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AL-BADAR DENTAL COLLEGE & HOSPITAL, KALABURAGI

ABSTRACT BOOKLET 2023-2024

NEAR PDA ENGG. COLLEGE ROAD, KALABURAGI

PREFACE

The Al-Badar Rural Dental College and Hospital, Kalburgi is committed to provide the quality education in dental healthcare and education. The institute organises various activities to imbibe the culture of research and development among the students and staff to motivate them for new discovery of knowledge and innovations.

We are happy to present this curated collection of booklet of abstract of various initiatives such as student research projects, posters and papers including their achievements in research oriented activities.

We are thankful to the management of Al-Badar Trust for extending their support and encouragement to organize these various initiatives. We also express our deep gratitude to Dr. Syed Zakaullah, Principal, Al-Badar Rural Dental College and Hospital, Kalburgi for his constant support and commitment for success of these activities.

We also acknowledge the contributions of the authors, presenters, and all participants of these events for their direct and indirect support to make these events successful. At the same time, we also want to thank Dr. Suma B Satenahalli and Dr. Charupriya Rajure for their involvement in compilation of this booklet

Dr. Syeda Arshiya Ara
Dr. Heena Zainab

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USING MOBILE MULTIMEDIA PLATFORMS IN TEACHING RADIOGRAPHIC DIAGNOSIS

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Abstract:

Background: Mobile Multimedia Platforms (MMPs) are prolific tools that can be used by individuals and corporations to share content. However, few studies have shown the effectiveness of MMPs as educational tools.

Objective: To evaluate the effectiveness of MMPs in improving basic dental diagnostic skills.

Methodology: In this voluntary interventional study on 70 dental students, we created pilot learning modules through an MMP called Instagram Stories to teach dental diagnosis. We evaluated the efficacy of the modules through diagnostic tests that were given to dental students.

Results: The students showed a significant increase in diagnostic test scores after the use of an MMP. Furthermore, the students' feedback on the MMP indicated that most students found it easy and enjoyable to use.

Conclusion: Our study data show that MMPs may be used to improve training in basic dental diagnostic skills and can serve as an adjunct teaching tool. Moreover, MMP modules can potentially enrich professional education in developing countries where access to educational resources is limited.

Keywords: Dental education; Feedback; Global; Mobile multimedia platforms; social media

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INTERACTIVE CONTENT GENERATION FOR LEARNER ENGAGEMENT: DENTAL EDUCATION PERSPECTIVE

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Abstract:

The need In the field of dental education, learner engagement is crucial for effective knowledge acquisition, skill development, and retention. Traditional methods of content delivery, such as textbooks and lectures, may not always capture learners' attention or provide an immersive learning experience. Embracing innovative technologies and interactive content strategies can result in more effective dental education, leading to competent and engaged dental professionals who are equipped to deliver high-quality oral healthcare.

Workshop Objectives:

By the end of this workshop the participants will be able to

1. **Enhance Learning Experience:** Develop interactive content to make dental education more engaging, immersive, and interactive for learners. By incorporating interactive elements, learners are more likely to stay focused, participate actively, and retain the knowledge imparted.
2. **Facilitate Concept Comprehension:** By using visual aids, simulations, virtual demonstrations, and interactive modules, learners can explore and grasp dental knowledge more effectively.
3. **Promote Critical Thinking and Problem-Solving:** Challenges learners to think critically, analyze dental scenarios, and solve problems. This can include interactive case studies decision-making exercises, and simulated patient interactions.
4. **Support Skill Development:** Enables learners to practice and develop dental skills. This can involve virtual patient simulations, interactive dental procedure demonstrations, and virtual laboratories for hands-on practice.

Intended outcomes/ Potential Applications:

Develop interactive e-learning platforms specifically tailored for dental education, offering a wide range of interactive content modules, multimedia resources, and collaborative learning features. Utilization of mobile applications that provide bite-sized interactive content, dental flashcards, interactive quizzes, and study guides for on-the-go learning. Establish online forums and communities where learners can engage in interactive discussions, share experiences, and seek guidance from peers and educators.

Keywords: Interactive content generation, Virtual reality, open educational resources

References:

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The Need For Undergraduate Research Amidst Undergraduate Dental Education

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Abstract:

Developing, maintaining, and sustaining undergraduate research initiatives can benefit academic institutions, faculty mentors, and students. As the world evolves, more research is required to advance knowledge and innovation in all fields. This implies that students must be prepared for today's knowledge-driven world. Research in the medical and health sciences has stalled in many developing countries, where a dual burden of communicable and noncommunicable diseases is prevalent. In this article, I discuss the values and benefits of undergraduate healthcare students participating in research and scientific publishing, as well as the challenges they face. I also make recommendations to encourage undergraduates to get involved in research. The potential of undergraduate research has not yet been fully realized. Undergraduate research's main objectives are to teach students how to do research and to help them acquire skills that they can use beyond the academic environment. Undergraduate research will complement rather than conflict with university education and should go beyond the mandatory terminal year thesis and must cover the entire course of their studies. The key to successful undergraduate research participation is for students to see and understand the importance of rigor, academic integrity, and responsible research conduct. This means academic institutions should carefully plan research programs, activities, and courses for students. Building capacity in research has a long-term impact on valuable learning outcomes as undergraduate students prepare for professional service. Stakeholders and educational authorities must invest in strengthening undergraduate involvement in research.

