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Nicolas Zaragoza Velazquez, Dentistry 2016, 6:9 (Suppl)
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A precise radiographic protocol before insert orthodontic mini implants as a maximum skeletal anchorage

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As we now in the last decades mini-implants have gained popularity in orthodontics field, precise placement of mini-screws is a critical point to the success of the skeletal anchorage, thus a careful clinical and radiographic diagnostic before insertion mini-screw is a essential requirement to achieve the central point of the radicular septum or another critical maxillary area, the correct execution and application of these pre-surgical procedures should avoid possible iatrogenic damages in periodontal ligament, dental roots, nasomaxillary cavities, or even important vascular tissues. As of today, periapical radiographs is a regular and swift pre surgical procedure during miniscrew insertion technique, but it provide only bidimensional images. Nevertheless, accurate execution of the radiographic parallax technique can offer us useful and precise radiographic information to decide the right local insertion of miniscrews in to the septum bone. The purpose of this report is to describe the fast application of new positioning circular guides in conjunction with a parallax radiographic protocol before place orthodontic mini-screws into the interradicular bone space.

Key words: orthodontic mini-implants, miniscrews, radiographic protocol, chirurgic guide, skeletal anchorage

Biography

Nicolas Zaragoza Velazquez has completed his Ph.D at Paulista State University from Sao Paolo Brazil. He is professor researcher in Orthodontics at the Authonomus University of Aguascalientes in Mexico. He has published papers in local and Brazilian journals Dr. Velazquez worked in many research projects involving the rapid palatal expansion in normal and fissure patients, later he focused in the field of dental adhesive materials (Universal systems adhesives) and he made a study of Prevalence of the third molar impacted in dental school students, lately he worked developing new radiographic surgical guides to place self drilling orthodontic minicrews with safe and endodontic ring miniguides to localize radicular resorption and for apicectomy and microsurgical procedures. Dr. Velazquez belongs to a number of professional organizations, including the Brazilian Orthodontics Association, Ibero American Dental Federation. He is also involved in many committees like (Member of the Commission (Dental Health Care) of Oregon – Mexico Health Professional Exchange 2002-2004

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Tele motion tracking for the study of cranio-facial development

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The 3D Tele Motion Tracking (TMT) is able to detect the movement in space of passive markers and to calculate geometric relationships derived from the positions of the markers, thanks to the associated software that reconstruct the figure in three dimensions and graphically represent its movement. The equipment is also able to calculate angles, distances and associated kinetic variables. This study aimed to evaluate the reliability of 3D-TMT in a static cephalometric evaluation. A group of 40 patients (20 males and 20 females; mean age 14.2+/-1.2 years) in permanent dentition was included in the study. For each subject, measurements were compared by the 3D TMT cephalometric analysis with a conventional cephalometric analysis carried out on radiographs in the frontal view. Nine passive markers were positioned on the face skin for the detection of the profile of the patient. Through the acquisition of these points were found corresponding plans for three-dimensional posterior-anterior cephalometric analysis. The cephalometric results carried out with 3D TMT and with traditional posterior-anterior cephalometric showed that 3D TMT system values was slightly higher than the values measured on radiographs. These differences are statistically significant, nevertheless their correlation is very high. The recorded values obtained using the 3D-TMT analysis were highly correlated to cephalometric analysis. 3D TMT is a non invasive tool that can be used for cranio-facial development research to monitor the control group.

Biography

Simona Tecco has completed her PhD in Oral Science at G D'Annunzio University and a second PhD in Physiology of Occlusion and Dental Materials at the University of Torino. She completed her Orthodontic specialization from the Catholic University of Rom. She is a Researcher at the University Vita-Salute San Raffaele, Milan, Italy. She has published more than 80 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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Effect of resin composite filling techniques and load cycling on resin-dentin interface at the gingival and pulpal cavity walls of class II cavities

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[2]Fayoum University, Egypt
[3]Cairo University, Egypt

The aim of this study was to evaluate the effect of resin composite filling techniques and load cycling on resin-dentin interface at the gingival and pulpal cavity walls of class II cavities. Standardized class II cavities were prepared in freshly extracted third molars. All prepared surfaces were bonded with futurabond DC self-etch dual-cure universal adhesive. Specimens were randomly assigned to two experimental groups according to resin composite filling techniques (G); G1; bulk filled hybrid resin composite, or (G_2); incremental filling nano-hybrid resin composite. Restored teeth were subdivided into two subgroups (B); B1; control group (not subjected to load cycling), B2; subjected to load cycling (90 Newton 5,000 cycles, 3 cycles/ seconds). Restored teeth were sectioned into sticks for micro-tensile bond strength (μTBS) testing and ultra-morphological evaluation of resin dentin interface. Results revealed that there were no statistically significant differences between the mean μTBS values of the two resin composite application techniques p-value=0.087. Pulpal dentin showed higher statistically significant mean μTBS compared to gingival dentin. Specimens with load cycling revealed a statistically significant lower mean μTBS to dentin at $p<0.001$. SEM photomicrographs showed penetration of the resin into the dentinal tubules and the formation of hybrid layer were observed for all groups. Broken resin tags were observed in specimens subjected to load cycling. It could be concluded that resin composite application technique didn't have a great impact on the adhesion of the resin composite. Resin-dentin bonds were prone to deterioration after load cycling which affect the long-term success of restoration.

Biography

Shaymaa M Nagi has completed her PhD from Cairo University, Egypt. She is a Researcher in Restorative and Dental Materials Research Department, National Research Centre, Egypt and Lecturer of Operative Dentistry in the Future University, Egypt. She has published more than 10 papers in reputed journals.

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Neuromuscular dentistry: transcutaneous electrical nerve stimulation and orthotic solutions in full mouth reconstruction.

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Temporomandibular disorders (TMD) happen as a result of problems with the jaw, jaw joint, and surrounding facial nerves and muscles that that control jaw movement. The main cause of this is injury to the jaw, the joint, or the nerves and muscles of the head and neck. This could also be due to the patient's occlusion not being in the proper position. Transcutaneous electrical nerve stimulation (TENS) currently is a form of electro-analgesia. Hundreds of clinical reports exist concerning the use of TENS for various types of conditions, including myofascial and arthritic pain. It uses electrical currents to stimulate muscle contractions that relieves pain and stiffness while Improving jaw movement. Orthoses is an externally applied device used to modify the structural and functional characteristics of the neuromuscular and skeletal system. They are used to control, guide, and limit joints or body segments for to otherwise correct the shape and/or function of the body, to provide easier movement capacity or reduce pain. Orthoses are also used in denstistry to adjust the patient's occlusion to a more optimum position, which allows the temporomandibular joint and the surrounding neuromusculatures to be relieved. This poster will present two full mouth reconstruction cases which utilized TENS and orthotics in their treatments. In the first case, TENS and Orthosis was used to increased the occlusion of a patient with severe overbite. While in the second case, TENS and orthosis was used to recapture the occlusion of the patient with posterior open bite. Orthoses used on these patients are tooth-colored to preserve the esthetic value of the smile. This poster presents to the dental practioners the importance of restoring a balanced occlusal relationship, and encourages them to incorporate the use of TENS and orthotics in their treatment planning.

Biography

Dr. Mario F. Guiang Jr. is a graduate of Centro Escolar University Manila Philippines in 1996. Currently he is finishing his Msc. Periodontics in the same university. Dr. Guiang underwent series of continuing education in the (University of Illinois college of Dentistry USA) Europe and Asia. Dr. Guiang underwent further training under the preceptorship of Dr Carl Henley, A renowned cosmetic and neuromuscular dentist Chicago USA. He also underwent training under Dr. Charles Kennedy in Rome Italy a periodontist and Past President of American dental society of Europe. He is the only Filipino lecturer for the Academy of Laser Dentistry USA in 2015 and 2016. His clinical expertise in Neuromuscular Dentistry , and Laser Dentistry was chosen among best of the best in the Philippines , USA , Hong Kong, and the United Arab Emirates. Dr.Guiang lectures locally and internationally. He is an active member of Academy of Laser Dentistry USA , International association for Orthodontics, International congress of oral implantologist, Philippine Academy of Implant dentistry, Philippine society of Periodontology, Philippine Dental Association, Tarlac Dental Chapter

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Polymorphisms in genes encoding purinoreceptor, osteoprotegerin and external apical root resorption in children after orthodontic treatment

Zuzana Vrankova, Martina Sirotkova, Petra Borilova Linhartova, Pavlina Cernochova, Jakub Kastovsky and **Lydie Izakovicova Holla**
Masaryk University, Czech Republic

