alertness and implication of the dentists.

12. Biocompatibility of a graphene composite model with gold nanoparticles (GNPs) and hydroxyapatite (HA) in vitro study on human osteoblasts

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Introduction: Graphene is a two-dimensional structure in which the graphite is disposed in a monoatomic layer to form a hexagonal grid. The name was given by Hanns -Peter Boehm, who described it the first time in 1962. Carbon links have a length of approximate 0.142 nm. The space between the layers of graphene is 0.335nm, so three million layers will have a thickness of 1 mm, showing the largest area relative to weight in nature. This study aims to determine the degree of biocompatibility of human osteoblasts with different substrates made of graphene composites, gold nanoparticles and hydroxyapatite. **Material and Methods:** Graphene were obtained from the National Institute of Research - Development for Isotopic and Molecular Technology by method of catalytic decomposition of acetylene on the catalyst Au / HAP using inductive heating. Graphene synthesis was done at 850°C. We used nanostructured hydroxyapatite nanoparticles who were coated with 1%gold nanoparticles (GNPs) and, finally, six types of composites were obtained. **Biocompatibility**

Testing: six kinds of substrates were tested for biocompatibility on primary culture of human osteoblasts (hOBL). Cell proliferation test with fluorescein diacetate (FDA): experiments were carried out in triplicate to determine cell proliferation at 24 hours, 48 hours and 7 days in case of exposure to the composite as a suspension and at 24 hours, 96 hours and 19 days in case of exposure to 2 composite concentrations as a substrate. **Immunocytochemical staining:** to assess the effects of composite substrate on osteoblasts behavior an immunocytochemical analysis for phosphatase alkaline, osteopontin (OP) and actin F fibers organization was performed after 19 days of cultivation. **Statistical analysis:** one-way ANOVA, Dunnet Multiple Comparison test were applied. **Results:** The rate of proliferation of hOBL was assessed in the presence of a composite suspension (in final concentrations of 15, 30 and 60µg /ml) at 24, 48 hours and 7 days and the rate of proliferation of hOBL in the presence of composite as a substrate (in final concentrations of 15, 30 µg / ml) at 24, 96 hours and 19 days. Immunocytochemical stains were performed for evidence of alkaline phosphatase, osteopontin and actin F. **Conclusions:** The rate of proliferation of osteoblast exposed to composite as a suspension was greater at 24 hours using high concentration (60µg /ml). Changes from control appear in more intense expression of osteopontin and cytoskeleton reorganization (actin F) depending on the concentrate of graphene, suggesting cell activation and increased cellular adhesion.

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13. The Evaluation Of Different Surgical Methods For The Corection Of Dentofacial Deformities

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Introduction: Dentofacial deformities are disorders that trigger major deviations from facial norms and normal occlusal relationships. These deviations are important enough to be considered impairing, given the fact that they affect the good functioning of dentofacial structures and that they have significant social and psychological consequences. Nowadays, individuals with facial deformities are marginalised. The negative psychological impact of these deformities and the fact that they affect social integration are the main reasons for which treatment is required. Due to the remarkable progress achieved in the surgical field in the last few years, deformity correction is a perfectly achievable goal, with qualitative aesthetical and functional results. **Material and methods:** This study included a total number of 148 patients diagnosed and treated for dentofacial deformities and craniofacial malformations in the Clinic of Cranio-Maxillofacial Surgery Cluj-Napoca between 2002 and 2010. Data were retrospectively

gathered from the examination charts mentioned hereinbefore. Were recorded: personal data, year of birth, year of the first examination, the primary diagnosis of the deformity including the Angle class, secondary diagnosis, the history of orthodontic treatments and their duration in months, the main and secondary reasons for which the patients made the decision to see a doctor and request treatment, the steps of the single-stage or multistage surgical procedure and the year it was performed in, the type of osteotomies with details on the shifts in position of the maxillary segments (expressed in millimetres, for each spatial dimension), details on the distraction parameters – location, rate, rhythm, consolidation period and operating times, including general anaesthesia-related times. Patients whose data were incomplete were excluded from the study. Data were centralised using Microsoft Office Excel. The R 1.12.1 software environment for statistical computing and graphics with Rcmdr graphic interface (version 1.6-2) was used to statistically process data. The Coin package of the R software was used for the marginal homogeneity test. Results: There was statistically evaluated the use of monomaxillary osteotomies, bimaxillary osteotomies and distraction osteogenesis for the correction of dentofacial deformities. Most patients suffered from Angle III class deformities (49.32%), followed by Angle class II/1 deformities (14.19%), narrow maxilla (11.81%), Angle class II/2 deformities (6.08%) and malformation syndromes (2.70%). The secondary deformities were: narrow maxilla (20%), mandibular laterognathia (13%) open bite (7.4%) and narrow maxilla coupled with open bite ($p = 6.3\%$). Numerous statistical data will be presented. Conclusions: Surgical treatment was dominated by bimaxillary procedures (41.53%), followed by rapid maxillary expansion (29.51%), monomaxillary procedures (18.59%) and distraction osteogenesis (10%).

