

ABSTRACT BOOK

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The Success of Immediate Loading

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Abstract

Indeed, we have had a great achievement for implant treatments of fully or partially edentate patients using Prof. Branemark's protocol since 1974. We are living in a world where everything is going so fast. Therefore, as a dentist, we also change our treatment protocols in almost every field according to these new trends. Such as today, we are encouraged to replace the restorations immediately after implant surgery by implant manufacturers and patients. However, this type of treatment needs a certain type of experience and knowledge. I will discuss finding the answer to the following two topics: is immediate loading an applicable treatment for our patients? and is passive impression play a key role in immediate loading? I will also present the results of 72 patients' complications we faced and the success we achieved on average 38 months later.

What Conducts Are Indicated to Prevent and Treat Osteonecrosis in the Mandible and Maxilla Related to the Use of Antiresorptive and Antiangiogenic Therapy?

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Abstract

The growing success of anti-resorptive (bone resorption inhibitors) and anti-angiogenic drugs in the treatment of cancer has significantly increased the risks of medication-related jaw osteonecrosis (MRONJ). Osteoporosis is also at risk for the use of medication, especially when surgical dental procedures such as tooth extraction or dental implants are performed. Dentists' prior knowledge of the adverse effects of bisphosphonate therapy (BFs) in patients in need of dental rehabilitation is extremely important in the management of these patients, since BFs can impair the longevity of the dental implant, as well as induce osteonecrosis of the jaws. The histopathological characteristics of osteoradionecrosis, osteomyelitis and osteonecrosis of the jaws related to drugs showed several histological similarities which were found among the diseases, mainly with regard to the presence of bone necrosis, inflammation and microorganisms. Many treatments for MRONJ are sought and have been reported, such as antibiotics, surgical procedures and photodynamic therapy, although no definitive protocol is accepted by all institutions. The PENTO protocol (pentoxifylline and tocopherol) has been reported in many studies for osteoradionecrosis, showing a significant improvement in bone recovery capacity. The objective is to report the experience of the creation of an outpatient clinic for the treatment and prevention of osteonecrosis of the jaws at a public reference Erasto Gaertner Cancer Center in the south of Brazil. We report 11 cases of patients undergoing cancer treatment who had MRONJ and were treated with the PENTO protocol. Of these patients, 73% (n = 8) improved their clinical condition and 45% (n = 5) achieved complete remission. The average time of medication use was 4.72 months. It has been shown that the PENTO protocol is more accessible and tolerable than other options for the treatment of osteonecrosis, with high rates of clinical response. Final considerations: The PENTO protocol is a good option as a conservative treatment for MRONJ.

Socket Preservation- How Far Can We Go? New Trends in Soft and Hard Tissue Management

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Abstract

The success rates of replacing missing teeth with dental implants have become more predictable with advancements in dental implant surface morphology, as well as the development of techniques to regenerate previously lost bone height and width. The resorption of the bony socket walls that follows tooth extraction is unavoidable. The magnitude of this resorption depends mainly on the morphology and state of health of the tooth to be extracted and that of its neighboring soft and hard tissues, as well as the surgical methods used to extract the tooth. A variety of materials and techniques have been reported to be successful in maintaining the dimensions of the alveolar ridge following ridge preservation.

This presentation will address the anatomical and histological changes in the alveolar ridge and provide a comprehensive review of the various surgical techniques and technologies required when dealing with hard and soft tissue modifications. It will cover clinical cases from the daily practice and will show how a hydrophilic surface can deliver optimal results, enhance predictability, shorten treatment times and support tissue management preservation.

Diabetes Mellitus and Periodontal Disease: A Risky Relationship

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Abstract

First recorded in 1928, people living with diabetes mellitus (DM) are at a 3-4 times higher risk of developing periodontal disease (PD) than non-diabetics; for those who smoke this risk is up to 10 times. However, many doctors are not aware of this.

DM and PD are bidirectionally linked, the one affecting the other and vice versa, although the mechanism is not fully understood and may be linked to chronic infection. PD has an adverse effect on glycaemic control. That improves when periodontitis is successfully treated.