Orthodontically induced external apical root resorption (EARR) is a multifactorial inflammatory disease. Genes encoding proteins which are involved in the modulation of inflammatory response and bone remodeling are considered as the "candidate" for EARR. The aim of this study was to analyze possible associations of single nucleotide polymorphisms (SNPs) in the *P2RX7* (encoding purinoreceptor) and *TNFRSF11B* (encoding osteoprotegerin) genes with EARR in Czech children after orthodontic treatment. A total, 99 orthodontically treated patients (69 healthy and 30 with EARR) were enrolled in this case-control study. Genotype determination of *P2RX7*+489C/T (rs208294, Tyr155His) and +1068C/T (rs1718119, Thr348Ala), *TNFRSF11B* -163C/T (rs3102735) and *TNFRSF11B*+1181C/G (rs2073618, Lys3Asn) was based on polymerase chain reaction using 5′ nuclease TaqMan® assays. While no significant differences were observed in allele or genotype frequencies of all four studied SNPs, specific combinations of variants in *P2RX7* may be associated with lower/higher risk of EARR development ($P<0.05$). In addition, the length of treatment by orthodontic appliances positively correlated with the presence of EARR ($P<0.05$). Although the effect of *P2RX7* SNPs themselves to the development of EARR was not confirmed in the Czech population, haplotype analysis suggests that variability in the *P2RX7* gene as well as the length of treatment may be important factors contributing to the etiopathogenesis of post-orthodontic EARR.

Biography

Zuzana Vrankova has just finished her fourth year of Dental Medicine at the Faculty of Medicine, Masaryk University in Brno - one of the top ranked universities in the Czech Republic. In the next academic year she is going to participate is the Erasmus program and study at University Tor Vergata in Rome, Italy. She is a determined student, and is very keen on attending various lectures, workshops as well as dedicated her free time to research work.

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Polymorphisms in genes encoding purinoreceptor, osteoprotegerin and external apical root resorption in children after orthodontic treatment

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Orthodontically induced external apical root resorption (EARR) is a multifactorial inflammatory disease. Genes encoding proteins which are involved in the modulation of inflammatory response and bone remodeling are considered as the "Candidate" for EARR. The aim of this study was to analyze possible associations of single nucleotide polymorphisms (SNPs) in the *P2RX7* (encoding purinoreceptor) and *TNFRSF11B* (encoding osteoprotegerin) genes with EARR in Czech children after orthodontic treatment. A total of, 99 orthodontically treated patients (69 healthy and 30 with EARR) were enrolled in this case-control study. Genotype determination of *P2RX7*+489C/T (rs208294, Tyr155His) and +1068C/T (rs1718119, Thr348Ala), *TNFRSF11B* -163C/T (rs3102735) and *TNFRSF11B*+1181C/G (rs2073618, Lys3Asn) was based on polymerase chain reaction using 5′ nuclease TaqMan® assays. While no significant differences were observed in allele or genotype frequencies of all four studied SNPs, specific combinations of variants in *P2RX7* may be associated with lower/higher risk of EARR development ($P<0.05$). In addition, the length of treatment by orthodontic appliances positively correlated with the presence of EARR ($P<0.05$). Although the effect of *P2RX7* SNPs themselves to the development of EARR was not confirmed in the Czech population, haplotype analysis suggests that variability in the *P2RX7* gene as well as the length of treatment may be important factors contributing to the etiopathogenesis of post-orthodontic EARR.

Biography

Martina Sirotkova, have just finished the fourth year of dental medicine at the Faculty of Medicine, Masaryk University in Brno - one of the top ranked universities in the Czech Republic. Next academic year they are going to participate in the Erasmus program and study at University Tor Vergata in Rome, Italy. They are determined and motivated students, and they are very keen on attending various lectures, workshops as well as dedicating their free time to research work.

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Influence of the number and design of implant, implant/abutment connection and attachment systems on the stress distribution of mandibular implant retained overdentures

Marina Xavier Pisani
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This study evaluated the stress behavior of single (S) and two (T) implants retained mandibular overdentures on periimplantar and alveolar bone regions. Photoelastic mandible models (n=14) were obtained from transfer impression of implant analogs inserted in prototypes varying implant locations in the canines or middle regions, design of implants as regular (RI) or one-piece mini implants (MI), implant/abutment connection as morse taper (CM), internal hexagon (HI), external hexagon (HE) and attachments as ball (B) and equator (E). The S and T overdentures over the photoelastic models (RI/HI/B); (RI/HE/B); (MI/B); (RI/CM/E); (RI/HI/E); (RI/HE/E) were positioned on a circular polariscope, submitted to a bilateral load (150 N) on first molars and photographed. Stress distribution was qualitatively analyzed (software fringes) according to isochromatic fringes orders (0 black; 1 violet/blue transition; 2, 3, 4 red/green transition); the greater the number and proximity of the fringes, the higher the stress. The lowest stress on periimplantar was found in (MI/B order 1) followed by (RI/CM/E order 1); (RI/CM/B order 1); (RI/HI/B order 1); (RI/HI/E order 1 and 2); (RI/HE/E order 2 and 3), (RI/HE/B order 2 and 3) for S group and in (MI/B order 1), (RI/HI/B order 1); (RI/CM/B order 1); (RI/HE/B order 1); (RI/HE/E order 1 and 2); (RI/HI/E order 2), (RI/CM/B order 2) for T group. The worst situation was presented by S groups (RI/HE/B) and (RI/HE/E). Overall, for MI, the phostoelasticity showed the lowest stress on implants and the highest and best distributed stress on alveolar bone. Both attachments presented similar stress behavior.

Biography

Marina Xavier Pisani has completed her PhD from University of Sao Paulo and a partnership with McGill University in Canada. Currently she is, she is a Post-doctoral student at Piracicaba Dental School (Unicamp). She has published 20 papers in reputed journals of Dental Prosthodontics.

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Bone allografts in implantology-the on lay grafting with block technique: A histomorphometric study in rabbits

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Background: Bone loss has long been a challenge to dental surgeons who seek to reconstruct and rehabilitate patients with resorptions, especially in the atrophic maxillary alveolar ridges. A range of biomaterial is available for use in dentistry, however the homologous graft, or allografts, has been increasingly used. This study explores 4 methods for processing the allografts (Group A, B, C and D) by tissue banks. We initially performed a qualification testing (sterile and cytotoxicity tests) and further an analysis (by optical coherence tomography-OCT, cone beam tomography, Raman spectroscopy, and histomorphometry) of its osseointegration in an experimental trial in rabbits.

Objectives: The aim of this study is to evaluate the osseointegration of grafts performed by onlay grafting block technique. The blocks were processed in 4 different ways: A) cryopreserved allograft block (- 80ºC); B) irradiated allograft block (25 kGy); C) freeze-dried allograft block; and D) demineralized allograft block.

Methods: To analyze the osseointegration, the areas of grafts were extracted after 60 days and submitted to the exams of optical coherence tomography -OCT, cone beam tomography, Raman spectroscopy and histomorphometry.

Results & Conclusion: Grousps A, B, C ,D

Osteoid Surface (OS/BS): [3.50% to 24.09%]

Osteoblasts Surface (Ob.S / BS): [1.69 % to 16.76%]

Osteoid Volume (OV/BV): [0.20 % to 3.10%]

Trabecular Bone Volume (BV/TV): [> 30%]

The Group A (Frozen) presented better results and greater evidence in osseointegration:

Osteoid Volume (OV / BV): 3.10%;

Osteoid Thickness (O.Th): 8.61 mm;

Osteoblasts Surface (Obs / BS): 16.76%;

The Groups C (Freeze-Dried) and D (Demineralized) had the lowest rates of bone resorption and remodeling:

Eroded Surface (ES/BS): [8,41% , 1,27 %]

Osteoid Surface (OS / BS): [13,20 % , 3,50%]

We conclude that the four methods of tissue processing are safe and biocompatible because we did not notice any evidence of contamination or cytotoxicity in the groups studied. The osteoconduction and the connectivity with recipient bed were observed in four methods (Groups A, B, C, D): The bone matrix remained denser [Cone Beam Tomography] with well organized collagen fibers [Optical Coherence Tomography -OCT].The onlay grafting block technique is predictable and effective and it depends on three important rules: good blood flow in the graft area, good stability to the graft and the absence of gaps between the graft and the receptor bed.

Biography

Luiz Augusto U. Santos is Master in Science, Implantodontist and PHD student at University of Sao Paulo. He works as Manager of Tissue Bank and Researcher of the Institute of Orthopedics and Traumatology, Hospital das Clínicas of the School of Medicine of the University of Sao Paulo. Over the years, he has studied the clinical use of bone allografts in orthopedic and dental surgeries and has published studies nationally and internationally. He is a member of the American Association of Tissue Bank (AATB) and the American Dental Association (ADA). He is also a member of the Group of the Regulatory Health Organizations related to the definition of legislation and standards.