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14. Seniors problems

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The major problems that occur with advancing age are physical, physiological, psychological and social. At old age, an adaptive crisis to the new bio-psychosocial conditions may appear, almost to all individuals, due to old age perspective, when ego supports and must compensate successively or simultaneously, trauma whose magnitude and duration vary. The senior is a depository of accumulated morbidity throughout life, requiring multiple and specialized care, including dental field, which by nature combines its medical side with the social problems.

15. Soft tissue management

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The current esthetic demands involve not only the “white” dental area but the “pink” gingival one as well. Whether the color, texture or the position of the soft tissue are the issues, more dentists want and demand from the periodontologist to modify the soft tissues or/and the tooth proportions. These tissue modifications may be followed or not by prosthodontic treatments and they include crown lengthening, apically positioned flap, coronally positioned flap, free gingival graft, connective tissue graft. The presentation briefly inventories these techniques and exemplifies them in spectacular clinical cases.

16. Marginal fit of CAD/CAM zirconia ceramic crowns

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Introduction: Introduction of CAD / CAM systems in dentistry led to the manufacture of prosthetic restoration with high precision and quality, helping the dental technician and the dentist. Marginal fit is an important characteristic that can contribute to clinical performance; or, in other words, marginal fit represents the maximum tolerance needed to prevent damage of the pulp and/or development of secondary caries by intrusion of bacteria and toxins. **Aim:** This paper aims to highlight the benefits and features of using CAD/CAM systems in practice. **Material and method:** We considered the clinical case of a 29 years old patient, who requested the replacement of 2.1 PFU metallo-ceramic crown, being unsatisfied with the aesthetic aspect. Single tooth fixed prosthesis was made using the CAD / CAM system: CERCON (DeguDent) - Smart Ceramics. **Discussions:** CERCON (DeguDent) is the brand for smart ceramics, high strength and high aesthetics. For over 10 years CERCON was a hallmark of reliability and clinical safety. Numerous studies have shown that CERCON is as safe as the gold standard for ceramics with metal frame. Since the introduction of CERCON in 2001, more than 5.7 million units were produced worldwide. **Conclusions:** Aesthetic demands of the patients led to digitization and computer-aided manufacturing, raising new standards in dentistry. **Acknowledgement:** This paper was published under the frame of European Social Found, Human Resources Development Operational Programme 2007-2013, project no. POSDRU/159/1.5/S/138776.

17. The treatment of dentomaxillary anomalies using the Invisalign method

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Invisalign is a method of teeth alignment in several cases of dentomaxillary anomalies. The method was set up about 13 years ago as a modern choice of orthodontic treatment and it has been preferred since then by an increasingly number of patients. Unlikely other therapeutical methods used in orthodontics, this

method uses less noticeable materials, which makes it highly accepted by the patients. It is used in each type of Angle class I, II and III anomaly; its limitations refers to the patients' dental and bone age, but not to the biological age. The method of treatment consists in transfer in a USA laboratory of the intermaxillary relations. Subsequently, maxillary and mandibular splints are fabricated from an invisible material, based on silicon impressions, using a dedicated software. These splints are modified every 2 weeks according to the treatment stage. The treatment continues for 1 to 3 years, depending on the type and the severity of the deformity. In my view, after clinical experience based on more than 200 patients, aged between 12 – 72 years, the method has been validated and can be used widely.

18. A comparative study on the integration of autologous and Perioglas sinus grafts

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The aim of reconstructive oral surgery is the functional and esthetic rehabilitation of patients in a way that is as close as possible or identical to their natural state. The reconstruction of edentulous areas with dental implants is a unique modality of achieving this objective. The present study aims to evaluate the stability of sinus grafts in which dental implants were placed. In 21 patients, bilateral sinus floor elevation was performed. In one sinus, augmentation was done with an autologous graft, and contralateral augmentation with alloplastic material (Perioglas). Evaluation by imaging was conducted by a different team from that which performed the surgeries, according to a protocol similar to that presented by Wang Peng. At the time of implant placement, bone tissue for the comparative histological examination was collected. Subantral bone augmentation with autologous bone leads to a higher degree of osteointegration of the dental implants placed in this material compared to those placed in Perioglas material. However, Perioglas sinus grafts have a lower resorption rate compared to autologous sinus grafts. The healing of autologous bone grafts was more rapid, which was histologically evidenced the percentage of newly formed trabecular bone being higher; the placement of Perioglas granules with irregular shapes and sizes demonstrates osteoconductivity and the role of bio glass in bone formation. The implants placed in the autologous grafts had a higher integration percentage. The implants stability degree placed in autologous grafts was higher compared to those placed in alloplastic grafts in the cases in which sinus augmentation and implant placement were performed at the same time.