Doctors should consider PD when their patients have persistently high glycated haemoglobin (HbA1c) levels, and dentists should consider diabetes or pre-diabetes when they have patients with unstable or progressive periodontitis.

Doctors and dentists and their teams need to share results. A system of red, amber and green for both medical and dental risks is proposed that diabetics themselves can share with their professional advisors.

Dentists need to find ways to teach their medical colleagues about the basics of PD, update their medical records, and understand more about medical risks. More research is required.

Proposal of a Protocol for Thermographic Assessment of the Orbicularis Oris Muscle

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Abstract:

The orbicularis oris muscle is extremely important to performing various oral functions, including mastication, swallowing, and speech. Infrared thermography is a non-invasive painless technique that does not require either contrast or ionization. It has been increasingly used in speech-language-hearing therapy in the last years. Objective: To propose a thermographic analysis method for the orbicularis oris muscle. Methods: This is an observational, analytical, cross-sectional study. The area of the orbicularis oris muscle was defined based on its anatomy with thermographic images of 11 children and 13 adults. Then, this area was divided into four quadrants, each of which was analyzed considering four different shapes: a triangle; a rectangle; a triangle with a rounded side, including the vermilion zone; and a customized shape encompassing only the region of the orbicularis oris muscle, not including the vermilion zone. Data were collected and analyzed with the coefficient of variation and interrater agreement. Results: Data variability for the four shapes had similar dispersions per region of the orbicularis oris muscle, in both maximum and mean temperatures and in both children and adults. The rectangle was the shape with the lowest coefficient of variation in more regions of both adults and children. Interrater agreement was excellent for all shapes, in both children and adults. Conclusion: Currently, the best way to analyze the orbicularis oris muscle's quadrants is to use the maximum temperature and the rectangle, based on an initial ellipsis encompassing the whole muscle.

Keywords: Thermography; Anatomy; Facial Muscles; Face; Speech, Language and Hearing Sciences.

Dental Implants and Dentures

Necessity of Antibiotic Usage After Simple Tooth Extraction in Patients with Healthy Systemic Conditions in Herat, Afghanistan

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Abstract:

Over-intake of antibiotics is a practical hazard in aid supported settings such as Afghanistan where not only one can get access to them easily but also they are generously being prescribed without consideration for necessity or side effects. Prescribing antibiotics after simple tooth extraction has remained a questionable topic in dental academia, specially in the third world. Among dental procedures extractions is the most common procedure for prescription of antibiotics. This study is aimed to determine the necessity of using antibiotics after simple tooth extraction in people with a normal systemic condition and establish its role in reducing pain and discomfort, swelling, and dry socket.

Materials and methods:

This double-blinded RCT study was performed in two dental surgeries; Erfan Specialized Dental Clinic and Mena Oral and Dental Care Centre. In all 237 patients, selected in a systematic randomized manner, tooth extraction was performed following the same protocols and materials before and after tooth extraction. Two types of prescriptions (one with antibiotics and one without antibiotics) were prepared in a box. After tooth extraction, participants were asked to pick one prescription by chance. All data was collected and analyzed with the SPSS-25 program.

Results:

Among all participants 76.37% were female and 23.63% were male. In regard to reasons that led to tooth extraction, 43.04% of teeth were extracted due to profound caries making it the most common reason followed by periodontitis 14.77% and finally root remnants 10.55%. Pain and discomfort peaked in the first 10 hours after extraction and gradually decreased up to 48 hours after extraction. Swelling was observed 2.53% more in antibiotic users than 0.42% in those that didn't take them and the p-value was significant <0.05. There is no obvious difference between antibiotic usage and dry socket formation, and the p-value was not significant (>0.05). Conclusion: Antibiotics are not necessary after simple tooth extractions in patients with a normal systemic condition even in countries like

Afghanistan where patients over use antibiotics , nor do they have any role in reducing pain, swelling, and dry socket after simple extractions.

Keywords:Antibiotics, simple tooth extraction, postoperative complications.