Keywords: Research, Undergraduate Research, Scope of Undergraduate research

References:

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Importance Of Research, Publication And Patent

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Abstract:

A continual enhancement of research capacity remains the cornerstone of modern medicine. dental students need to understand, learn and apply the principles of research to practice of dentistry. The best time to instil these principles in students is during the dental course. This initiative can help to generate interest in dental students to develop cutting edge innovations for the benefit of all. Strategic planning and stepwise implementation of research module is possible without much alteration in conventional medical curriculum. The goal of the module is to give research insight to dental students through meaningful ethical research. The research module may also help in inculcating other attributes like self-discipline, problem solving, critical thinking and life-long learning in medical students.

Patents protect inventions that are new, useful, and offer a significant improvement over what already exists. You can secure patent protection for a product, a process, or an improvement of these. The length of patent protection lasts, in general, up to 20 years, after which the invention can be used by anyone.

Keywords: Research, Publication, Scopus, Patent

References:

1. Deo MG. Undergraduate medical students' research in India. J Postgraduate Med. 2008;54(3):176-79.
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Forecast of Risk of Osteoporosis Using Digital Orthopantomography As A Yard Stick – A Retrospective Study

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Abstract:

Background: - A number of indices have been developed to assess and quantify the quality of mandibular bone mass and to observe the signs of resorption using panoramic images. Aim: - To evaluate the reliability of digital morphometric indices-Panoramic mandibular index (PMI), Mental index (MI)& Mandibular cortical index (MCI) in detection of osteoporosis.

Objectives: To investigate influence of age and gender for osteoporosis. · To assess digital radio morphometric indices with bone density in identifying risk group for osteoporosis.

Materials & Methods: - Retrospectively digital OPG images are collected from archives of stored data from CS 8100 care stream panoramic machine which are subjected to digital radio morphometric measurements to assess the bone mineralised density of mandibular bone. Samples are divided as follows (years) · Group-1: 21-30 Years. · Group-2: 31-40 Years. Group-3: 41-50 Years. · Group-4: 51-60 Years.

Results: - According to gender MI, MCI &according to age PMI are significant in accessing risk of osteoporosis. Statistical analysis revealed that females & old age group subjects are more prone.

Conclusion: - Our study concluded that millions of people undergo OPG annually, so OPG is not only used for dental problems but can also be used as screening tool to prevent further complication of bone diseases. Well trained dental practitioner can detect low mineral bone density by simple screening analytical method, using above panoramic indices.

Keywords: OPGs, PMI, MI, & MCI

References:

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Recent Advances of Diagnostic Oral Radiology

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Abstract:

Diagnostic oral radiology is crucial for precise dental diagnosis and treatment planning. This chapter explores the evolution of diagnostic oral radiology, traversing from traditional techniques to recent advancements. It elucidates the principles and clinical applications of Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and Cone Beam Computed Tomography (CBCT), emphasizing their pivotal roles in three-dimensional imaging and precise diagnosis with minimal radiation exposure. Dual-Energy Computed Tomography enhances tissue characterization, while Positron Emission Tomography (PET) and Single photon emission computed tomography (SPECT) offer insights into metabolic aspects of oral pathology. Dynamic Contrast-Enhanced Imaging (DCE Imaging), Diagnostic Ultrasound, and Arthrography facilitate real-time assessment and lesion localization. Additionally, Xeroradiography and Sialography continue to provide valuable diagnostic information. The chapter also explores Emerging Technologies and Point to Care Testing, alongside the integration of Artificial Intelligence and Deep Learning, promising streamlined image interpretation and personalized treatment planning. This comprehensive chapter aims to empower clinicians and researchers in navigating oral healthcare with precision and efficacy, bridging traditional methods with cutting-edge technologies.

Keywords: MRI, Contrast Radiography, Fusion Imaging, CT

References:

1. White, Stuart C., and Michael J. Pharoah. Oral Radiology: Principles and Interpretation, 6th ed., Mosby, 2009, pp. 175-190, 221-222.
2. Karjodkar, Freny R. Textbook of Dental and Maxillofacial Radiology, 2nd ed., Jaypee Brothers Medical Publishers, 2019.
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Recent Advances in Therapeutic Oral Medicine

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Abstract:

Oral mucosal lesions which are treated in Oral Medicine department includes, Recurrent Aphthous Stomatitis, Allergic stomatitis, Lichen Planus, Pemphigus, Pemphigoid, OSMF, Leucoplakia, Erythema Multiforme, Herpes Simplex Viral Infections, Herpes Zoster viral infection. There are various treatment modalities available in this literature. This chapter aims to review only the recent advancement in therapeutic Oral Medicine in the management of oral mucosal lesions which are enlisted below.