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19. Perception and self-awareness in dento-facial esthetics

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Purpose: To evaluate the variation according to ethnicity and sex, in the subjects' self-perception of their dental health and aesthetics. **Material and Methods:** A questionnaire assessing: self-perception of general oral health and aesthetics, motivation in seeking dental treatments, as well as the experience regarding dental bleaching, was distributed in two ethnic groups of patients: French (F) and Romanian (R); (n=105 subjects). The questionnaire, translated in both languages, had attached a set of 8 pictures of dental arches, arranged in 4 dental color groups. Distribution of the subjects in the two groups regarding gender, age and education was homogenous. Descriptive statistics was used in order to indicate: the importance of the dental color among other esthetic parameters, variation in its perception and patients' history in whitening treatments. **Results:** The highest percentage of subjects considered their aspect during smile as "acceptable" (46% R, 49% F). The most disturbing element in the own smile, for the majority of the Romanian patients (34%), was represented by the non-aesthetical dental treatments, whilst for most of the French subjects (33%), it was represented by the altered dental alignment. The highest percent in both groups self-assessed a medium dental shade (42% R, 38% F); a normal own dental color was also indicated by the highest percent in both ethnical groups (49% R, 73% F); the subjects had solid knowledge about dental whitening therapy (70% F, 73% R), but most of the subjects (79% R, 88% F) lacked experience on it. **Conclusions:** The answers regarding self-perception of one's own dental esthetics are similar in both ethnic groups. Dissimilarities are present in the evaluation of smile defects.

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20. Etiopathogenesis of gingival hyperplasia

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Gingival hyperplasia represents the changes in volume of free gingival, or sometimes of the fixed gingiva, through increasing the number of cells. Gingival hyperplasia must be differentiated from gingival hypertrophy, which is a modification of the

gums by increasing its cell structure. A new term introduced is overgrowing the gum which refers to gingival volume changes due to excess production of extracellular matrix. The differentiation between these pathological entities can be based on histopathological examination. Gingival hyperplasia is common in the dental office. Etiopathogenesis of gingival hyperplasia is varied and can be caused by: infections (bacterial, viral), drugs (calcium channel blockers, anti-epileptics medicine), by mechanical irritation (occlusal trauma, incorrectly adjusted marginal dentures or prosthetic field) or tumor. Some of these clinical and histopathological aspects will be illustrated through a variety of cases. The treatment of these patients requires a multidisciplinary team in view of varied etiopathogenesis of these gingival changes.

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21. Digital Smile Design & Orthodontics

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Digital Smile Design & Orthodontics (DSD) was created from the desire of better communication between doctor and patient. This tool helps the patient understand the treatment plan much better and it creates a more realistic image of the end result. DSD is also a very good communication instrument between different specialties: prosthodontics, orthodontics, surgery and dental technicians. All members of the team can see the final result and can anticipate the dimension, shape and the position of the teeth, the level and contour of gingival margins and their integration in the entire facial esthetics. DSD not only lowers the anxiety and stress level of the patient, it also anticipates the final result and can create a comfort and security feeling as well as a positive emotion. All these create more compliance and confidence of the patient for a longer and more complex treatment.

22. Daily practical tasks in 2D and 3D dental radiodiagnostic

Ionuț Husti

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Each day, on the left side of the dental chair (some time on the right side), we are facing the unknown, as a diagnostic and/or treatment. For sketching a treatment plan, for treatment of a case, we need the 2D or 3D image diagnostic. But how much can it help us and how well can we use it? When are we requesting it and what type of exam do we need? I will answer these questions in my presentation, which is addressed especially to the practitioner, the person who is staying for hours near the dental unit... We will start with the "small" radiography, will remember the "big" one, will create an overview and will become friends with the voxels... The ULD systems (Ultra Low Dose) are not any longer science - fiction. We can reach

wherever needed, in excellent conditions of radiological security and, implicit, of moral relax. The IT programs are adapted to daily dental interventions. A viewer presentation and using suggestions is comprised.