Effect of Menopause on Bone Quality and Quantity at Dental Implant Sites with Adjusting the Effect of Age: A Retrospective CBCT Study

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Abstract

The effect of menopause on radiomorphometric indices of the mandible has not been well investigated. This study aimed to assess the effect of menopause on bone quality and quantity at dental implant sites using cone-beam computed tomography (CBCT). This retrospective case-control study evaluated 84 CBCT scans of women between 26 to 60 years. The menopause status of the participants was assessed. Then patients were assigned to two groups of menopause and non-menopause women. The Hounsfield unit (HU), mental index (MI), panoramic mandibular index (PMI), and mandibular cortical index (MCI) were measured. The correlation between these indices and menopause status was analyzed by R software ($\alpha=0.05$). A total of 42 menopause and 42 non-menopause women were assessed. The mean age of menopause women was significantly higher than the other group ($P<0.05$). The mean HU (565.93 ± 105.66 vs. 416.26 ± 64 ; $P<0.001$), MI (4.64 ± 0.36 vs. 3.98 ± 0.18 , $P<0.001$), PMI (0.38 ± 0.04 vs. 0.32 ± 0.02 , $P<0.001$) and MCI ($P=0.009$) were significantly higher in non-menopause group. HU, MI and PMI had a strong significant inverse correlation with menopause ($P<0.05$). Menopause significantly affects the bone density and morphology of the mandible. Thus, clinicians should offer treatment plans according to the available bone quality and quantity in menopause women.

Keywords: Menopause; Dental Implants; Cone-Beam Computed Tomography; Mandible

Oral & Maxillofacial Surgery

Unusual Mandibular Odontoma and its Resolution. Case Report

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Abstract

Aim: Odontoma is a benign hamartomatous lesion formed by dental tissue (cementum, enamel, pulp). According to its degree of differentiation, it can be classified in its two variants: compound and complex in a 2:1 ratio. The objective of this article is to present a large mixed odontoma of mandibular location and its surgical resolution.

Clinical case: A 16-year-old male patient with orthodontics, who presents a large mixed odontoma with mandibular location and its surgical resolution using 3D planning and customized titanium plate fabrication.

The Importance of an Interdisciplinary Evaluation of Temporomandibular Disorders in Patients who Underwent Orotracheal Intubation – Preliminary Findings and Future Directions

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Abstract

Orotracheal intubation (OI) is considered a risk factor for the development or exacerbation of temporomandibular disorders (TMD). Although studies show that intubation can influence the onset and worsening of TMD, the literature is still limited. Proper temporomandibular joint (TMJ) assessment is required before and after OI to avoid or minimize TMJ complications. However, according to a pilot survey, only half of anesthesia providers in Florida who frequently performed OI evaluated TMJ prior to non-emergency intubation and the majority reported not evaluating TMJ post-intubation. The unawareness of the anesthesia providers with TMJ problems after OI may contribute to a delayed TMD diagnosis and treatment. A novel interdisciplinary study protocol was developed to evaluate TMD signs and symptoms in patients who underwent OI. In this longitudinal study, patients receiving OI, and patients receiving an alternative anesthesia without OI will be included. The patients will be evaluated during pre-intubation, 1 day, 2 weeks, and 2 months post-intubation using a developed comprehensive evaluation tool. This study will provide relevant information regarding TMD risks for patients undergoing OI and the potential need for further TMJ evaluation by anesthesia providers to reduce TMJ issues associated with OI. Since physical therapy is one of the most effective conservative treatments for TMD, this interdisciplinary study will help creating awareness about TMJ assessment with OI and increase collaborations between these disciplines in the recognition and prevention of TMD associated with OI. More research involving physical therapy, dentists, and anesthesia providers to evaluate and prevent TMJ issues with OI is needed.

Pediatric Dentistry and Gerodontology

DMH and MIH- Why and How Much Hypomineralization?

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Abstract

Introduction: DMH (deciduous molar hypomineralization) and Molar Incisor Hypomineralization (MIH), are defects of hypomineralized enamel, affects one or more deciduous and permanent first molars with or without permanent incisors involvement. Clinically, it present asymmetric severity with demarcated opacities that vary in color shade from white to yellow/brownish, with sharp demarcation between the affected and sound enamel. The main characteristic of teeth with DNH and MIH is porous enamel that can be easily damaged due to masticatory forces. Children with DMH and MIH could present more intense dental sensitivity due to temperature variations. Several studies were conducted at our clinic regarding the prevalence of MIH in Israel, mineralization and proteomics of the enamel and the relation between dmh and MIH cases and enamel catalytic enzymes activity.