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Comparative study between two different implant designs supporting maxillary overdentures: Finite element analysis (FEA)

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Objective: The objectives of this study were to assess the effect of different implant designs and distribution on stresses transmitted to the supporting structures of maxillary overdentures

Methods: Two finite element models were constructed for V-shaped edentulous maxilla. In the first model; 6 mini-implants of 2.4 mm in diameter and 13 mm in length were placed in the anterior maxilla. In the second model 4 mini-implants of 2.4 mm in diameter and 13 mm in length were placed in the anterior region and 2 wider implants of 6 mm in diameter and 8 mm in length were placed in the posterior region. A loading force of 100 N was applied unilaterally and bilaterally in vertical and oblique direction on the first molar area. Stresses around the implants were estimated by linear static analysis.

Results: The second model showed better results as it reduces stresses exerted on the supporting bone of the maxilla when compared to model one because the wide diameter implants were close to the applied load and received the maximum exerted stress than supporting bone. Both implant designs showed acceptable stress distribution within the physiological limits on the bone.

Conclusions: Maxillary overdenture supported by 4 mini-implants in the anterior region and 2 wider implants in posterior region may result in reducing the stresses exerted on the supporting bone when compared to 6 mini implants in anterior V shaped maxillary arch.

Biography

Asmaa Nabil Elboraey has completed her PhD in Removable Prosthodontics in September 2013 from Faculty of Dentistry, Ain Shams University. Currently, she is a Researcher of Prosthodontics at Fixed and Removable Prosthodontic Department, Oral and Dental Research Division, National Research Center, Egypt. Her academic positions include: Internship in Faculty of Dentistry, Ain Shams University, Egypt (2003-2004); Specialist in National Research Centre, Egypt, 2005-2009; Assistant Researcher in Fixed and Removable Prosthodontics Department, Oral and Dental Research Division, National Research Center, August 2010; and Researcher in Fixed and Removable Prosthodontics Department, Oral and Dental Research Division, National Research Center, February 2014 to till date.

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Prevalence of musculoskeletal disorders among dentists in Karachi, Pakistan

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Objectives: Work-related musculoskeletal pain is commonly experienced various health care professionals and dentists are one of them. This study was conducted to assess the prevalence of work-related musculoskeletal disorders (MSDs) among dentists in Karachi and to identify the associated risk factors.

Materials & Methods: A cross-sectional descriptive study was conducted among different dental colleges in Karachi during the period of 1 month. Self-administered questionnaire was distributed among 230 dental practitioners for data collection. SPSS version 20.0 was used for statistical analysis. Descriptive statistics was computed and associations of interest were analyzed using chi-square test. Level of significance was kept at ≤0.05.

Results: Out of 230 distributed forms, 190 filled survey forms were received. Eight forms were excluded from the study due to incomplete data. The overall prevalence of MSDs in the present study was found to be 75.8%. High prevalence of MSDs was reported in neck (58.8%) followed by lower back (51.6%), shoulders (49.5%), wrists/hands (36.3%) and upper back (34.6%). Statistically significant relationship was found between MSDs and age, specialty, no. of years of practice, awkward posture adaptation and working posture maintained for more than half an hour per patient.

Conclusions: Within the limitations of this study, prevalence of MSDs is very high among practicing dentists in Karachi. Most commonly reported sites are neck followed by shoulder, wrists, upper and lower back. The most frequent reasons for MSDs reported were both the lack of rest and static postures maintained for more than half an hour per patient.

Biography

Muhammad Hasan Hameed has completed his BDS in 2012 from Dow University of Health Sciences, Karachi and has been working as Resident in Aga Khan University, Karachi.

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Shortened dental arch concept: Investigation of the quality of written prescription by dentists to dental technicians in Jeddah, Saudi Arabia

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King Abdulaziz University, Saudi Arabia

The aim of this study was to review and evaluate quality of communication, instructions and prosthodontic prescription given to profitable and governmental dental laboratories by general dentists, restorative dentists and prosthodontists for shortened dental arch (SDA) cases in Jeddah, Saudi Arabia. Over the period of 6 months, a cross-sectional survey with self-designed-structured questionnaires was conducted. A survey of the main 5 governmental and private dental laboratories was conducted. 200 questionnaires were filled by an interview and case discussion with each dental lab technician who received a case for SDA was done. A sample size of 200 male dental technicians was interviewed. 91% of them were not Saudi. In addition, 25.5% had an experience for more than 25 year. 67.5% of dental technicians were working in private laboratories. Most of the cases received (76%) were for lower arch. The most treatment option that was selected by dentists was Co-Cr RPD 86.5%. The majority of the cobalt chromium RPD cases (64.2%) had instruction form without mentioning the clasp material. The most common major connector selected for the lower arch cases 55.5% was lingual bar and a U-shaped major connector in upper. It would appear from the results of this survey that amid the different restorative treatment choices for SDA, Co-Cr RPDs are the most common. The prescribing dentist's signature, clasps' material and date the prosthetic work required were the most frequently absent sections of information. Recommendations for improved communication, clear, complete and signed prosthodontics laboratory form are better for patient service.

Biography

Manal R Alammari has completed her PhD from the University of Liverpool and Post-doctoral studies from Liverpool University Dental Hospital. She is Coordinator of Saudi Board Examination Committee and Member of the Strategic Plan in the Dental College. She has published more than 20 papers in reputed journals and has been serving as an Editorial Board Member in three journals.

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The design of calcium phosphate particle for tooth hard tissue remineralization

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Dental caries is a world-wide oral disease. At the initial stage of caries lesions, cariogenic bacteria attack tooth enamel, leading to demineralized areas on the tooth surface. Therefore, the investigation includes the design of calcium phosphate (CaP) particles with caries preventive effect due to bioavailable calcium and tailored particle morphology. The aim is to obtain CaP particles with properties close to enamel crystals (20-100 nm) and dentine tubules (2-4 μm). CaO and H_3PO_4 were used as precursors to synthesize CaP. The Ca/P ratio of products was chosen under 1.67 to obtain calcium deficient hydroxyapatite. One part of the product was spray-dried (spCaP) and remaining part- left as paste (pCaP). The evaluation of products composition by X-ray diffraction (XRD) and fourier transform infrared spectrometry (FTIR) was done. Morphology was investigated by scanning electron microscopy (SEM). FTIR showed a characteristic vibrations of functional groups of apatite. XRD patterns confirmed apatite phase with low crystallinity. The Ca/P ratio was in the range from 1.64 to 1.60. SEM micrographs showed nanorods (length 50-200 nm, diameter 25-60 nm) for pCaP and spherical agglomerates (1-10 μm) for spCaP samples. The obtained CaP are chemically very similar to dental hard tissues. In addition, the morphology of pCaP particles is compatible with enamel crystals while size of spCaP agglomerates fits well with the dimensions of dentine tubules. The combination of pCaP and spCaP have a potential to decrease a risk of caries development and this hypothesis will be tested during *in vitro* studies.

Biography

Vita Zalite has completed his PhD in Material Science at Riga Technical University (RTU). He is a Researcher at Rudolfs Cimdins Riga Biomaterials and Development Centre (RC RBIAC).

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Traumatic dental injuries in Tunisian patients: A prospective study

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Objectives: The aim of this study was to focus on epidemiological characteristics of traumatic dental injury (TDI) in Tunisian patients who suffered from facial trauma and to investigate the relation with age, gender and etiology.

Methods: All the trauma patients attending the Department of Dental Medicine at the University Hospital of Sahloul Sousse, during 5 years, were included in this study. Age, gender etiology, time elapsed between the TDI and dental cares were recorded. Type of trauma was identified according to Andreasen's classification. Data were analyzed using the chi-square, Anova and student test.

Results: This study included 120 traumatized patients. The mean age of patients was 18 years, the most affected tooth was: Central and lateral maxillar incisors. The highest frequency of TDIs was among the age group of 11–20 years (35%), with more males being affected Falls was the most common etiological factor causing TDI (33%). The most frequent type of trauma is enamel-dentin fracture without pulp exposure (38%). Only 9% of the patients sought dental care within 24 hours of the injury. A significant difference of the gender repartition between different trauma etiologies (p=0.013) also a significant association was found between age group repartition and etiology of trauma (p=0.007).

Conclusion: In this study, falls are the most common etiology of TDI. Most patients seek dental treatment after more than 24 hours of the injury. Therefore, significant strategies of trauma prevention and immediate treatment of dental injuries are needed to change dental data toward more favorable behaviors in the future.