23. Cervical necrotizing fasciitis of the head and neck. Etiological aspects

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Necrotizing fasciitis is a severe bacterial infection with rapid evolution along the fascial planes, with the involvement of adjacent tissues, accompanied by systemic toxico-septic phenomena. The aim of this study was to exhaustively assess, in a representative number of cases, the way in which necrotizing fasciitis of the head and neck of strictly odontogenic origin, develops. The patients included in the study were the one hospitalized and treated in the Clinic of Oral and Maxillofacial Surgery I Cluj-Napoca between January 1996 and December 2012. The inclusion criteria were: the presence of intraoperatively confirmed septic necrotic areas in the fascial system, the odontogenic origin of infection. The study inclusion criteria were met by a number of 55 patients, 31 males and 24 females ($Z = -1.9143$, $p = 0.0556$). In the majority of the patients, the disease evolved without the presence of associated systemic disorders (60% [45.49–72.69]), the rest of the patients having 1 to 4 types of systemic disorders. The mandibular molars represented the group of teeth that was the most frequent starting point of necrotizing fasciitis. Among these, the third right mandibular molar was the most frequent starting point, 16.36% (95%CI [7.31–29.06]), followed by the first right mandibular molar, 14.54% (95%CI [5.49–27.24]). From the septic focus, biological samples were taken and bacteriological examination was performed in 67.27% of the patients (95%CI [52.76–79.97]); one bacterial strain was identified in 86.11% of the patients (95%CI [72.76–94.51]), 2 bacterial strains were identified in 5.56% of the patients (95%CI [1.85–14.51]), 3 bacterial strains were found in 5.56% of the patients (95%CI [1.85–14.51]), and in one patient, several bacterial strains were described (95%CI [0.03–9.058]). The odontogenic lesions of the lower molars, complicated by submandibular space infections, are the most frequent starting point of odontogenic cervico-facial necrotizing fasciitis.

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24. Design of the final treatment plan a - sine-qua-non condition to ensure optimum functionality for removable partial dental prostheses

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Although sometimes marginalized, removable partial prosthodontics treatment remains a reality, due to anatomical conditions of the partially edentulous prosthetic field and due to general health problems of the patients (showing conditions that contraindicate over-dentures) or monetary issues (which limit their prosthetic treatment options - sometimes extremely expensive - such as implant supported prosthesis). The planning of the final design for the partial removable prosthesis in the smallest details, after a competent clinical examination and selection of most important clinical and laboratory data is of great importance in the treatment stages and most often circumvented by practitioners. A noteworthy aspect is related to current concerns regarding esthetics in designing a treatment plan in case of partial edentulous prosthetic field with a removable prosthesis which must be within the standards of the current requirements. This presentation aims to sustain that the treatment plan must be made by the practitioner. Leaving the treatment plan decision to a person (dental technician) who does not know the clinical details about the case, can lead to an adverse evolution of the prosthetic field elements or even early failures of the prosthesis. In order to prove this aspect I have selected some representative cases from my clinical activity, but also from the students' and interns' (in prosthodontics) activity.

25. The facial morphology in the artworks of renaissance painters

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The study is a compendious one, offering a sociocultural insight over some important anatomical elements of our profession, extended past the limits of dental medicine. An interest for the study of facial morphology can be traced back to the period of Ancient Egypt and Greece, but the portrait during Renaissance meant a detachment from the past. Artists started to regard the anatomical structure, the proportion of the features, which was intensive studied at the time, mirroring the revived interest for the human character. The Italian Renaissance was different from the Renaissance of the Low Countries, the Italians being more preoccupied with the harmony of the forms and perfection than the Flemish, who rather focused on grotesque, static images, with a specific ruggedness of the features. In the same period, an esthetical and natural connection between man and animal was established and a connection of character based on these resemblances. The caricature, the exaggerated were also defined in this period, blending grotesque elements with comical ones.

26. Possibilities and limits in anterior cross-bite therapy

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Less frequent, but more esthetic damage, anterior crossbite has a complex etiology and the most important element in diagnosis and treatment plan depends by skeletal implication and growing pattern. In order to point out the therapeutic options we have to answer to some questions: can anterior crossbite be corrected in the mixed dentition? Can the maxilla be moved forward and how far? Can the growth of the mandible be restricted? Can the growth of the mandible be redirected? What appliances do we use? Are certain ages better than others to start treatment? It is very important first to establish if the crossbite is skeletal (mandibular prognathism, maxillary deficiency, openbite or normal bite depth) or dental (retroclined maxillary incisors, pseudo Class III, bite is usually deep).

The treatment will depend on several aspects: the angulation of the maxillary incisors, the bite depth, the number of teeth in crossbite and the divergence. Another essential issue is too determining the predicting outcome. An easy correction will be when the maxillary incisors are upright, there is a deepbite and a flat mandibular plane angle. A difficult correction is expected when the maxillary incisors are proclined, there is an openbite and a steep mandibular plane angle.

The authors present some clinical cases which are designed to illustrate the therapeutically options of the anterior crossbites.