The presentation will show the latest results of our studies regarding the etiology of MIH and the methods of treatment of MIH teeth.

The Influence of Tongue Mobility on Children's Performance in Computer Games That Depend on Lingual Movements

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Abstract

Background: Alteration in tongue mobility requires rehabilitation work through oral motor exercises. These exercises can be integrated with computer games to increase the patient's motivation during treatment.

Objective: To investigate the influence of tongue mobility on children's motor performance in a computer game reliant on lingual movements.

Methods: A cross-sectional descriptive observational study was carried out with 16 children with altered tongue mobility and 16 children with normal tongue mobility. The subjects were between 8 and 12 years of age. They underwent a clinical evaluation of the tongue and performed an activity using an intra-oral joystick controlled by the tongue to play a simple computer game. The game consisted of targets appearing on the screen that the participants had to reach by moving the joystick control rod. Afterward, the participants answered a feedback questionnaire. Motor performance in the game, measured by the number of reached targets and by the time to reach the targets, was compared between groups and across directions of tongue movement and order of appearance of the targets.

Results: The group with altered tongue mobility presented a higher time to reach the target in the downward direction and in the first and last 12 targets and a lower number of targets reached in the left direction, upward direction, and in the first 12 targets than the control group. The direction of the movement influenced tongue performance in both groups.

Conclusion: Children with altered tongue mobility exhibited a worse performance than those with normal tongue mobility.

Screening the Oral Health of Schoolchildren and Effects of Preventive Measures on Oral Diseases

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Abstract

Background. Oral health is part of general health. Caries is the most widespread disease in the world. The occurrence of caries can be prevented. In the case of non-treatment, many complications can occur in the mouth or other organs. Children are a particularly vulnerable group, and it is important to activate preventive measures or actions as soon as possible. One of the factors that is probably the biggest problem in treating caries is non-cooperation of the children. This often results in premature tooth loss due to caries. A good source of information on the distribution of caries is screening of the whole population. Preventive measures in the form of lectures and workshops help schoolchildren to understand and adopt good oral habits to prevent the development of oral diseases.

The aim is to determine the oral health of schoolchildren and the impact of preventive measures on the oral health of schoolchildren.

Methods. We collected data from systematic examinations for the duration of the entire primary school education (nine grades) through four years. We recorded the number of decayed, filled and extracted (due to caries) deciduous and permanent teeth. Data were calculated using the deft index (number of decayed, extracted and filled deciduous teeth) and DEFT index (number of decayed, extracted and filled permanent teeth). We also followed the impact of preventive measures on oral health.

Results. The number of decayed deciduous teeth per person in 6-year-olds ranged from 3.2 to 4, the number of filled teeth ranged from 0.5 to 0.6, and the deft index ranged from 4 to 4.6. The number of decayed permanent teeth per person in 12-year-olds ranged from 0.3 to 1.2, the number of filled teeth ranged from 0.8 to 1.1, and the DEFT index ranged from 1.2 to 2.2. The number of decayed permanent teeth per person in 15-year-olds ranged from 0.5 to 1.5, the number of filled teeth ranged from 1.8 to 2.2, and the DEFT index ranged from 2.4 to 3.8.

Conclusions. Oral health screening is important. Preventive measures have shown good results in educating schoolchildren about oral health maintenance.

Cyst Management in Pediatric Dentistry: Paradigm Shift?!

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Abstract

Swelling in the oral region is a concern most dentists' frown upon. The reasons for the swelling such cysts invite a lot of meticulous work in terms of diagnosis, treatment and prognosis with important considerations on residual

morbidity. A benign dental cyst may be a product of unopposed dental infection or perverted development. But the complications of treating such a cyst may be manifold including post-surgical complications. Traditionally, removal of cysts has been the only option to prevent further complications. The surgical procedure and its associated costs are of significant concern to the patient and the caregiver. Thus, this presentation aims to discuss treatments of such cystic lesions which focus on conservative approach and minimal morbidity with no effect on growth and development in pediatric dental patients through a couple of cases of dental cysts.