Biography

Kallel Ines obtained her Degree of Doctor in Dentistry in 2007 and Degree of Specialist in Conservative Dentistry and Endodontics in 2012 from University of Monastir, Tunisia. She started practicing as University Hospital Assistant from 2013 in the Hospital Sahloul Sousse.

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Case report of cardiac dysrhythmia following dental prescription of metronidazole

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Metronidazole is a nitroimidazole antibiotic medication which has a specific activity against anaerobic bacteria and protozoa. In cardiology, the QT interval represents electrical depolarization and repolarization of the ventricles. A lengthened QT interval is a marker for the potential of ventricular tachyarrhythmias. Rare cases have been reported with QT prolongation in which metronidazole antibiotic had been used. The arrhythmogenic properties of metronidazole are not yet clear. This case reports a 10-year-old male child of 30 kg body weight with no history of any chronic illness or drug allergy came to the dental clinic with facial swelling, which was diagnosed as dental abscess. He was given oral metronidazole (500 mg, 3 times/day, for 5 days). On the third day, he presented to the emergency department with palpitation, vomiting and then he collapsed. CPR was done and ECG showed prolonged QT corrected interval (QTc 480 ms). Laboratory tests including serum potassium, magnesium and liver functional test were within normal. Metronidazole was immediately stopped and subsequently the ECG returned to normal. In conclusion, Metronidazole can potentiate QT prolongation. Further investigation should be carried out to assess its potential effect on QT interval and subsequent lethal arrhythmias. The maximum pediatric dose should be reviewed.

Biography

Almatrafi Badria has completed her BDS in 1991 from King Saud University in Riyadh, KSA and AGD certificate in 2000 from University of South California, USA. She is a Consultant in Restorative Dentistry at Prince Sultan Military Medical City in Riyadh. She worked as a Director of Officers Dental Clinics and had years of teaching and clinical supervision experiences. She is a member of Infection Control Team.

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Notes:

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Axiographie registration, what else?

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L'odontologist deal everyday patients with temporomandibular joint disorders, their diagnosis is not always easy, therefore the use of axiograph registrations as functional exploration of TMJ in 3 D is important in our therapeutic approach of the clinical case. Mechanic axiograph (SAM and quick axis) is used as complementary examens to diagnose the TMJ disorders. The graphic recording of condylar displacements can: clarify the type of RDC or DC/TMD; objectify the general direction of DC: pure anterior and/or transverse compartment; we can take our prognosis with consideration of the magnitude of the jump disc and; guide our therapeutic choice. Axiograph will become the indispensable device of tomorrow in all global occlusal rehabilitations prosthetico-conscients.

Biography

Zenati has completed her PhD from Algeria University and Post-doctoral studies from Algeria University School of Medicine. She has done many courses, conferences and communications. She is currently working as an Assistant Professor in Prosthodontics and Occlusodontics.

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Determination of osteoblastic differentiation and osteogenic transcription factor expression on fibronectin or bone sialoprotein II-immobilized microgrooved titanium substrata

Suk Won Lee
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Here, we aimed to determine the effect of fibronectin (FN) or bone sialoprotein ′ (BSP2)-conjugated microgrooved titanium (Ti) substrata on osteoblastic differentiation and time-dependent osteogenic transcription factor expression in human bone marrow mesenchymal stem cells (MSCs). 60 μm wide and 10 μm deep microgrooves were fabricated using photolithography and subsequent acid etching to generate a microgrooved Ti surface with acid-etched roughness (E60/10). Both smooth and acid-etched Ti were used as controls (NE0 and E0). Human serum FN and human BSP2 were immobilized on the fabricated Ti surfaces by silanization using 3-aminopropyltriethoxysilane (NE0FN, E0FN, E60/10FN, NE0BSP2, E0BSP2, and E60/10BSP2). Alkaline phosphatase (ALP) activity and osteoblastic differentiation of MSCs were determined using ALP activity assay and extracellular calcium deposition assay, respectively. Time-dependent expression of various osteogenic transcription factors including ATF4, FRA1, RUNX2 and Osterix were analyzed. As a result, both FN- and BSP2-immobilized microgrooved Ti significantly enhanced the osteoblastic differentiation and the time-dependent expression of various osteogenic transcription factors. Specifically, the two-way ANOVA result of ATF4, FRA1, RUNX2, and Osterix expression presents a synergistic promotion effect of microgrooves and matrix protein immobiliztion on the osteoblastic differentiation of MSCs. Taken together, FN- and BSP2-immobilized microgrooved Ti can act as an effective biomaterial surface for promoting osteogenicity.

Biography

Suk Won Lee has completed his PhD and Post-doctoral fellowship from Yonsei University College of Dentistry. He is currently an Associate Professor of Kyung Hee University College of Dentistry. He has published more than 25 papers in reputed journals in the fields of Biomaterials, Biomedical Engineering and Oral Implantology. He has been serving as Director, Education Delegate and Editorial Board Member of repute.

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Airway management in post chemoradiotherapy head & neck cancer patients presenting for dental procedures inambulatory setting – case series

Anum Aijaz
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Introduction: A wide range of potentially debilitating dental complications may occur as a consequence of postoperative chemoradiotherapy such as oral mucositis, dental caries, trismus and osteoradionecrosis of the mandible with the dead bone exposed and liable to infection or even pathological fracture. Dental complications of chemoradiation in head and neck cancer patients often require surgical treatment under general anaesthesia. Patients usually scheduled as day care basis that warrants early discharge. Most of these have very limited mouth opening or distorted anatomy of face as a result of previous surgery and radiation. Airway management remains central to perioperative care.

Case series: Five patients scheduled for dental procedures under general anaesthesia were selected. The selected patients were identified on preoperative assessment at an increased risk of difficult airway and fiberoptic intubation was planned. Awake fiberoptic intubation was done in two patients while three were intubated after inducing general anaesthesia. Regional anaesthesia of airway was achieved with lignocaine 4% nebulization and spray as you go technique. The other three patients were selected for asleep fiberoptic intubation based on the fact that they have no anatomical distortion that create problems with bag mask ventilation and no signs of airway obstruction. All patients underwent 30-45 minutes dental procedures. Patients were extubated and discharged after 1 hour from recovery room and 3 hours after day care ward. No postoperative problems related to airway management were encountered.

Conclusion: Increasing number of these patients present to us for dental extractions and restorative procedures under general anaesthesia as day care procedures. Present case series highlights some important aspects regarding management of anticipated difficult airways in ambulatory setting.

Biography

Dr. Anum Aijaz has completed her BDS in 2011 December from Liaquat University of Medical and Health Sciences, Jamshoro Hyderabad and has been currently working as a Dental/Medical Officer in Aga Khan University, Karachi.

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Effect of CO_2 laser and casein phosphopeptide amorphous calcium phosphate (CCP/ACP) paste on micro-hardness of demineralized enamel

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CO_2 laser and application of casein phosphopeptide amorphous calcium phosphate (CPP/ACP) have been suggested to prevent enamel demineralization and increase resistance to caries. There is a gap of information on the comparison of the efficacy of laser and CPP-ACP. The purpose of this study was to compare the effect of CO_2 laser irradiation and CPP/ACP application on micro-hardness of demineralized enamel. 30 sound maxillary extracted teeth were selected. The crowns were cut at the cement enamel junction and were then mesiodistally sectioned into facial and palatal halves. Specimens were then mounted in self-polymerizing acrylic blocks measuring 4x4 mm in such way that the enamel surface was exposed. After a pH cycling model, the specimens were randomly divided into four groups (n=15) as follows: G1: without treatment (control), G2: CO_2 laser, G3: CPP/ACP and G4: laser plus CPP/ACP treatment. The micro-hardness of each specimen was measured using Vickers hardness testing (500 gr loads, 5 seconds, three points). Data were analyzed using ANOVA and Tukey's tests (α= 0.05). The mean value of micro-hardness for demineralized enamel in groups two to four were significantly greater than the value for group one (control) ($P<0.05$). The mean value in groups two and three were not significantly different ($P>0.05$). Significant difference was found in micro-hardness of group four with two and three groups ($P<0.05$). It was concluded that CO_2 laser irradiation, application of CPP/ACP and combination of both increased the micro-hardness of demineralized enamel.

Biography

Zahra Khamverdi has completed her graduation from Isfahan University. She is a Professor in Operative Dentistry department from Dental Faculty, Hamadan University of Medical Sciences. She has given presentation in the field of Operative Dentistry, Aesthetic Dentistry and Dental Materials in international and national conferences and published more than 35 papers in scientific journals and has been serving as a member of Dental Research Center.