- Crocin delivery system through Thiolated chitosan hydrogel-embedded noisome
- Amlexanox-loaded nanoliposomes in oral mucosal lesions.
- Management of oral mucosal lesions with montelukast.
- Anti-TNFα F(ab) delivered through electrospun patch for the management of inflammatory oral mucosal diseases.
- Topical calcineurin inhibitors (TCI).
- Kinase inhibitors.
- Topical 5-fluorouracil be used as a viable treatment option for oral premalignant lesions and tumors.
- Diethylcarbamazine, an anti-filarial medication, is used to treat oral submucous fibrosis.
- Molecular targeted therapies.
- ICI-based therapies
- Immunotherapy for malignancies of the keratinocytes. Section II: Determination and treatment of cutaneous immunotherapy adverse effects
- Botulinum toxin in the management of head and neck disorders
- Trends in orally viral vector gene delivery and therapy
- A novel approach to the oral delivery of bionano structures for systemic disease

Key words: therapeutic oral medicine, recent advances

References:

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Impacted Mandibular 3rd Molar- An Enigma in Diagnosis

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Abstract:

The clinical presentation of third molar impaction cases differs from patient to patient. The different clinical aspects of mandibular third molar impactions include pain at the site or radiating pain in the jaw, trismus, cheek bite, difficulty in mastication abscess formation requiring incision and drainage. A significant number of cases are asymptomatic and are detected only on routine radiographic examination. A few cases also show unusual symptoms and clinical presentation. Hence the present case is intended to publish the unusual or the incomplete presentation, creating a diagnostic enigma.

Key words: third molar, impaction, diagnostic dilemma

References:

1. Santosh P. Impacted Mandibular Third Molars: Review of Literature and a Proposal of a Combined Clinical and Radiological Classification. Ann Med Health Sci Res. 2015 Jul-Aug; 5(4): 229–234. 10.4103/2141-9248.160177.
2. Azaz B, Shteyer A, Piamenta M. Radiographic and clinical manifestations of the impacted mandibular third molar. Int J Oral Surg. 1976 Aug;5(4):153-60. doi: 10.1016/s0300-9785(76)80037-3

Digital Innovations

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Abstract:

Introduction: The combination of era and dentistry has given thoughts-blowing outcomes. The generation and the armamentarium with the patient's want has been interwoven to obtain the highest fulfillment costs. It brings many blessings on the table for the dentist, the assistant and the patient. technology has not most effective uplifted the accuracy and intricacy of dentistry however has decreased the weight at the clinician as properly.

Organizations are under increasing pressure to apply digital technologies to renew and transform their business models. We combine scientometric and systematic literature review methodologies to examine seven dimensions of an adapted theoretical framework: initiation; development; implementation; exploitation; the role of the external competitive environment; role of internal organizational environment; and product, service, and process outcomes. From a macro perspective, we find vastly uneven coverage of research streams, diversity and diffusiveness of research, and knowledge and learning as an underlying conceptual pillar. Combined with our summary of each of the seven research streams, these findings suggest several areas of future research, which we develop by identifying oppositions and tensions.

Prevalence of Velopharyngeal Dysfunction and Obstructive Sleep Apnea in OSMF patients with Cone Beam Computed Tomography and STOP BANG Questionnaire

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Abstract: Obstructive sleep apnea (OSA) is a common sleep disorder resulting from cessation or reduction of airflow during sleep because of repetitive total or partialcollapse of the pharyngeal airway for at least 10secs with persistent respiratory effort. The major risk factors of OSA are obesity, smoking habits, excessive alcohol intake, hyperlipidemia, and increasing age. The relationship between soft palate length and nasopharyngeal depth is called Need's Ratio which can be used to determine the velopharyngeal dysfunction. Greater than 80% demonstrates a risk of developing velopharyngeal dysfunction.

Objectives:

- To compare the velar length, and depth of soft palate using CBCT in OSMF patients of different age groups.
- To assess the prevalence risk rate of obstructive sleep apnea by estimation of Need's ratio using CBCT values.
- To compare the STOP-BANG questionnaire results and CBCT values for all the patients.

Methodology:

In this prospective study, patients for CBCT assessment in the age group ranging from 15 to 55 years were included. The patients were screened with the STOP- BANG questionnaire and shapes of the soft palate, velar length, width, and pharyngeal depth were obtained and Need's ratio was calculated.

Results:

The collected data were analyzed based on the results of the STOP- BANG questionnaire, P value was found to be significant. The velar length and pharyngeal depth were found to be higher in males. Need's ratio was found to be increasing with an increase in age. Correlation of risk for OSA based on a comparison of questionnaire results with CBCT parameters was significant.

Conclusion:

CBCT can identify the anatomic risk factors for developing sleep apnea and velopharyngeal dysfunction.

Keywords:

Oral Submucous Fibrosis, CBCT, Soft Palate, Velopharyngeal dysfunction, Cone Beam Computed Tomography, Sleep Apnea.

References:

1. Moore K L, Agur AMR, Essential Clinical Anatomy, 2nd ed. Philadelphia, PA Lippincott, Williams and Wilkins; 2002.
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Expression of Cytokeratin 19 in Patients with OSMF- An Immunohistochemical Study

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Abstract:

Oral submucous fibrosis (OSMF) is a potentially malignant disorders which is widely spread and has high malignant transformation rate. OSMF is caused by habitual use of areca nut, affecting the oro-pharynx and characterized by progressive fibrosis. Alteration of cytokeratin (CK) expression has been documented in leukoplakia and oral cancer. However, very little is known of CK alterations in OSMF.

Aim:

To evaluate cytokeratin 19 as a biomarker in oral sub mucous fibrosis for malignant transformation risk.

Objectives :

1. To determine expression of cytokeratin 19 in patients with oral sub mucous fibrosis.
2. To correlate the expression of cytokeratin 19 with different stages of Oral sub mucous fibrosis.

Methodology:

Forty-five clinically confirmed cases of OSMF were taken according to the clinical stages with 15 cases in each stage and an Immuno-histochemical stating was done for CK19 as a marker. The p-value was calculated using Fisher's exact tests.