What will the audience learn from the presentation?

- Need for a conservative cyst management approach.
- Protocol of this newer cyst management approach.
- Advantages and special considerations.

Oral Microbiology

Evaluation of the Antimicrobial Efficacy of Different Intracanal Medications on *Enterococcus Faecalis* Biofilm: A Comparative *In Vitro* Study

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Abstract

The total elimination of microorganisms during endodontic therapy, although it is desired, is difficult to achieve. Even after canal filling, microorganisms can be in the dentin mass and periapical region. This study aims to evaluate in vitro the antibacterial efficacy of different intracanal medications on an *Enterococcus faecalis* biofilm. It was used reference microorganisms, *Enterococcus faecalis* NEWP 0012, where the bacterial suspension was seeded uniformly on Mueller Hinton (MH) agar. The plates were incubated under aerobic conditions, at a constant temperature in the range of 35°C-37°C, for 24 hours. The intracanal medications tested were: G1 Calcium hydroxide associated with 2% Chlorhexidine, G2 Calcium hydroxide associated with ozone stratum, G3 Calcium hydroxide associated with paramonochlorophenol, G4 Calcium hydroxide associated with Otosporin, G5 Calcium hydroxide, G6 2% Chlorhexidine, G7 Ozone extract, G8 Paramonochlorophenol, G9 Otosporin, G10 Saline solution, G11 Calcium hydroxide associated with iodoform, G12 Iodoform, G13 Calcium hydroxide associated with NDP, G14 NDP. After handling the materials, they were impregnated on 5 mm diameter absorbent paper discs and distributed equidistantly on the plates seeded with the microorganism. The experimental data were obtained by measuring the zone of inhibition within 24h, 72h, and 7 days. In this way, the microorganism was classified as resistant or sensitive to the different products. The test was reproduced 3 times. After analysis, it was observed that within 24 hours, 72 hours and 7 days, only the groups G1 Calcium hydroxide associated with 2% chlorhexidine (18 mm of halo of inhibition), G5 Calcium hydroxide (13 mm of halo of inhibition), G6 2% chlorhexidine (16 mm of halo of inhibition) and G9 Otosporin (9 mm of halo of inhibition) showed a halo of inhibition in the time intervals. However, the groups did not show a halo of inhibition, being ineffective against *E. faecalis*. According to the obtained data, chlorhexidine gel 2% showed larger halos of inhibition, however, calcium hydroxide was associated with chlorhexidine gel 2%, calcium hydroxide and Otosporin. Therefore, new research with different methods should be used to verify the efficacy of the medications used, since they presented divergence compared to other researches already carried out.

Keywords: Functional independence measurement • Acute care • Sphincter • Social cognition • Multidisciplinary

Dental Pulp Tissue Response to Oral Microbiota in Moderate Caries

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Abstract

Background: According to the WHO, dental caries was the most prevalent non-communicable disease worldwide. The Mexican adult population aged 20 to 85 years has a prevalence of caries of 93.3%. One of the main etiological factors of caries is dysbiosis of the oral microbiome, with an increase in bacteria such as *Streptococcus mutans*.

Dental pulp tissue exposed to cavities triggers a response to counter this bacterial invasion. However, the relationship between dysbiosis and innate immune response remains unclear.

Aim: To determine the expression of Toll-like receptors (TLRs) and inflammatory cytokines of dental pulp tissue (DPT), and to analyze the association of these markers with the microbiome of dental plaque (DP) in moderate caries.

Methods: DPT-RNA was used to quantify the expression of TLR2, TLR4, TNF α , IL1 β , IL6, CXCL8, IL10 and TGF β by RT-qPCR assays. Purified DNA from caries free-supragingival DP and carious dentin was used for 16S rRNA sequencing assays. Alpha diversity indices Chao, Simpson and Shannon, as well as principal Coordinate Analysis, analysis of variance and Linear discriminant analysis Effect Size were used to evaluate the differences between the microbiome in caries-free and caries group. The Spearman test was used to analyze the correlation between the oral microbiota and the inflammatory markers of TPD.