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Petra Spevackova, Dentistry 2016, 6:9 (Suppl)
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Morphology of posterior teeth as an indicator of healthy development: Different methods of its measurement

Petra Spevackova
Charles University in Prague, Czech Republic

Morphology of posterior dentition can provide a complex source of information about issues of ontogenic, phylogenic as well as clinical significance. According to inhibitory cascade model, it is supposed that the structures of occlusal area can be influenced by the developmental perturbances and can result in a change of variability of tooth morphology. Bias and asymmetry of tooth morphology can cause discomfort or malfunction with other possible implications for oral health. Our project is aimed on the influence of individual development on the variability of posterior teeth size and shape but also on the comparison of different methods of tooth morphology quantification. There are several possible ways to objectify the morphology of a tooth. The mesiodistal and buccolingual linear dimensions are widely used. However, occlusal area of a tooth crown or area of primary cusps are examples of other options and their use is facilitated with the advances in imaging technologies. Our sample consists of dental casts and their virtual reproductions. We used 168 maxillary and mandibulary first molars from 42 individuals to measure their crown dimensions and compare the ability of different dimensions to express the variability of teeth.

Biography

Petra Spevackova is a Doctoral student at the Department of Dentistry, University Hospital and Faculty of Medicine in Pilsen, Charles University in Prague.

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Hyunjung Kim, Dentistry 2016, 6:9 (Suppl)
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Improvement of mechanical properties of CPC and MTA by Elastin-Like-Polypeptide

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The aim of this study is to develop a new elastin-like polypeptide (ELP) supplemented dental repairing cement which shows improved mechanical and handling properties. ELP genes either with or without octaglutamic acid termination were genetically engineered: V125 and V125-E8. Pure ELPs were gathered through a series of protein synthesis process using E.coli through gene transformation, expression, protein purification. 10 wt% ELP solutions were prepared and mixed with mineral trioxide aggregate (MTA) and calcium phosphate cement (CPC) to have liquid to powder ratio from 0.2 to 0.7. Mechanical property test and washout test were performed to validate the availability of ELP-MTA mixtures as improved dental repairing cement. In compressive tests, we prepared from 0.2 to 0.7 'liquid : powder' ratio samples: two powder of CPC and MTA; three liquids of DW, V125, V125E8. Mixed cements as given ratio, were loaded at mold and set in 37°C incubator for 4 days as column shape. Each samples were tested in universal testing maching AGS-X (SHIMADZU, Japan). Anti-washout test was performed with the mixed cement of 0.5 liquid/powder ratio. Each mixed cements soaked with 370HEPES solutions on petri dish were observed at 5 minite, 1 hour and 24 hour. After drying in 37′ incubator for 48 hours, the loss weight of cements were also measured. The ELP supplemented MTA and CPC showed a significantly enhanced compressive strength and anti-washout property. Incorporation of specific ELP enhanced the mechanical strength and handling property of MTA and CPC. This preliminary test indicates that ELP can be used to develop the inorganic dental repairing cement to have improved properties.

Acknowledgement : This study was supported by a grant of the Korea Health Technology R&D Project through the Korea Health Industry Development Institute (KHIDI), funded by the Ministry of Health & Welfare, Republic of Korea (HI14C1817).

Biography

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The substantivity and remineralization effect of bioactive glass on the demineralized dentin

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The demineralization of dentin is the initial pathologic changes that can lead to destruction of the dentin at a rapid rate. Bioactive glass (BAG) is an excellent biocompatible material for tissue mineralization. So, the aim of this study is to evaluate the possibility of remineralization of demineralized dentin using bioactive glass. Twenty extracted caries-free human 3rd molars were obtained. Two dentin specimens were obtained from each tooth using a slow-speed diamond saw (Isomet, Buehler Ltd., USA) with water-cooling. They were completely demineralized in 0.2 M formic acid solution for 10 days, and thoroughly washed with distilled water. After that, they were randomly divided into two groups (n=40): Demineralized dentin group (DE), Bioactive glass 45S5 applicated group (BAG). The specimens of DE group were stored in distilled water, while those of BAG group were immersed in the slurry of BAG/deionized water (1:1 mixture) for 7 days. We weighed the specimens at three different stages to evaluate the substantivity of BAG: demineralization, remineralization, and ultrasonic application after remineralization. FE-SEM/EDX, Raman Spectroscopy, XRD Analysis were additionally performed to analyze the remineralization effect of BAG. As a result, we observed increase of weight in BAG group after remineralization using BAG. In the FE-SEM/EDX, BAG particles were observed on the demineralized collagen matrix in the BAG group. The crystalline phase of the dentin surface was confirmed through XRD and RAMAN in the BAG-treated group. It is similar to the crystalline phase in mineralized dentin. Within the limitation of this study, BAG is enable to remineralize the demineralized dentin although it is completely demineralized.

Biography

So-Yeon Mo
So-Yeon Mo has completed her master degree at 2014 from Kyung Hee University and is in the PhD course in the same university. And also she undergo the residency course of conservative dentistry in Kyung Hee University Dental Hospital.
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Rehabilitation of chewing function thanks to tracks (direct and indirect) of planas

Amel Belkhiri
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Recent scientific studies have confirmed the impact of chewing function on craniofacial morphology.
Planas was a genius for his time. He understood the importance of physiology
masticatory function in the morphogenesis of alveolar-dental arches.
This led him to invent a functional unit; tracks (direct and indirect) whose action is based on the release of lateral movements and gymnastics masticatory muscles.
Thanks to the presentation of clinical cases, we can see the role of tracks of Planas in correcting malocclusions and establishing an alternate unilateral mastication.

Biography

Amel Belkhiri is working as maître-assistant to orthodontics department at the University Hospital of Blida.He obtaining dental surgery degree in 1995. Then he worked as surgeon general to the health sector in the province of Illizi (Algeria) for two years. He obtaining the Diploma of higher medical study as a specialist in orthodontics and public health specialist in ODF in a dental clinic in Algeria in the year 2001.

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Belkacem Chebil Raouaa, Dentistry 2016, 6:9 (Suppl)
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Mandibular metastasis in a patient with undiscovered lung cancer: A case report

Belkacem Chebil Raouaa
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Introduction: Metastatic tumors account for 1% of all oral malignancies. Metastasis to jaw bones is common, particularly in the mandible, rare in the oral soft tissues, and account for only 0.1% of oral malignancies. The majority of metastatic cases (70%) reported in the literature have primary tumors located in the lung, breast, kidney, and colon. Clinical presentation of metastatic tumors is variable, which may create diagnostic dilemma or may lead to erroneous diagnosis. Metastatic tumors clinically mimic as dental infections. Most of the cases in the literature reported that lesion presented in oral tissues before the diagnosis of primary tumors. Here we present the diagnostic and therapeutic dilemma of a case observed in dental unit at Sahloul hospital.

Case report : The author report a case of 55-year-old man, complaining of a submandibular cellulitis. On examination, the patient presented a non painful mass of the left mandibular ramus. panoramic radiography showed a radiolucent lesion in the ramus with enlargement of mandibular foramina. After excision, Histological study revealed a metastatic tumor of lung origin.

Discussion: This case report showed that the practitioners should always maintain a high index of suspicion to the possibility that a radiolucent lesion may be a metastatic tumor. Lip and chin hypoesthesia is an important symptom for malignancy detection.

Biography

Belkacem Chebil Raouaa has completed her PhD at the age of 25 years from Monastir University and postdoctoral studies from the same university. She is now an assist professor in oral medicie oral surgery. She has published some papers in reputed journals.

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Marwa Abdelaziz et al., Dentistry 2016, 6:9 (Suppl)
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Title: Comparison of one component universal adhesive's infiltration depth into natural enamel lesions after air drying vs 96% ethanol

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University of Geneva, Switzerland

Aim: Comparing the effect of two different drying procedures on the infiltration depth of a self etch bonding agent into natural caries lesions.

Materials and methods: 8 extracted human teeth with non-cavitated interproximal lesions. Samples were cut vertically to obtain two symmetrical lesions, (n=16). After isolating the cut surfaces by nail varnish, a metallic strips was used to remove the outer hypermineralized layer of the lesion. After etching for 2min with 37% orthophosphoric acid and thoroughly rinsing the surface, lesions of Gr.1 were air-dried for 30s. In Gr.2 lesion surfaces were air-dried for 10s, followed by application of 96% ethanol for 30s and air-dried for another 10s. Scotchbond Universal (3M ESPE,USA) was subsequently applied and left for infiltration for 3 min. Excess was removed before light curing for 40s, then a thin layer of flowable composite (Tetric flow, Vivadent) was applied and light cured for 20s. Samples were bleached using 30% H2O2 for 12h @ 37°C and then re-stained with sodium fluorescein solution. Thin cuts of the teeth were observed with confocal microscopy (CLSM, Leica SP5-2P) and computer image analysis was performed (ImageJ, NIH, USA). The percentage of infiltration was than calculated as area of resin infiltration (red)/area of total demineralization (green) x100.