Results:

15 cases of stage I showed 13.3% of negative, 26.7% of mild, 40.0% of moderate, and 20.0% of intense staining. 15 cases of stage II showed 13.3% of negative, 53.4% of mild, 20.0% of moderate, and 13.3% of intense staining.15 cases of stage III showed 6.7% negative, 46.7% mild, 33.3% moderate, and 13.3% intense staining. There was no statistically significant difference between intensity levels in the distribution of CK19 staining cases with OSF stage-1 and stage-2 and stage-3.

Conclusion:

Cytokeratin 19 staining alone cannot be used as a surrogate marker to check the severity &

transformation of OSMF into malignancy in different stages of OSMF.

Key Words:
Immunohistochemistry, OSMF, Cytokeratin 19.

References:

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A Toolbox for Optimum Solutions In Evidence Based Orofacial Pain Management

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Abstract:
Orofacial pain or facial pain described as an ache in the front part of the head, oral cavity is a common presentation in primary care. Most prevalent and debilitating pain arising from the structures innervated by the trigeminal system (head, face, masticatory musculature, temporomandibular joint and associated structure). TMDs are also most prevalent orofacial pain conditions for which patients seek treatments. TMDs include a number of clinical problems that involve the masticatory musculature, the temporomandibular joint (TMJ) or both. Trigeminal neuropathic pain conditions can arise from injury secondary to dental procedures, infection, neoplasia. Neurovascular disorders, such as primary headaches, can present as chronic orofacial pain such as migraine, where the pain is localized in the second and third division of the trigeminal nerve. A multidisciplinary pain management approach should be considered for the optimal treatment of orofacial pain disorders including both nonpharmacological and pharmacological modalities. This scientific poster will highlight the evidence-based management of orofacial pain

Keywords:
TMD; headache; neuropathic; orofacial pain; trigeminal nerve.

References:

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Predictive Analysis of Osteoporosis Using Orthopantomography Imagining Both Men And Women - A Retrospective Digital Radiographic Study

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Abstract:

Osteoporosis is a disease characterized by low bone mass and microarchitectural deterioration of bone tissue, leading to bone fragility, and enhanced susceptibility to fractures. Dental radiographs, especially panoramic images, have been used to predict bone mineral density.

Objectives:

1. This Study aims to analyze OPG scans for mandibular cortical index and its potential correlation with age and sex.
2. This study aims to predict osteoporosis by using mandibular cortex index and its potential correlation with age and sex.

Materials and Methods:

The study utilizes 200 OPG scans, consisting of aged matched 100 male scans and 100 female scans obtained from archival records. The sample was further divided into 5 age groups that is 21-30, 31-40, 41- 50, 51-60 and 61-70 respectively. All the scans obtained were analyzed for linear measurements in DICOM software to determine the thickness of the mandibular cortical bone. Statistical methods such as analysis of variance (ANOVA) and correlation analysis are used to evaluate the relationship between age and mandibular cortical bone thickness ($p>0.05$).

Results:

The analysis of the 200 OPG 100 male group and 100 female group revealed a clear correlation between age and the thickness of the mandibular cortical bone. The data demonstrated variations in bone thickness across the five age groups, indicating a progressive decrease in thickness with advancing age. Statistical analysis confirmed a significant negative correlation between age and mandibular cortical bone thickness.

Conclusion:

Mandibular cortical bone thickness as an indicator of skeletal health in different age groups. Further research and validation are necessary to solidify these findings and understand their clinical implication.

Key Words: OPG, Mandibular cortical bone,

References:

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Comparison Of IFT and Tens In Orofacial Pain

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Orofacial pain is the pain that affects the mouth, jaw, face, with a great amount of pathogenesis. IFT and TENs therapy are simple noninvasive nonpharmacological treatments commonly used to alleviate the pain of orofacial region. The purpose of this study was to compare the effectiveness of transcutaneous electric nerve stimulation (TENS) and Interferential current therapy (IFT) on patients suffering from myofascial pain.

Aim:

To compare the efficiency of TENS and IFT in Orofacial pain

Objectives:

1. To compare the efficiency of TENS and IFT in Orofacial pain
2. To evaluate the better Physiotherapy modality for treatment of orofacial pain

Methodology:

Total 30 patients suffering from orofacial pain, with 15 Patients for each Group for IFT (Group A) and TENS (Group B) were taken for the study. After taking the History and examination they were taken into consideration for study. They were subjected to IFT and TENS for 5 days. Patients were Instructed to not to take other treatment and not to open the mouth wide open during treatment period. VAS score was recorded in pre and post treatment period to assist the treatment outcome. There was statistically significant reduction in pain and better functional efficiency in both the groups in post treatment period.

Results:

Both IFT and TENS were effective in the management of Orofacial pain But among the two physiotherapeutic modules IFT had better results in terms of efficiency and comfort to the patient

Key words:

IFT, TENS, Orofacial pain

References:

1. Saranya B, Ahmed J, Shenoy N, Ongole R, Sujir N, Natarajan S. Comparison of transcutaneous electric nerve stimulation (TENS) and microcurrent nerve stimulation (MENS) in the management of masticatory muscle pain: a comparative study. Pain Research and Management. 2019 Nov 23;2019.
2. Ozcan J, Ward AR, Robertson VJ. A comparison of true and premodulated interferential currents. Archives of physical medicine and rehabilitation. 2004 Mar 1;85(3):409-15.
3. Munshi AK, Hegde AM, Girdhar D. Clinical evaluation of electronic dental anesthesia for various procedures in pediatric dentistry. The Journal of clinical pediatric dentistry. 2000 Jan 1;24(3):199-204.