27. Complex oral rehabilitation in different cases of edentation

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Complex rehabilitation therapies enable reconstruction integrity of the dental arches by ideal replacement of teeth or by using advanced prosthesis rehabilitation, with great physiological and psychological benefits for the patient. Generally, the implants take over the functions of natural teeth; stimulate maxillary bones, by limiting the bone resorption and atrophy. Clinical cases, in which the implant is an elective indication or just a therapeutic choice, are numerous, each one of them can benefit from an individualization of the surgical treatment and a prosthesis according to the prosthetic plan mutually agreed with the patient. Implant restoration has become, nowadays, a successful option for the patients. The clinical success of osseointegrated implant prosthetic restoration has led to their use in edentation therapy, with a success rate of 98%. The evaluation made in order to choose mobile or fixed restorations, according to the number of implants applied, to the architecture of the prosthetic field and the possibility of reconstructive techniques, should offer the most accurate solution for a long-term successful treatment.

28. Photodynamic therapy in the control of the oral biofilm

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Photodynamic therapy (PT) is an alternative method used to control the bacterial biofilm associated with various oral diseases. Photodynamic therapy represents an adjuvant, minimal invasive method in the conservative approach in deep cavities, periodontal, endodontic diseases, in alveolitis, in periimplantitis etc. Although the gold standard for the control of dental plaque in oro-dental diseases remains the mechanical treatment, there is also a need for an antimicrobial adjunctive approach. PT represents an option for the adjunctive antimicrobial treatment, which does not have the side effects of the antibiotic treatment, having also the advantage of the accessibility of the oral cavity to the light therapy. PT could be used complementary to the antibiotic therapy or as an alternative in the cases where the antibiotics are no longer efficient. PT could be essential to some special categories of patients, such as the oncological patients, patients with HIV, patients with antibiotic resistance, old patients with persistent oral infections, etc. The photodynamic therapy (PT) will find a special place in the fight against the biofilm present in oro-dental diseases.

29. Current guidelines in approaching the endodontic treatment

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The endodontic treatment refers to the eradication of the microorganisms from the root-canal system and the prevention of periapical tissues infection. The clinical failure of this treatment (known as inflammation of endodontic origin or apical periodontitis) frequently leads to tooth loss, local and general complications, representing a risk factor for systemic health. To date, inflammation of endodontic origin has been extensively studied being found that it is a commonly found sequel to bacterial infection of the dental pulp space. Its frequency was reported to vary between 22% to 65%, representing a significant rate of failure for endodontic treatment. From this point of view it represents an important area of interest facing the dental and associated research community centers. The success of endodontic treatment depends on the eradication of microbes and the complete sealing of the root canal space. The focal point of the current presentation is to enhance the importance of irrigation to the success of the endodontic treatment. The following points will be discussed: the irrigants role, delivery and their relationship with the mechanics of root canal preparation, approaching the 'unshaped' part of the canal system, future prospects in new endodontic irrigation technologies that are expected to substantially diminish the post-treatment recurrence. Part of the research we developed at the Faculty of Dentistry, UMF 'Iuliu Hațieganu', Cluj-Napoca.

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30. Datalog online platform for the management of the dental practice

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Designed as a professional solution for dental practices management, the DentaLog platform was created together with dentists and for them. The DentaLog platform caters to all types of dental practices, from small offices with one dentist to large offices with dozens of doctors from various fields. The online cloud-based architecture removes the IT infrastructure administration costs and the risk of application downtime. The Datalog platform makes use of the latest best practices and technologies for optimizing and increasing the security of the platform. The DentaLog platform allows interaction with partner dental cabinets, suppliers or external clients, using a module that allows sharing and visualization of a data set.

31. Laser applications in periodontal, neurological and dermatological diseases

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During the last years, the use of laser radiation has become a topic of major interest in dentistry. Since the 60's many therapeutic modalities for the use of medical lasers have been described. Twentieth century culminated with the introduction of a variety of types of lasers useful for the treatment of soft and hard tissue. The applicability of lasers in modern medicine is very wide in several specialties including dentistry, oral and maxillofacial surgery, ENT, ophthalmology, dermatology, neurosurgery and cardiology. Applications in Dentistry are: caries removal, cavity preparation and sterilization of dental surfaces. In endodontics: achieve endodontic whitening, dental hypersensitivity; in surgery to create sites for implant insertion, cysts and tumor removal and to decrease the healing time. In periodontology, it is successfully used due to the benefits in treating the periodontal disease. The current study shows the utility of lasers in treating the trigeminal neuralgia, in the treatment of the periodontal disease and facial rejuvenation using lasers such as BTL, Er: YAG, Nd: YAG, LLLT. Low level laser therapy (LLLT) is also known as "soft laser therapy" and bio-stimulation. The use of LLLT in health care has been documented in the literature for more than three decades. Numerous research studies have demonstrated the utility of LLLT, applications, indications and limitations of use. Er:YAG is an ablative type laser and Nd: YAG a non-ablative type. Evolutionary changes that have occurred in laser technology have led to the understanding of the mechanisms involved in laser-tissue interaction, significantly improving the precision with which certain therapies were made and increasing the number of diseases that can be treated with lasers.