Results: Average penetration for (Gr.1) was 30.2%(SD13.4) while (Gr.2) was 27.45%(SD 13.3), Statistical analysis (t-test) showed no significant difference between the two groups (p=0,653).

Conclusion: Penetration depth of a one component universal adhesive system was not significantly different after pretreatment of initial caries lesions with compressed air and with 96% ethanol, respectively.

Biography

Marwa Abdelaziz Is graduated from the University of Geneva in 2010 and she has been working simultaneously in a private practice as a general dentist and at the University of Geneva (Division of cariology, endodontlogy and pediatric dentistry) teaching students and conducting research. In 2013 at the age of 29 years she started a PhD Project supervised by the University of Amsterdam (ACTA) and the University of Geneva, the subject of the research is focused on non-invasive diagnostic methods and non-invasive treatment options of initial carious lesions like infiltration and sealing.

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Saif alarab Mohmmed, Dentistry 2016, 6:9 (Suppl)
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The effect of different sodium hypochlorite agitation techniques on the rate of bacterial biofilm removal from the surface of a simulated root canal model

Saif alarab Mohmmed
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Aim: Root canal irrigation is an essential step to control microbial infection. This study aimed to investigate the real time Enterococcus faecalis biofilm removal of biofilm using passive or active irrigation solution. Also to compare the change in values of the available chlorine and pH of the outflow irrigant before and after irrigation protocol.

Methodology: Forty root canal models (n = 10 per group) were manufactured using 3D printing and resin materials. Each model consisted of two halves of an 18 mm length root canal with apical size 30 and taper .06. E. faecalis biofilms were grown on the apical 3 mm of the models for 10 days in Brain Heart Infusion broth. Biofilms were stained using crystal violet for visualisation. The model halves were reassembled, attached to an apparatus and tested under a fluorescence microscope. Syringe and needle irrigation protocol was performed using 9 mL of 2.5% NaOCl irrigant. Then the irrigant was either left stagnant in the canal or activated for 30 seconds using manual (gutta-percha), sonic and ultrasonic methods. Images were then captured every second using an external camera. The percentages of residual biofilm were measured using image analysis software. The data were analysed using Kruskal-Wallis test and generalised linear mixed model.

Results: The greatest biofilm removal was associated with ultrasonic agitation (90.13%) followed by sonic (88.72%), manual (80.59%), and passive irrigation group (control) (43.67%) respectively. All agitation groups reduced the available chlorine and pH of NaOCl more than that in the passive irrigation group.

Conclusions: Manual and automated (sonic, ultrasonic) agitation methods of NaOCl enhanced the efficacy of NaOCl irrigant to remove bacterial biofilm within the root canal system. Significant evidence that ultrasonic agitation technique left the least amount of residual biofilm in comparison to sonic and manual agitation methods of NaOCl.

Biography

Saif alarab Mohmmed is an assistant Professor in the Department of Conservative Dentistry at the College of Dentistry/University of Baghdad where he has been a faculty member since 1999.Saif completed his Master degree at College of Dentistry/University of Baghdad since 2002. His research interests lie in the area of root canal treatment. In recent years, he has focused on better techniques for root canal irrigation and antibacterial action of irritants. He has collaborated actively with researchers in several other disciplines of dentistry, particularly oral surgery and periodontal diseases. He currently lives in London, and studying a PhD programme at Eastman Dental Institute/UC.

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Notes:

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The next big thing in clear aligner therapy: Enhancement of the digital workflow

Sherif Kandil
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Introduction: Clear aligner therapy has been developing recently thanks to the advancements in CAD/CAM software. The standard method of clear aligners' manufacturing comprises undertaking tooth movements on dental digital models with specialized software, then 3D printing of physical prototypes and finally fabricating the aligners through vacuum (thermoforming) technique. This method has its limitations being lengthy, costly, requiring human intervention in addition to some material waste. We introduce a new methodology of fabricating aligners in a completely digital platform and in a fast, inexpensive manner with minimal human intervention and least material consumption.

Objectives: The objectives of the present study are: To exploit the advancing CAD/CAM technology in digital dentistry via producing 3D-printed clear aligners; to produce the largest number of clear aligners in short duration; to introduce a cost-effective method of fabrication of clear aligners with minimal material waste and to eliminate human intervention in clear aligners' manufacturing.

Materials & Methods: Digital models were prepared with data processing and subsequent teeth segmentation on orthodontic software (Ortho Analyzer by 3shape). Tooth movement was carried out and subdivided onto sub-setups. Each sub-setup was installed in another facility of the software (Splint Designer). A splint was designed for each digital sub-setup with thickness less than 1 mm similar to clear aligners. At the end of designing, the splint's margins were smoothened using finishing tools in the software. Each splint (aligner) was 3D printed with a variety of material, each with different transparency, strength, flexibility and biocompatibility properties (basically, in soft and rigid forms). The produced aligners were made in different colors to allow for inspection of finishing of their margins.

Results: Different aligners with different colors could be produced using this method. Each aligner had different strength, clarity & flexibility and biocompatibility properties. Rigid aligners had good strength but low elasticity; soft ones had better adaptation, resistance to fracture but less strength. Aligners' margins were finely smoothened without any intervention of lab personnel. The aligners were not clinically tested.

Conclusion: Using CAD/CAM technology, clear aligners could be produced in a completely digital fashion with computer-assisted designing and 3D printing. The 3D-printed aligners were produced in relatively short duration compared to the vacuum method; however, designing a splint for each movement sub-setup is still time consuming. The given methodology was very cost-effective compared to the standard thermoforming method (cost of models and sheets was eliminated) with much less material waste. Human intervention was eliminated as the designing and finishing were done digitally.

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Indirect adhesive CAD/CAM composite restorations on vital and devital teeth

Ivo Krejci
University of Geneva, Switzerland

Indirect adhesive CAD/CAM composite restorations are becoming a real alternative to PFM and full ceramic crowns on both vital and devital teeth. The presentation will focus on the latest clinical and *in vitro* research with this type of restorations and will present clinical concepts and procedures as well.

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New logic language paradigm in dentistry: Symmetry or non-symmetry; that is the question

Gianni Frisardi
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The actual paradigm in dentistry is based on subjective contexts and biomarker data. The first relates to individual perceptions both the patient as the Masticatory Efficiency that the dentists as Clinical Evaluation but remain cognitive objects sometimes influenced by various external inputs. The latter tend to give an objective answer extrapolating an interpretation by an instrumental on data such as EMG, MR etc. This data taken individually undergo two criticisms: The first is the deep knowledge of the physical phenomena underlying the diagnostic procedure. The EMG interference pattern, e.g., is an electrophysiological stochastic event and therefore few predictable. The other is the context in which the data is taken. Mastication is a complex system and it consists of a set of constituent elements which interact with each other to determine an emergent behavior of the system itself, therefore, impossible to describe it through a single datum. The new paradigm focalize the trigeminal CNS analyzing the motor evoked potentials, brainstem reflexes and a neural network determining a new paradigm of logic language. Some clinical cases will be presented to verify the difference of clinical approach

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Clinical evaluation of direct composite veneering system for anterior cosmetic treatments with case presentation

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A variety of treatments exist to treat the anterior teeth defects in order to provide patients with a beautiful smile. Among these methods, treatments by acrylic resins, composite veneering restorations, ceramic laminates and full ceramic or porcelain fused to metal crowns can be mentioned. Generally, the majority of dentists and patients prefer more conservative dental cosmetic treatments e.g., direct or indirect veneer restorations are usually preferred to full ceramic dental crowns. The purpose of this study is clinical evaluation of direct composite veneering system for anterior teeth which is considered as one of the conservative cosmetic treatments to provide an aesthetic smile. 50 composite facing cases which have been performed in the author's private clinic are presented in this study. These cases refer to different dental defects such as treatments of diastema between anterior teeth, dental crowding, dentogingival discrepancies and discolorations like tetracycline stain or dental fluorosis, rehabilitation of fractured teeth or dental caries. These 50 cases will be presented with before and after photos in this study.