Book Chapter Publication

Title of The Chapter: Recent Advances in Therapeutic Oral Medicine

Dr. Humera Ayesha

Reader

Department Of Oral Medicine & Radiology

Abstract:

Oral mucosal lesions which are treated in Oral Medicine department includes, Recurrent Aphthous Stomatitis, Allergic stomatitis, Lichen Planus, Pemphigus, Pemphigoid, OSMF, Leucoplakia, Erythema Multiforme, Herpes Simplex Viral Infections, Herpes Zoster viral infection. There are various treatment modalities available in this literature. This chapter aims to review only the recent advancement in therapeutic Oral Medicine in the management of oral mucosal lesions which are enlisted below.

- Crocin delivery system through Thiolated chitosan hydrogel-embedded niosomes
- Amlexanox-loaded nanoliposomes in oral mucosal lesions.
- Management of oral mucosal lesions with montelukast.
- Anti-TNFα F(ab) delivered through electrospun patch for the management of inflammatory oral mucosal diseases.
- Topical calcineurin inhibitors (TCI).
- Kinase inhibitors.
- Topical 5-fluorouracil be used as a viable treatment option for oral premalignant lesions and tumors.
- Diethylcarbamazine, an anti-filarial medication, is used to treat oral submucous fibrosis.
- Molecular targeted therapies.
- ICI-based therapies
- Immunotherapy for malignancies of the keratinocytes. Section II: Determination and treatment of cutaneous immunotherapy adverse effects
- Botulinum toxin in the management of head and neck disorders
- Trends in orally viral vector gene delivery and therapy
- A novel approach to the oral delivery of bionanostructures for systemic disease

Key words: therapeutic oral medicine, recent advances.

References:

1. Chang ALS, Zaba L, Kwong BY.Immunotherapy for keratinocyte cancers. Part II: Identification and management of cutaneous side effects of immunotherapy treatments. J Am Acad Dermatol. 2023 Jun;88(6):1243-1255
2. Yousef M, Mansouri P, Partovikia M, Esmaili M, Younespour S, Hassani L. The Effect of Low-Level Laser Therapy on Pemphigus Vulgaris Lesions: A Pilot Study.J Lasers Med Sci. 2017 Autumn; 8(4): 177–180

CERTIFICATE COURSE ON CBCT

28.2.2024 to 2.3.2024. Completed and scored 3rd prize in assessment of Specialised Certificate course in Cone Beam Computed Tomography, conducted by MCODS Mangaluru

Title Of Publication: Impacted Mandibular 3rd Molar- An Enigma In Diagnosis

Dr. HUMERA AYESHA

Reader Department Of Oral Medicine & Radiology

Abstract:

The clinical presentation of third molar impaction cases differs from patient to patient. The different clinical aspects of mandibular third molar impactions include pain at the site or radiating pain in the jaw, trismus, cheek bite, difficulty in mastication abscess formation requiring incision and drainage. A significant number of cases are asymptomatic and are detected only on routine radiographic examination. A few cases also show unusual symptoms and clinical presentation. Hence the present case is intended to publish the unusual or the incomplete presentation, creating a diagnostic enigma.

Key words: third molar, impaction, diagnostic dilemma

References:

1. **Santosh P. Impacted Mandibular Third Molars: Review of Literature and a Proposal of a Combined Clinical and Radiological Classification. Ann Med Health Sci Res. 2015 Jul-Aug; 5(4): 229–234. 10.4103/2141-9248.160177.**
2. **Azaz B, Shteyer A, Piamenta M. Radiographic and clinical manifestations of the impacted mandibular third molar. Int J Oral Surg. 1976 Aug;5(4):153- 60. doi: 10.1016/s0300-9785(76)80037-3**

DIGITAL INNOVATIONS

Dr Kahekashan Tanveer

Senior Lecturer, Department of Oral Medicine & Radiology

Abstract:

Introduction :

The combination of era and dentistry has given thoughts-blowing outcomes. The generation and the armamentarium with the patient's want has been interwoven to obtain the highest fulfillment costs. It brings many blessings on the table for the dentist, the assistant and the patient. technology has not most effective uplifted the accuracy and intricacy of dentistry however has decreased the weight at the clinician as properly.Organizations are under increasing pressure to apply digital technologies to renew and transform their business models. We combine scientometric and systematic literature review methodologies to examine seven dimensions of an adapted theoretical framework: initiation; development; implementation; exploitation; the role of the external competitive environment; role of internal organizational environment; and product, service, and process outcomes. From a macro perspective, we find vastly uneven coverage of research streams, diversity and diffusiveness of research, and knowledge and learning as an underlying conceptual pillar. Combined with our summary of each of the seven research streams, these findings suggest several areas of future research, which we develop by identifying oppositions and tensions.

Conclusion :

Virtual dentistry has brought about a significant transformation in the field of dentistry, resulting in enhanced precision, accuracy, and overall effectiveness of dental procedures, ultimately leading to improved patient outcomes. The utilization of digital technology has revolutionized the way dental professionals deliver patient care, offering greater precision, efficiency, and accessibility. Advances in imaging, CAD/CAM technology, 3D printing, and regenerative dentistry have completely transformed the dental industry. Current and future applications of digital dentistry, including AI, AR, and teledentistry, hold immense potential to further augment the capabilities of virtual dentistry.