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32. Severe facial asymmetries – Our 10 years experience

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Objective: This study presents a synthesis of orthognathic surgery techniques and solutions for complex facial asymmetries in syndromes such as Goldenhar (1 case), Treacher-Collins (3 cases) and Romberg (5 cases) caused by functional (19 cases) or morphological (32 cases) laterognathia and median cleft palate (2 cases). **Methods:** Surgical procedures used were Le Fort I osteotomies, Le Fort III osteotomies, BSSO, genioplasty, osteodistraction and lipostructure. All osteotomy lines were performed with Misonix Bone Scalpel. **Results:** The aesthetic and functional results were evaluated by CBCT, OPT radiography and individual patient auto-evaluation by means of an aesthetic chart. **Conclusions:** The conclusion of this study reveals a good correction of the facial skeleton, a partial correction of the facial asymmetry due to the soft tissues and orbits and a positive appreciation in the auto-evaluation charts regarding the improvement of the aesthetic and functional aspects.

33. Difficulties of oral rehabilitation in the elderly

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From 1907 until now, mankind has faced at least 11 major crises. Great Depression and two world wars and the economic crisis have left their mark on the course of human society. The last economic crisis has caused people to cut spending which caused the reduction of the birth rate. The combination of declining birth rates with increasing life expectancy results in increased number of elderly people. For the year 2050 it is expected that the aged population is 3 times higher than children between 0-14 years. Oral status of the elderly is the result of interplay between physiological process of aging, age-specific pathology, oral pathology specific for this age and presence in the oral cavity of prosthetic rehabilitation sometimes inadequate that the patient cannot give up. Oral treatment of elderly patients presents features related to general conditions with repercussions in the oral cavity of the patient, to medication taken for the disorder, to cognitive- behavioural disturbances that some patients experience, to the process of involution of maxillary structures and elderly specific oral pathology represented by periodontal disease, root caries, various forms of partial edentulism, occlusal dysfunction and temporomandibular joint disorders.

All these problems justify addressing the topic of interest to dentists and those who care for the elderly.

34. The importance of skeletal relation in implantology and prosthodontics

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Alveolar reconstruction is a common method in modern implantology. However, severe skeletal discrepancies in all three dimensions may inhibit prosthetic rehabilitation or lead to an early breakdown of the latter. Atrophy of the upper jaw leads to three-dimensional deficits in the sagittal, transverse and vertical dimension. Thus, class III deformities and cross-bite are common problems in prosthetic rehabilitation. Various methods for correction of the skeletal relation – usually used in orthognathic surgery – can be adopted in implantology and prosthodontics to re-establish normal skeletal relations such as Le Fort I osteotomy, Le Fort I osteotomy combined with sinus floor elevation, transverse distraction of the maxilla, segmental osteotomies or sagittal split osteotomy. Rarely, microvascular flaps are necessary to enable prosthetic reconstruction with implants.

35. The future of bone regeneration-dental follicle stem cells

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Recently, mesenchymal stem cells were proven to be present in dental tissues, including dental pulp, periodontal ligament and dental follicle. Dental stem cells are multipotent mesenchymal stem cells that raised new found enthusiasm among the researchers because of their easy accessibility, high quality and the fact that their usage does not raise the same ethical concerns and controversies as embryonic stem cells do. The dental follicle (DF), one of the multipotent tissues, is a fibrous ectomesenchymal tissue sac that surrounds the unerupted tooth and regulates the osteoclastogenesis and osteogenesis needed for tooth eruption. Most people have an impacted third molar or canine that does not cause occlusion and usually have the impacted tooth extracted either to avoid inflammation or for orthodontic therapy. Such extracted teeth usually contain dental follicle and are commonly discarded as medical waste. Hence, the dental follicle is a candidate source for isolating stem cells. Our presentation aims to demonstrate that dental follicle stem cells are easy to harvest, can be stored in a cell bank and can be used in bone regeneration or in improving the osteointegration of dental titanium implants.

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36. Clinical and therapeutic management of the dental erosion