Results: The genera *Lactobacillus*, *Actinomyces*, *Prevotella*, and *Mitsuokella* exhibited a significant increase in moderate caries, while *Haemophilus* and *Porphyromonas* decreased. *Olsenella* and *Parascardovia* were only detected in cavities. DPT exposed to moderate caries exhibited significant overexpression of the proinflammatory cytokines IL1 β , IL6 and CXCL8. IL1 β expression correlated positively with TLR2 and *Actinomyces* but negatively with *Porphyromonas*.

Conclusion: These findings suggest that the innate immune response of DPT chronically exposed to the microbiota in moderate caries, is characterized by a negative *Actinomyces/Porphyromonas* association, and the expression of IL1 β , IL6, CXCL8; possibly triggered by the TLR2 expression.

Keywords: human oral microbiome, caries, proinflammatory cytokines.

Advanced Dental Research

Assessment of Novel Surgical Procedures Using BMP-7 infused into Decellularised Muscle and Bioactive Ceramic: A Histological Analysis

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Abstract

Background: The revascularization of grafted tissues is a complicated and non-straightforward process, which makes it challenging to perform reconstructive surgery for critical-sized bone defects. This challenge is combined with low vascularity that results from radiotherapy and is possibly associated with ischemia-reperfusion injuries, also known as ischemia, upon grafting. The hypothesis of the present study is that the use of Decellularised Muscle Scaffold (DMS) and Bone Morphogenetic Protein-7 (BMP-7), in addition of resorbable bioactive ceramic Silica Calcium Phosphate Cement (SCPC) seeded with human bone marrow stromal cells (hMSCs), can expedite bone formation and maturation. **Material& Methods:** Surgical defect models were created in 20 nude transgenic mice. In experimental Group 1 (n = 10), a critical-size (4 mm) calvarial defect was made and grafted with DMS-BMP-7/SCPC. In situ human bone marrow stromal cells (hMSCs) were seeded thereafter. As a control, Group 2 (n = 10) was treated with DMS/SCPC seeded with hMSCs. After 8 weeks, bone regeneration in various groups was evaluated using histology, immunohistochemistry and histomorphometry. **Results:** histological examination showed bone regeneration crossing the gap (Group 1) and some bone regeneration occurring at the defect periphery as well as scattered islands of bone at the centers of the defects (Group 2). New bone formation and maturation was superior in groups treated with DMS/BMP-7/SCPC/hMSCs constructs. The calculated percentage of the bone regeneration area showed greater bone regeneration in experimental Group 1 than in control Group 2, the average bone surface area was 255 ± 25 mm² and 170 ± 35 mm². This reported difference was statistically significant at p value < 0.05. **Conclusion:** The DMS-BMP-7/SCPC scaffold has the ability to augment and induce bone regeneration and neovascularization in cases of major bone resorption and critical-sized defect.

Keywords: Regeneration, Critical-sized Defect, Neovascularization, BMP-7, Decellurised Muscle.

The Effects of COVID-19 on the Compliance of Dental Operators with Infection Control in Saudi Arabia: A review

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Abstract

Background: The COVID-19 pandemic shocked the world by its fast and massive spread, morbidity and mortality. This pandemic has had a significant impact on infection control practices among dental operators as well as other specialties; dental operators are at the highest level of being more prone to infections, due to their direct exposure to the patients. Furthermore, routine dental treatment includes the use of some instruments that stimulate the infection chain, such as air-turbine handpieces and ultra-sonic scalers.

Aim: This paper aims to review the compliance and knowledge of dental operators in Saudi Arabia with infection control measures before, during, and after the COVID-19 pandemic. And provide recommendations to reduce future pandemic risks.

Method: A comprehensive review of scientific literature published between December 2019 and December 2021 was conducted, focusing on reports related to COVID-19 in dental clinic settings and infection control in dentistry in Saudi Arabia.

Result: The compliance with infection control measures varied among dental operators. In general, younger dentists demonstrate lower compliance compared to more experienced dentists. For example, 52.2% of faculty members washed their hands before wearing gloves, in contrast, only 31.3% of the students in the study practiced hand hygiene, it was found that 74% of dentists preferred an N-95 mask over a standard face mask in dental practice during Covid-19 pandemic.