Keywords:

Digital Dentistry, CRISPR, Artificial intelligence, Machine learning

References:

1. Mehta. N. Digitilising Dentistry: A evaluation. Int Healthcare Res J 2018;2(four):82-85
2. Ziyad S Haidar (2023), virtual Dentistry: beyond, gift, and destiny.virtual medicine and Healthcare generation 2023(2), 1–16

DEPARTMETN OF ORAL & MAXILLOFACIAL SURGERY

EVALUATION OF PIEZOSURGERY IN REPOSITIONING OF THE INFERIOR ALVEOLAR NERVE

Dr. Sadanand Kunta Reddy

Background:

Following tooth loss, cortical bone suffers greater resorption on the vestibular aspect than on the lingual aspect, and patients typically present narrow and low alveolar crests so repositioning of inferior alveolar nerve is needed. The presence of the mandibular canal close to the alveolar ridge, represents an obstacle to the placement of intraosseous implants of adequate length.

Materials and Methods:

The present study was done to evaluate use of piezosurgery in repositioning of the inferior alveolar nerve by assessing the neurosensory disturbances in inferior alveolar nerve. The procedure was performed under local anesthesia Assessment was done by both subjective and objective assessment. The neurosensory disturbances were assessed at 1stpost-op day, 1stpost-op week, at the end of 1-month, 3- months and 6-months.

Result:

The neurosensory disturbance was reduced to zero by 3 months in the patients. We found that patients had less amount of neurosensory discomfort postoperatively with significant statistical value (p-value <0.001)

Conclusion:

From our study, we conclude that Piezosurgery is a safe and effective procedure. It provides a precise, smooth, clean, secure micrometric cut with low bone loss and selective cut with soft tissue sparing system, clear surgical field which was useful for better visualization of the operating site by its cavitation effect for the operator. All Implants were stable during the follow-up period. The degree and risk of injury with the piezoelectric device was lower than with the conventional rotary bur.

EVALUATION EFFICACY OF TOUCH IN IMPRINT CYTOLOGY IN SQUAMOUS CELL CARCINOMA

Dr. Supriya Lavate

Introduction:

To obtain tum our free margins in OSCC with reliable results, in very short time, and to guide the surgeon intraoperatively during resection, overcoming the disadvantages of frozen sections and economic burden of patients. TIC is alternative, reliable, cost effective intra operative tool for assessment of surgical margins.

Aims and Objectives:

To assess diagnostic accuracy of TIC as an Intra operative method to assess surgical margins, time taken for TIC reporting and its comparison with postoperative histopathological report of resected specimen.

Material and Methods:

Raw cut surface of excised tumour was gently pressed onto clean glass slides. The principle is, if the tumour cells are present, will adhere to the slide. The glass slide was fixed and stained using H/E stain. The prepared TIC slides were assessed under light microscopy and were reported as positive or negative based on presence or absence of tumour cells. The surgical margins were further resected if margins were positive. TIC report was compared with histopathological report of post-operative biopsy specimen for its accuracy.

Result and Conclusion:

All the Intra-operative TIC reports were corresponding with post-operative histopathological reports giving 100% accuracy of the test. Average time taken for Touch Imprint Cytology Procedure was approximately 10 minutes. The accuracy of TIC was 93.2%. TIC is a quick, simple, inexpensive, highly accurate and reliable intraoperative technique to assess surgical margins in OSCC. Geetha L, Astekar M, Ashok KN, Sowmya GV. TIC: a rapid diagnostic tool for oral squamous cell carcinoma. Biotech Histochem. 2015 Jul 4;90(5):348-52.

EVALUATION OF PIEZOSURGERY IN REPOSITIONING OF THE INFERIOR ALVEOLAR NERVE

Dr. Ishwarya Reddy

Background:

Following tooth loss, cortical bone suffers greater resorption on the vestibular aspect than on the lingual aspect, and patients typically present narrow and low alveolar crests so repositioning of inferior alveolar nerve is needed. The presence of the mandibular canal close to the alveolar ridge, represents an obstacle to the placement of intraosseous implants of adequate length.

Result:

The neurosensory disturbance was reduced to zero by 3 months in the patients. We found that patients had less amount of neurosensory discomfort postoperatively with significant statistical value (p-value <0.001)

Conclusion:

From our study, we conclude that Piezosurgery is a safe and effective procedure. It provides a precise, smooth, clean, secure micrometric cut with low bone loss and selective cut with soft

tissue sparing system, clear surgical field which was useful for better visualization of the operating site by its cavitation effect for the operator. All Implants were stable during the follow-up period. The degree and risk of injury with the piezoelectric device was lower than with the conventional rotary bur.

RECONSTRUCTION OF MAXILLA WITH VASCULAR FREE FIBULAR GRAFTCASE REPORT

Dr. Syeda Ruhi Almas

Introduction:

Hemi maxillectomy or total maxillectomy causes complex defects in the maxilla, zygomatic bone, palate, orbital floor, maxillary sinus, alveolar bone and can have severe functional and cosmetic consequences. Bone from numerous osseous donor sites, such as the scapula, radius, iliac crest, rib and fibula, has been used for reconstruction of maxillary defects. The free vascularised fibula flap has become the most popular.