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Management of complex cases in endodontics: Diagnosis, treatment, prognosis

Gianluca Plotino
Sapienza University of Rome, Italy

Endodontic specialists usually treat complex cases consisting of challenging difficult teeth along with challenging patient management, which need advanced materials and techniques. Given the skills, time, equipment and the technical and anatomical knowledge, endodontic specialists are expected to solve these cases doing all efforts possible to make teeth again available for their functional oral status, having a long term prognosis. Through the use of the three-dimensional diagnostic tools, microscope, ultrasonics, repair materials and all the technical advancements available today, the outcome of these "Hopeless" cases has drastically increased in last decade. This lecture aims to present an explicative case series representative of several complex clinical situations solved using the ideal approach and to describe techniques and clinical tips to treat such cases. Topics will include re-treatment; removal of crowns/bridges, fiber and metal posts, separated instruments, soft and carrier-based filling materials; MTA; management of open apices, resorption and perforations; locating, shaping, cleaning and filling of difficult or missed canal anatomy, such as calcified, ledged, blocked and severely curved canals; advanced irrigation techniques to better clean complex canal anatomy; endodontic surgery; trauma and fractures; minimal invasive endodontic treatment and restoration. Microscope-assisted dentistry and advanced diagnostic techniques, such as CBCT, will be analyzed and discussed for both orthograde and surgical cases. The importance of the use of magnification including loupes, special lights and microscope to solve these complex situations will be underlined and their proper use even by general practitioners who want to avoid iatrogenic errors and improve their practice will be described.

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Tobacco smoking and chewing: Oral cancer

Alper Yalmaz and **Monika Balkandzhieva**
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It is now accepted that there is an etiological relationship between the smoking of tobacco and oral carcinoma regardless of the type of tobacco and method of consumption. Pipe and cigar smoking have been linked with carcinoma of the lip for many years, and the evidence linking cigarette smoking with intraoral carcinoma is now firmly established. Studies have particularly incriminated heavy cigarette smoker and have shown that those smoking 40 to mote cigarettes per day have a significantly increased risk of oral cancer, ranging from about 10 to 20 times that of non-smokers in different series. The type of tobacco, curing methods, and methods of smoking may also influence the relative risk of oral cancer. For example, the high incidence of oral cancer in India is likely to be due, in part, to widespread smoking of bidis and the habit of reverse smoking, a habit that is particularly common in women. Reverse smoking is also practised in various other countries, for example Colombia, and is associated particularly with cancer of the palate, one of the rarest sites for oral cancer in other groups. It has been reported that the relative risk of oral cancer for reverse smokers is over 40 times that of non-smokers.

Smokeless tobacco: Snuff is a finely ground or powdered tobacco which may be inhaled dry or used moist in snuff-dripping by placing a pinch of snuff between the gum and the cheek or upper lip. Report from South-Eastern USA, where snuff-dripping is prevalent, and from Sweden indicate that the habit is associated with a significantly increased risk for carcinoma of the gingiva and buccal mucosa. Tobacco chewing was relatively common in the United Kingdom in the early part of 20th century, particularly in occupations such as mining where smoking was environmentally dangerous because of the possibility of explosion.

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Minimally invasive dentistry: A new challenge

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Aesthetics and longevity have always been the goals in a dental treatment. Technology, materials and scientific knowlege advances become extremely important to reach these goals. The new challenge is to achieve the same results based on this new treatment philosophy with a minimally invasive procedure. This oral presentation reports the veneers indications, limitations, advantages and disadvantages. The treatment protocol will be spoken in details: from the virtual smile design, mock-up and a wax-up planning to the impressions and cementations techniques. Finally, the ceramic ability to be bonded to dental substrate and clinical evaluations comparing the veneers preparations will be analyzed, highlighting the better outcomes obtained with ceramic laminates.

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Perceived connections between oral health and stress among pregnant women: A study in Saudi Arabia

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Background: Although stress during pregnancy has negative effects on children's development and pregnant women's health, no study has assessed stress and its predictors among pregnant Saudi women. Aim: The aim of this study was to assess the relationship between sociodemographic and self-reported oral health problems and perceived stress in a sample of pregnant Saudi women.

Materials & Methods: A cross-sectional study was carried out at King Abdulaziz Medical City in Riyadh, Saudi Arabia, on 438 pregnant women who attended the obstetrics/gynecology clinic. We collected data on their sociodemographic and oral health status. Stress was assessed using the perceived stress scale.

Results: 33.4% of the sample reported high stress. The study revealed significantly high stress in women with no or low income, chronic disease, sleep deprivation, no teeth brushing, irregular eating patterns, gestational diabetes, and no family support ($P < 0.05$). Self-reported oral health problems were significantly associated with high stress ($P < 0.05$). A multiple linear regression model shows no teeth brushing, chronic disease, sleep deprivation, gestational diabetes, and gingival redness predicted an increase in stress by (3.6, 2.4, 2.1, 1.4, and 1.4, respectively).

Conclusions: It was estimated that 3 in 10 pregnant women in our hospital reported high stress levels. Our study shed light on the relationship between healthy habits, oral health status, and perceived stress in pregnant women. This research may help healthcare practitioners who provide care to pregnant women to educate them in regard to healthy habits, and to develop a program to reduce stress.

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Periodontal muscle training can strength your teeth

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Previous research on periodontal structure and function has shown a significant relationship between periodontal tissue and teeth. This study assessed dentist's beliefs about the relative efficacy of the health of periodontal tissue. A total of 505 patients in general practice were asked to respond to a list of 25 obligatory nourishment for a child while going to have the first teeth, for its effectiveness in dealing with patient's periodontal health especially including chewing hard food; they were also asked to select the 3 most effective nutrition for periodontal tissue. The indices of patient perceived importance of the periodontal health were derived and each were compared with actual effectiveness as determined from a sample of 250 patients. Although the majority of patient rated 18 of 25 nutrition as being very effective, there was no significant association between patient perceived nourishment effectiveness and actual effectiveness. The implications for patient training are discussed.

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The effect of metal surface treatment before reporcelainization for ceramic repair after adhesive fracture of ceramo-metallic restoration.

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Aim:

1) Testing of bond strength: (Using a universal testing machine) to investigate the effect of metal surface treatment (sandblasting, grinding and grinding followed by sandblasting) before repocelainization of the bare metal on the bond strength.

2) Metallographic microscopic study :(using metallographical microscope) to give some light on the mechanism of metal ceramic bonding.

Material and Methods: Two non-precious dental casting alloys, a nickel-chromium and a cobalt-chromium alloys, and one type of dental ceramic, were commonly used were used. A total of 80 rod shaped metallic samples, 40 samples for each alloy, were used for bond strength measurements and for metallographic study.

Results: Bond strength evaluation test: Co-Cr alloy exhibited the highest mean bonding value followed by Ni-Cr. For Ni-Cr alloy the highest mean bond strength was obtained when the bare metal was treated with sandblasting. For Co-Cr alloy, the highest mean bond strength was obtained when the bare metal was treated with sandblasting and when it was treated with grinding with P120D silicon carbide emery paper.

CONCLUSIONS: 1) It is possible to repair the metal/porcelain restoration interface after adhesive fracture 2) Direct reporcelainization (without metal surface treatment) on the bare metal also gives adequate bond strength.3) Sandblasting increases the bond strength of metal/porcelain interface for both the investigated alloys, namely Ni-Cr and Co-Cr.4) The cobalt-chromium alloy shows better bond strength with sandblasting than the nickel-chromium alloy.5) Grinding procedure should not be used as a metal surface treatment before reporcelainization because it lowers the bond strength in case of base metal alloys.

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Bitewing dose reduction using TWAIN

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Background: TWAIN stands for "technology without an interesting name". TWAIN is the interface standard for Windows and Mac that allows imaging hardware devices to communicate with imaging processing software. Prior to TWAIN, image acquisition devices all came with their own proprietory software, now nearly all imaging processing software today is TWAIN compliant.

Objective: To determine if using TWAIN for bitewing imaging reduces the absorbed dose and the effective dose to the patient when compared with EMAGO.

Materials and Methods: Dose measurements were obtained using Optically Stimulated Luminescent (OSL) dosimeters placed in pre-manufactured slots at the location of 23 head and neck anatomical structures of an anthropomorphic female CIRS phantom. A Schick direct digital sensor was placed within the phantom in a bilateral removable cutout corresponding to typical sensor placement for bitewing radiographs. Exposures were acquired using a Gendex 765 (65 kVp, 7 mA) and a Gendex 770 (70 kVp, 7 mA) x-ray machines. The TWAIN exposures were 0.63s for the 765 machine and 4 impulses for the 770 machine and the EMAGO exposures were 0.125s for the 765 machine and 8 impulses for the 770 machine. All exposures were repeated 10 times. The results were divided by their respective repetition numbers to calculate average dose. The organ fractions irradiated were determined from ICRP-89 reference phantoms according to age. ICRP-103 tissue weighting factors were also applied.

Results: Overall the TWAIN software reduced the absorbed dose at 65 kVp by 64% and at 70 kVp by 61%. When calculating the effective dose the reduction at 65 kVp was 64% and 45% at 70 kVp.