Conclusion: Note that observed changes in compliance and knowledge during the COVID-19 pandemic may also be influenced by new rules and educational programs about infection control measures. It is essential to maintain a strong focus on infection control in dental practices to ensure the safety of patients, healthcare workers, and the wider community. Future research and awareness campaigns are needed to strengthen infection control compliance in Saudi Arabia.

Comparison Accuracy of Implant Placement Between Surgical Guide and Free Hand Technique

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Abstract

Purpose: This study investigates the accuracy of free-hand implant surgery performed by an experienced operator compared to static-guided implant surgery performed by an inexperienced operator on an anterior maxillary dental model arch.

Methods: A maxillary dental model with missing teeth (No. 11, 22, and 23) was used for this *in vitro* study. An intraoral scan was performed on the model, with the resulting digital impression exported as a stereolithography file. Next, a cone-beam computed tomography (CBCT) scan was performed, with the resulting image exported as a Digital Imaging and Communications in Medicine file. Both files were imported into the RealGUIDE 5.0 dental implant planning software. Active Bio implants were selected to place into the model. A single stereolithographic 3-dimensional surgical guide was printed for all cases. Ten clinicians, divided into two groups, placed a total of 60 implants in 20 acrylic resin maxillary models. Dentists with over one hundred implant surgeries made up the experienced group, whereas dentists with more than two years of dental practice made up the novice group. Based on a prior sample size calculation, five dentists were enlisted in each group. Due to the small sample size, the Mann-Whitney test was used to analyze mean values in the two groups. Statistical analyses were performed using SAS version 9.4.

Results: The implants placed using the surgical guide approach had less variation in most measures than the implants placed by free hand. The mean difference between measurements for the implant planned position and implant placed by experienced dentists using freehand was 1.28mm (± 1.09) greater than the mean difference of measurements for inexperienced dentists placing implants with a surgical guide was 0.64 mm (± 0.66), and (p-value

= 0.001).

For all implants in both the experienced and inexperienced operator groups, compare the difference between planned and placed implants using the surgical template; no significant differences were found, generally; the mean for measurements for the experienced group was 0.90 mm (± 0.97), and for the inexperienced group was 0.91mm (± 0.84) and (p-value = 0.2180).

Conclusions: In the first place, the outcomes of this experimental in vitro investigation show the value of using surgical guides in the front maxilla.

Oral and Dental Health of Oral Cancer Patients

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Abstract

Oral squamous cell carcinoma (OSCC) is the most common malignant neoplasm worldwide. OSCC is treated primarily by surgery followed by radiation therapy and chemotherapy depending upon the primary tumor size, thickness, location, lymph node metastasis, staging and histopathological characteristics. An authentic understanding of the burden of illness, efficient interruption and management of oral issues correlated with cancer therapy is necessary for treatment of various oral complications of cancer care. Oral and dental care needs sufficient time prior to cancer treatment, preferably one month to allow the oral tissues to recover well following any dental treatment. Oral care is an exceptionally essential requirement before starting cancer therapy. It recognizes existent risk factors, need for oral treatment and recommended oral hygiene maintenance. If dental problems are treated prior to cancer therapy, the oral complications may be milder or less severe. During cancer therapy, treatment should be focused on management of severe dental issues such as cure of xerostomia, trismus, oral mucositis and osteoradionecrosis. Therefore, the main aim of this paper is to throw light on importance of dental care during, before and after cancer therapy and help to maintain the highest possible overall well-being of cancer patients.

Key Words: oral health; dental care; oral cancer; surgery; radiotherapy; oral complications; management

Orthodontics, Endodontics & Prosthodontics

Current Trends in Digital Prosthodontics

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Abstract

Digital dentistry is a rapidly evolving field, with new equipment, materials and techniques emerging. Research is often unable to match the development in this area due to its accelerated growth. This presentation aims to outline the currently documented and accepted protocols within the realm of prosthodontics and implantology. It will also highlight future developments and areas of research.