Result:

Transfer of the free fibula graft was successful and uneventful without necrosis, local infections or vessel thrombosis. Donor site morbidity was normal. Cone beam CT was performed 1 week after surgery to determine if the fibula has been correctly placed in accordance with the virtually preplanned position. There was no evidence of late complications such as plate fracture.

Conclusion:

The use of the free fibula graft is a well-established technique which has clinical and anatomical advantages, such as adequate bone length and volume in combination with low donor site morbidity and a well-perfused myocutaneous flap.

Reference:

Rude K, Thygesen TH, Sørensen JA. Reconstruction of the maxilla using a fibula graft and virtual planning techniques. Case Reports. 2014 May 14;2014: cr 014203601.

EFFECTIVENESS OF TOLUIDINE BLUE FOR OBTAINING SAFE MARGINS IN ORAL SQUAMOUS CELL CARCINOMA

Dr. Neha

Introduction:

Toluidine blue is an acidophilic metachromatic dye that effectively highlights malignant or dysplastic changes within the lesion and its surrounding areas. It is vital for early identification of precise diagnosis of oral squamous cell carcinoma, ultimately leading to to more effective treatment and improved patient prognosis.

Methods:

- A prospective study involving 15 confirmed oral squamous cell carcinoma patients.
- Toluidine blue solution was used during surgery to identify cancerous tissue.. Following staining, areas were rinsed with 1% acetic acid to remove mechanically retained stain. The stained regions provided guidance for delineating safe margins, and a 1cm margin was maintained during lesion resection.

Result:

- The Toluidine Blue vital stain has a sensitivity of 93.33%.
- 2 patients recorded positive excision margins leading to recurrence at the primary site; 2

patients recorded free excision margins but had recurrence at the secondary site; the Remaining 11 patients recorded free excision margins and did not have recurrence.

Conclusion:

Vital staining with toluidine blue is specific in demarcating adjacent dysplastic tissue including the carcinoma lesion. It aids in visualizing dysplasia around poorly defined margins, making it a useful, inexpensive tool for intraoperative margin identification, especially when real-time frozen sections are unavailable

Reference:

Epstein JB, Sciubba J, Silverman S Jr, Sroussi HY. Utility of toluidine blue in oral premalignant lesions and squamous cell carcinoma: continuing research and implications for clinical practice. Head Neck. 2007 Oct;29(10):948-58. doi: 10.1002/hed.20637. PMID: 17764090.

EVALUATION EFFICACY OF TOUCH IN IMPRINT CYTOLOGY IN SQUAMOUS CELL CARCINOMA

Dr. Syeda Ruhi Almas

Introduction:

Lugol's iodine identifies pre-malignant or malignant epithelium by reacting with glycogen located in the upper & middle parts of the tumor adjacent oral epithelium, thereby delineating it from unstained potentially malignant or malignant epithelium."

Methodology:

20 cases of OSCC included in the study.

1. Irrigation of the lesion is done with lugol's iodine solution for 10-20 seconds followed by interpretation of the stain reaction.
2. The margins stained by the Lugol's Iodine solution are demarcated using incision placed by no 15 BP blade
3. The lesion was resected with a margin of 1 cm into the stained normal tissue adjacent to the lesion.
4. The tumor along with the resected margins was sent for histo-pathological examination.
5. The stained epithelium was examined for maligna nt/dysplastic changes.
6. The results obtained were subjected to statistical analysis.

Discussion:

Vital staining with lugol's iodine is used just before resection to identify the spread of dysplasia surrounding the lesion. The iodine - glycogen reaction is the key mechanism behind the action of vital staining using iodine. Iodine is glycophillic so the application of iodine stain results in its uptake by normal glycogen containing epithelial cells. The iodine atoms react with glycogen by fitting into the helical coils of amylose to form the iodine starch/glycogen complex giving rise to a blue black or brown black color.

Result:

The Lugol's Iodine vital stain has a specificity of 93.75%. There was definite association between epithelium of non-stained mucosa and dysplastic areas adjacent to the lesion. Out of 20 cases, 2 patients recorded positive excision margins leading to recurrence; 1 patient recorded free excision margins but had recurrence at primary site, remaining 15 patients recorded free excision margins and did not have recurrence.

Conclusion:

1. Specific in demarcating the dysplastic tissue adjacent to the carcinomatous lesion, which

when excised along with adjacent dysplastic tissue leads to a decrease in the recurrence in OSCC cases.

2. Moreover it provides a gross visualization of dysplasia surrounding the lesion especially in cases where in the margins are not well defined.
3. Useful and inexpensive adjunct to identify margins intra- operatively in the current scenario where intra-operative frozen sections are not available.

EFFICACY OF H&E AND IHC STAINING IN ESTABLISHING THE STATUS OF SAFE MARGINS IN OSCC- A COMPARATIVE STUDY

Dr. Mohammed Samama

Introduction :

OSCC's microscopic evaluation, supported by immunohistochemistry analysis, contribute to better post-operative management and improvement in patient's quality of life.

Aims & Objective:

To compare Hematoxylin & Eosin (H&E) and Immunohistochemistry (IHC) staining in identification of safe margins.

Materials & Methods:

Neck dissection and primary resection was done as per presurgical plan. A section of tissue was obtained from 4 sides of the specimen to analyze for safe margins. They were processed and fixed according to routine tissue fixation procedures and stained on a slide for histopathological analysis. Post-operatively 2 sets of HP slides were prepared from serial sectioning of the wax block prepared for each side. One slide was stained with H & E alone and other slide was stained with H&E followed by IHC (PanCK) staining.