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Dental erosion is defined as a progressive irreversible loss of dental hard tissues by a chemical process (acid and/or chelation exposure) that does not involve bacteria. During the last decades, an increasingly interest in dental erosion has been observed in the clinical dental practice, in dental public health and dental research. Originally thought as a solely superficial event, the pathophysiology of dental erosion is now considered to implicate demineralisation both at the interface between solution and enamel and within the thin, partly demineralized softened enamel layer (near surface demineralization). This condition does not begin as a subsurface enamel lesion that is conducive to remineralisation, as in the caries process, but rather as a surface-softening lesion that is susceptible to wear and resistant to remineralisation by conventional therapies. Dental erosion results in tooth surface softening, which inevitably accelerates tissue loss caused by tooth-to-tooth contact while chewing and grinding (attrition) or by abrasive wear while mechanically brushing or cleaning tooth surfaces (abrasion). Dental erosion is a multifactorial condition. To prevent further progression, it is important to detect this condition as early as possible. It is fundamental to diagnose the possible risk factors so that preventive measures can be initiated. Preventive measures should be initiated as early as possible to reduce the erosive challenge and to increase the protective defensive factors, thus bringing the equilibrium back to the oral environment. If it is not managed through effective interventions, it may result in substantial loss of enamel and subsequent exposure of the underlying dentin, which can, in turn, lead to dentin sensitivity, loss of vertical height and esthetical problems. Dentists have to know the clinical appearance and possible signs of progression of erosive lesions and their causes such that adequate preventive and, if necessary, therapeutic measures can be initiated. In cases where restorative treatment becomes inevitable, all preparations must follow the principles of minimally invasive treatment. Effective management of dental erosion is largely dependent on a thorough understanding of its etiologic and early recognition of its signs and symptoms in clinical practice.

37. On Fibrin-Rich Plasma (PRF) in Dental medicine

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Severe atrophy of the edentulous maxilla may require augmentation before implants can be placed. Bone graft materials have been used for reconstruction. Fibrin-rich plasma (PRF) has been

suggested to enhance the healing of bone grafts, as activated platelets release autogenously growth factors into the wound healing site. Additionally, the growth factors of PRF are suggested to enhance the integration of implants into bone. However, controversies still exist in the literature concerning the effect of PRF on implants and bone grafts.

38. Biocompatibility of dental materials

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Dental materials release substances or particles, which under certain conditions evoke adverse reactions in patients like allergies, lichenoid reactions of the oral mucosa or pulp damage. The most important task for the dentist, however, is the correct indication. Here, allergies are of concern, e.g. towards metals, resins, or to fragrances. Lichenoid reactions of the oral mucosa are often allergy related, especially if limited to the contact area with the material. The dental pulp may respond to restorative treatment with postoperative sensitivity. This is probably related to (nano/micro) gap formation between the material and the dentin leading to fluid movements in the dentinal tubules under masticatory load and stimulating nerve endings in the predentin area. In shallow and medium cavities (residual dentin > 0.5 mm) chemical damage by the applied materials is unlikely to happen, because dentin is an effective diffusion barrier. However, bacteria on the cavity floor may damage the pulp and thus the application of an effective adhesive system protects the pulp. In deep cavities with possible pulp exposure, common dental materials (e.g. resin based materials) may cause pulp damage and the pulp repair system (tertiary dentin formation – bridging) is impaired by resinous materials. In these cases, the application of a Ca(OH)₂/MTA based materials or of a tricalciumsilicate cement is recommended. Recently, issues on the potential harm of Bisphenol A (BPA), a known endocrine disruptor causing estrogenic effects have been raised. Apparently, doses are low and health effects are unlikely to occur. However, the exposure of the patient and the environment to BPA should be minimized.

39. Romanian dentistry – quo vadis?

Ecaterina Ionescu

"Carol Davila", University of Medicine and Pharmacy, Bucuresti, Romania

Dentistry, as a specialty detached from medicine, has won its recognition and prestige over time. This branch has a long history, with evidence of its existence even in The Ancient Egypt. Over several centuries, dentistry has known many progresses, once with the assimilation of new materials and the diversification of therapeutically techniques, transforming a primitive form of medicine, concerned mostly in palliation, to its present form, which emphasizes more on dental prevention, comprehensive diagnosis and modern treatment techniques, which can provide optimum oral rehabilitation, even in complex cases. In this context, the future seems to be of a dentistry that advocates

for an integrated care, where the oral health is seen as part of general health.

40. The immediate implantation in the anterior area

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The implant has become a therapeutic solution in daily practice. The clinical situations which involve implant insertion can vary from one missing tooth to complete edentulous patient. Special issues appear when an anterior tooth is lost and an implant is necessary. The patients wish (no wonder!) a final solution as soon as possible, but tooth extraction first and subsequent implantation will prolong the treatment duration and complicates the use of a provisional restoration. The lecture presents the clinical situation when immediate implant insertion is suited as well as the particular issues of the procedure.