Gummy Smile Treatment Using Skeletal Anchorage

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Abstract

Skeletal anchorage is considered the greatest evolution in Orthodontics in this century. Orthodontics can be considered as before and after the advent of skeletal anchorage. Either using mini-implants or miniplates or even endosseous implants, some impossible movements became possible. In November 2022, I authored an article entitled *Finite element analysis of a newly designed miniplate for orthodontic anchorage in the maxillary anterior region*. This article was featured as the cover article in the American Journal of Orthodontics & Dentofacial Orthopedics. This in vitro study assessed a new miniplate design for the maxillary anterior region. This new design demonstrated a good performance concerning the adequate stress rate on the bone around fixation screws, a good total deformity rate and the importance of performing relief bends in the transmucosal portion. This new design provides more vertical vectors for intrusion in the anterior region. In the presence of a correct diagnosis of vertical maxillary excess, observing the presence of alveolar bone above the tooth apices and increased lower facial third, it is possible to perform maxillary intrusion using four miniplates as anchorage, avoiding Le Fort I osteotomy, providing the patient with a less traumatic and more physiological treatment.

Dermaseptin S4 Could Control Root Canal Infection by *Enterococcus faecalis*

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Abstract

Endodontic infections are caused by a microbial consortium of a variety of microbes. The control of root canal infection needs the use of high concentrations of various antibiotics. However, the antibiotic sensitivity of the bacteria found within the oral cavity is gradually decreasing. The use of antimicrobial peptides (AMP) could be a medical alternative to prevent/treat root canal infection. Frog skin AMPs (such as dermaseptins) have shown antimicrobial activity against several pathogens. **The objective** of this study was to evaluate the effect of dermaseptin S4 (DS4) against *Enterococcus faecalis* (*E. faecalis*), one of the most bacteria involved in root canal infection. Using *E. faecalis* cells, different concentration of DS4, cellular and molecular analyses we demonstrated that DS4 has no toxic effect on human gingival fibroblasts. The DS4 exposed fibroblasts adhere and grow similarly to non-treated cells. Interestingly, the DS4 inhibits significantly ($p < 0.01$) the growth of *E. faecalis*. The inhibition was present as early as 3 h contact. The effect of DS4 was greater with higher concentrations. DS4 decreased significantly ($p < 0.01$) the expression of several genes (*gbpB*, *gtfB*, *gtfC*, *ComD*, *ComE*, and *atpH*) involved in the virulence of the bacteria.

Conclusion: DS4 at low concentrations was not toxic to human gingival fibroblasts, while it did reduce the growth of *E. faecalis*. Overall, this study suggests the possible use of DS4 as a medication to control root canal infection by *E. faecalis*. This study was supported the Laval University Foundation and the Canadian Academy of Endodontics.

Poster Presentation

Enhancing Postoperative Endodontic Pain Management: A Systematic Review

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Abstract

Background: Postoperative endodontic pain is unpredictable and multifactorial, affecting individuals across ages and genders. Given various technical and pharmacological strategies, this study systematically reviews the current literature to identify the most effective method of postoperative pain control.

Method: We conducted a literature search on PubMed, the National Institutes of Health, and EMBASE to identify studies published between 2000 and 2023. Initially, we found 784 titles and abstracts, and after careful review, we excluded 642 articles. Among the remaining 142 articles, we excluded 123 more based on our criteria. Two independent investigators assessed the full texts of the remaining articles to ensure accuracy, resolving discrepancies through discussion using Covidence. In the end, we included 19 articles in this review.

Results: Recent studies indicate that two-visit endodontic treatment with intracanal medication is more effective in reducing postoperative pain (PP) and flare-ups. However, some studies suggest that one-visit treatment may result in lower PP or no significant difference. PP tends to be higher in mandibular teeth. Non-steroidal anti-inflammatory drugs (NSAIDs) are effective for postoperative pain management after non-surgical root canal treatment, though corticosteroids show superior relief for 6 to 24 hours. Rotary instrumentation is preferred, with the step-back technique potentially causing more PP than step-down or crown-down methods. Conversely, the modified step-back technique may yield less pain than rotational and reciprocal techniques.

Conclusion: Existing evidence provides guidelines for effective pain management. However, clinical expertise and the need for further data validation are crucial. Larger randomized controlled studies are necessary to confirm these findings.



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