Conclusion: Our data showed that use of the TWAIN software yielded the lowest absorbed dose and effective dose to organs of the head and neck at all exposure times for bitewing radiographs.

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A critical appraisal of SFOA as compared to traditional surgical orthodontics: A short term experience demonstrated through clinical cases

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Orthognathic surgery is gaining more positive response in India over the recent years owing to the increase in awareness to facial esthetics as the priority in undergoing treatment for skeletal malocclusions. Worsening of facial appearance during the period of pre surgical orthodontics has been the reason for shift towards a surgery first approach in the management of dento-facial deformities. A universal method for the use of surgery first process is difficult to adapt as the majority of patients worldwide treated by "Surgery First" approach belong to skeletal Class III malocclusion. On the contrary, the Indian population showed diversity in ethnic facial pattern and presented more skeletal Class I and Class II malocclusions. The objective of this paper is to highlight differences in treatment planning and execution of surgical first approach in severe skeletal Class I, Class II and Class III malocclusions and compare them to the conventional orthodontics first approach through ideal clinical scenarios and also critically evaluate the early results achieved.

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Call for participation: Clear aligners for outpatients with severe malalignment

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Objectives: To widespread the use of clear aligners to include cases with severe malalignment, to develop new engagers system that is applicable by patients and does not necessitate several visits to dental clinic, to help outpatients to achieve optimal benefit from clear aligner therapy with minimal office recalls and to implement new material in the clear aligners field.

Methods: This is a call for participation targeting researchers in dental materials and orthodontics. The author serves as a technical coordinator at a clear aligners' company serving worldwide. In many cases, dentists ask to avoid building composite engagers on teeth as the patients are travelling outpatients and using such engagers is not applicable for them. However, these patients are dismissed as optimal results are not guaranteed without using engagers. Composite engagers have the function of better anchorage and more force precision commonly used in severe malalignment/malocclusion cases.

Results: New material needs to be developed to replace composite engagers that are routinely built up by dentists at dental clinics. The author wishes to find material being applied by the patient him/herself rather than requiring several office recalls.

Conclusions: This discovery should consider biocompatibility, easy attach/detach and high sustainability to masticatory forces and intraoral conditions.

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Extraction of maxillary teeth by dental students without palatal infiltration of local anesthesia: A randomized controlled trial

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Aim: Palatal infiltration of local anesthesia (LA) for maxillary tooth extractions is painful. One of the techniques for reducing the discomfort of this injection is to avoid it altogether. Given enough time, LA given only as buccal infiltration diffuses to reach and anaesthetize the palatal tissues. The aim of this double blind randomized controlled trial was to test the hypothesis that LA infiltrated by dental students only into the buccal tissues should be adequate for maxillary tooth extraction.

Patients & Methods: 50 adult patients presenting for single tooth maxillary extractions were randomly allocated between two groups. The control group received palatal injections of 0.1 ml 2% lidocaine with 1:100,000 epinephrine, while the experimental group received a similar amount of saline (placebo). Extractions performed without further administration of LA were categorized as successful.

Results: Palatal infiltration of lidocaine with epinephrine was significantly more effective than saline (p=0.002). Overall buccal infiltration alone was successful in 28% patients with a 40% success rate in the posterior maxilla.

Conclusion: Results suggest that dental students should, as a matter of routine, extract maxillary teeth with both buccal and palatal infiltration of LA, while buccal infiltration by itself may be considered in selected cases for the posterior maxilla.

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Dental erosion prevalence and associated factors among a group of 18-19 years Yemeni adolescents

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Background: The prevalence of dental erosion is rising especially among adolescents and its associated factors vary across populations.

Objectives: To investigate prevalence and factors associated with severe dental erosion amongst a group of 18-19 years old Yemeni adolescents.

Methods: A random sample with a total of 351 was drawn from adolescents aged 18-19 years attending University of Science and Technology Dental Clinics in Sanaa for regular dental examination between September 2012 and June 2013. Dental erosion was graded using a partial recording index on anterior and posterior teeth by Johansson *et al.* 1996 and Hasselkvist *et al.* 2010. Participants were also examined for dental caries and fluorosis. Examinations were carried out in a standard clinical dental setting by one investigator. All participants were interviewed and answered a questionnaire about lifestyle, oral health and general health factors. Descriptive and logistic regression analyses were performed.

Results: Overall participation rate was 74%. Out of all participants (n=260), 14.6% had at least one erosive lesion extending into dentine. Very severe lesions were found only on the palatal surfaces of maxillary anterior teeth. The prevalence of advanced erosive lesions was significantly higher among girls (P=0.044). Factors associated with advanced erosive lesions were absence of fluorosis (OR=3.9), higher intake of cola-type soft drinks (OR=7.4) and pure fruit juices (OR=3.2), higher total amount of consumed acidic beverages (OR=11.4) and not being breastfed (OR=8.2). Dental erosion was not associated with dental caries.

Conclusion: Dental erosion was common among 18-19 years Yemeni adolescents and higher among girls. Advanced erosive lesions were associated with higher consumption of acidic beverages while presence of mild fluorosis and being breastfed were associated with lesser severity of dental erosion.

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Effect of fluoride application on microhardness of enamel demineralization: An *in vitro* study

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Caries and erosion are examples of demineralized enamel. Fluoride often used to reduce demineralization effect. The purpose of this study was to obtain information about effects of fluoride on enamel microhardness demineralization. The method used was an *in vitro* study on specimens of premolars and canines which was caries free and fractures free. The teeth were cut at CEJ and planted on resin. 24 sample were divided into two groups: A control and test group. Samples were immersed in acidic solution with pH 5.0 for 6 hours to demineralization. Then were stored in artificial saliva with pH 7.0 for 17 hours to remineralization. In test group, fluoride applied for 4 minutes, then stored in artificial saliva for 30 minutes. Remineralization and fluoride applications made for 7 days. Demineralization and remineralization assessed by enamel microhardness. The research showed enamel microhardness after remineralization recover for 80% in objects group and 48.7% in control group. Conclusions of this study was that microhardness of demineralize enamel improved better after fluoride aplication.

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Reliability of Overbite Depth Indicator (ODI) and Antero-Posterior Dysplasia Indicator (APDI) in the Assessment of Different Vertical and Sagittal Dental Patterns: A Receiver Operating Characteristic (ROC) Analysis

Farheen Fatima
Pakistan

I**NTRODUCTION**: In orthodontic diagnosis, use of a single parameter may not be appropriate to diagnose a jaw discrepancy. Therefore, use of composite cephalometric measurements as the sum of inter-planar angles may provide more reliable information of skeletal feature. Hence, the aim of present study was to investigate the diagnostic validity of overbite depth indicator (ODI) and antero-posterior dysplasia indicator (APDI) in assessing the vertical and sagittal malocclusions.

MATERIAL AND METHODS: Orthodontic records (lateral cephalograms & dental casts) of 90 subjects aged 10-30 years were collected from the dental clinics of AKUH. The sample was divided into three groups for ODI and APDI each on the basis of overbite and molar classification, respectively. The sum of components of ODI and APDI were calculated for each group. Data were analyzed using SPSS Windows version 19 software. Mann-Whitney U Test was applied to compare the variables between the gender and age groups. Kruskal-Wallis test was performed to compare the sum of ODI and APDI in the study groups, respectively. Receiver operating characteristic analysis (ROC) was applied to confirm the diagnostic validity. A p-value of ≤ 0.05 was considered as statistically significant.

RESULTS: In the vertical component analysis, the ODI significantly differentiated between the normal over-bite, deep-bite, and open-bite groups, whereas, the APDI significantly differentiated between the three molar groups in the sagittal analysis. The ROC analysis showed that the APDI matched the molar relationship in 88% of subjects, and the ODI matched the amount of incisor overbite in 91% cases.

CONCLUSIONS: A high value of ODI results in a skeletal deep-bite and low value of ODI results in a skeletal open-bite. On the other hand, a high value of APDI results in a skeletal Class III pattern and low value of APDI results in a skeletal Class II pattern.

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Four Techniques you need to know before placing Implants in thin Ridges

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Everyday Dentists are challenged by patients who are eager to have their missing teeth replaced but as soon as they realize that their edentulous area is 4 mm or less in thickness they start thinking about different modalities other than dental implants.

This Lecture will help the dentist understand the other techniques out there that will allow the dentist to place implants in thin ridges on the same day of treatment without having to do extensive bone augmentation surgeries or wait for months before placing Implants.

The Objective of this lecture:

1 Take home methods that they can apply in their practice the next day.

2 Understanding the different techniques and tools out there that will impact their patients and their practice.

3 Understanding the techniques by following a step by step protocol that's fully supported by published literature and articles.

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