41. Acute descending necrotizing mediastinitis - a potentially fatal complication of odontogenic and pharyngeal abscesses

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Introduction. Odontogenic or pharyngeal infection extending to deep cervical spaces and mediastinum represents a condition with high mortality rate. Recent reports emphasize the importance of early recognition, aggressive surgical treatment performed in a multidisciplinary team, head and neck surgeons, thoracic surgeons and intensive care specialists. **Material and methods.** All patients who were clinically and radiographically diagnosed with descending necrotizing mediastinitis, treated in the Department of Oral and Maxillofacial Surgery I Cluj-Napoca, between 2000-2013, were included in this study. The initial source of mediastinitis was dental or pharyngeal infection. **Results.** Patients presented with Ludwig's angina, lateropharyngeal abscess, retropharyngeal abscess and necrotising fasciitis. The clinical diagnosis and confirmation of the disease was done in the first 48 h after presentation in 62.5 % of cases and after 3-4 days in 25% of cases. There was one case in which the symptoms of mediastinitis appeared after one week. Open surgical drainage was performed in all patients. Surgical treatment included cervicomediatinostomy (25%) or thoracotomy (75%). Patient rehabilitation followed medical and surgical treatment in 62.5% cases. **Conclusions.** Once the onset of descending necrotizing mediastinitis is suspected, complex clinical, imaging and bacteriology investigations must be done in emergency setting. Any delay in establishing the diagnosis or in performing the proper therapy jeopardizes the prognosis. Early surgical approach (multiple drainage of cervical, mediastinal, pleural or pericardic collections), medical treatment (including broad spectrum antibiotics, without having the result of the antibiogram) and the complex therapy of shock may improve the prognosis.

42. Oral health and treatment needs in 6-11 aged children from Craiova

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Background: Dental caries, as one of many diseases that affect children's dentition, represents a major concern for health services, being spread in the low-income population. Although there are solutions for its prevention as proper dental hygiene and regular professional examinations for prevention, dental caries continues to be the only common chronic disease in children worldwide. **Objectives:** This study aimed to determine the prevalence of dental caries and treatment needs in a group of schoolchildren from Craiova, aged between 6 and 11 years. **Methods:** The study included 914 children from 4 schools in Craiova. The descriptive epidemiological indexes of caries for the whole sample were: the mean value for the DMFT index, preventive and restorative treatment needs, the proportion of children in need of dental treatment, and the children caries risk profile. The assessment of caries and treatment needs followed the international methodological standards prescribed by the World Health Organization. **Results:** The study involved 914 students, of which 47.37 % (433) males and 52.63 % (481) female, aged between 6 and 11 years. DMFT index value was 0.74, with different age distribution so that the highest value of DMFT was in those aged 11 years, of 1.63. Mean DMFT index was 2.68, of which male children was 2.89 and 2.47 in females. In six years children, DMFT was 3.43. For children aged 11 years, the index had a value of 1.63 DMFT and its components with a DT of 1.63 indicate that caries are not treated. For OHI-S index (from ages 6 to 11 years) the maximum value (0.89) corresponds to boys aged 8 years, and the minimum (0.26) for girls of 6 years. Of the 914 children included in the study, 678 (74.18 %) had cavities of the deciduous teeth and 319 (34.9 %) had cavities of the permanent teeth. Regarding maxillary dental anomalies, out of 914 children, 250 (27.35 %) were diagnosed with various forms of anomalies. Treatment needs reached a mean value of 3.54 teeth per person. Over 90% of the caries lesions were found in pits and fissures. Dental sealant and resin preventive restorations were the most indicated interventions for the sample children. The next most indicated dental treatment is filling of one surface. **Conclusions:** Epidemiological studies are urgently needed for periodic evaluation of prevalence and severity of dental caries so that the results of caries prevention programs could be monitored. It is necessary to create a national system for regular collection, analysis and interpretation of oral health data for all indicators suggested by WHO.

43. Minimally invasive and complex solutions in extensive wear cases

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The dentist is often in the position of treating patients with extensive wear. The wear is located in different areas of the tooth affecting the occlusal stability, the guidance and eventually the esthetics. These situations can be found even in young patients and the classical treatments, endodontic treatment, post and crown, may seem the beginning of the end... the final countdown of the tooth! Because of that, the dentists tend to postpone the treatment. The lecture offers a protocol for treating and finalizing a complete restoration of an extensive wear, practically almost without tooth preparation!

44. Diagnostic wax up construction: Harmonization between the patient expectation and esthetic of the final restoration in oral anterior zone rehabilitation

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Introduction: Oral rehabilitation of the anterior area involves the harmonization between the patient expectation and the esthetics limits of the final restoration. **Purpose:** The simulation with diagnostic wax-up construction will help the patient to validate the volume and the shape of the final restoration. **Materials and Methods:** Diagnostic construction is made on the master model, the same model that is use for the final reconstruction. The diagnostic construction performed in white wax on elastic polypropylene structure, provides the detachment from the model and the insertion in oral cavity without damage. The management of the space dedicated to the resistance structure and for the esthetic component is provide by the silicon index that keeps the features of the diagnostic wax up. **Results and discussion:** The patients that benefit of the final restoration s simulation with diagnostic wax up construction have adjusted the initial expectation on the limits of esthetic possibilities. The patient that benefit of the transitory reconstruction, have adjusted the initial expectation in the front of the social medium opinion.