Results:

7.2% specimens showed positive margins with PanCK & 0% specimens showed positive margins with H & E staining.

Conclusion:

IHC analysis proved to be more efficient in the determination of status of safe margins than the routine H&E staining and helps the surgeon in decision making for post-operative treatment resulting in better prognosis of the patient. Kwon SY, Kim HJ, Woo JS, Jung KY, Kim I. The usefulness of cytokeratin immuno histochemistry in detection of lymph node micrometastasis in neck dissection specimens. Otolaryngol Head Neck Surg. 2004 Sep;131(3):300-6.

EFFICACY OF ADIPOSE TISSUE INJECTION WITH PRP FOR VOLUME ENHANCEMENT IN FACIAL REGION

Dr. Supriya Lavate

Aim and Objectives:

To evaluate the efficacy of autologous fat with platelet rich plasma (PRP) for volume enhancement in facial region.

- Pre- and post-operative defect dimension
- Pre- and post-operative volume of fat
- Post-operative fat retention
- Surgeons, layman and patients' satisfaction

Material and Method :

This prospective study was conducted at Department of oral and maxillofacial surgery,

Al Badar rural dental college and hospital, Kalaburagi, study included 9 cases that had soft tissue defects in facial region.

Result:

Visual analogue scale ranging from 1 to 10 was used to assess the comparative aesthetic outcome 1 being "least satisfied" and 10 being "most satisfied". The mean score given by all the 3 groups was 8, which infers that the procedure was relatively satisfactory. Based on radiographic investigations, a mean of 79% decrease in defect dimension in anteroposterior and a mean of 75% decrease in defect dimension in medio-lateral direction was noted. On an average the volume of fat enhanced was 63.5% which infers that adipose tissue with PRP enhances the volume of fat. A mean of 36.5% of fat resorption was noted 3 months post procedure.

Conclusion:

From our study we conclude that adipose tissue with injection with PRP is a promising procedure for volumetric restoration of facial soft tissue defects. The autologous nature of both adipose tissue and PRP gives an added advantages and has no major complications associated with it

DEPARTMETN OF PERIODONTOLOGY

SCANNING ELECTRON MICROSCOPY STUDY FOR THE EVALUATION OF THE SMEAR LAYER REMOVAL EFFICACY OF THREE DIFFERENT CHEMICAL DECALCIFYING AGENTS ON PERIODONTALLY COMPROMISED ROOT SURFACES

Dr Praveen Bankur

Reader Department of Periodontology

Aim:

Aim of the current research was to assess the smear layer removal efficacy of SofScale, Carisolv gel, and QMix chemical decalcifying substances on periodontally weakened radicular surfaces.

Materials and methods:

The sample size constituted 60 recently extracted periodontally compromised teeth having a poor prognosis. The samples were allocated at random to one of the following three groups (20 in each): Group I: Scaling and root planing (SRP) with SofScale, Group II: SRP with Carisolv gel, and group III: SRP with QMix. The surfaces thus subjected to treatment were washed with 20 mL of saline and the crown portion was detached at the cementoenamel junction (CEJ). Following this, samples were horizontally and vertically segmented employing a diamond circular disk with 150–200 µm thickness. Every sample segment was subjected to rinsing in normal saline and positioned in 2.5% glutaraldehyde solution in 0.1 M phosphate buffer at a pH of 7.4 for at least 24 hours. Samples were evaluated in a scanning electron microscopy (SEM) at a magnification of 2000×, and photomicrographs were assessed to establish the degree of radicular biomodification by eliminating the smear layer.

Results:

QMix group showed the highest smear layer elimination at 3.56 ± 0.13 in pursuit by Carisolv gel at 3.64 ± 0.11 and SofScale group with 4.68 ± 0.08. The differences amid the groups were statistically significant with p 0.001).

Conclusion:

In conclusion, QMix was noted to have a superior smear layer elimination capacity in

comparison with the radicular surfaces conditioned with Carisolv and SofScale.

Keywords:

Periodontally compromised teeth, Scaling and root planing, Scanning electron microscopy, Smear layer

References:

1. Houshmand B, Ghandi M, Nekoofar MH, et al. SEM analysis of MTAD efficacy for smear layer removal from periodontally affected root surfaces. J Dent (Tehran) 2011;8(4):157–164. PMID
2. : 22509454.
3. Avirdsson A, Liedberg B, Möller K, et al. Chemical and topographical analyses of dentin surfaces after CarisolvTM treatment. J Dent 2002,30(2–3):67–75. DOI: 10.1016/s0300-5712(01)00051-3.
4. Grisi DG, Theodoro LH, Sampaio JEC, et al. Scanning electron microscopic analysis of the effect of CarisolvTM gel on periodontally compromised human root surfaces. Braz Dent J 2006;17(2):110–116. DOI: 10.1590/s0103-64402006000200005

EFFECTS OF CURCUMIN AND TETRACYCLINE FIBERS AS LOCAL DRUG DELIVERY AGENTS IN TREATING CHRONIC PERIODONTITIS- A CLINICAL &MICROBIOLOGICAL STUDY

Dr Abdul Samee, #Dr Praveen Bankur

Post Graduate Student, Department of Periodontology

#Reader, Department of Periodontology

Abstract:

Introduction:-

Periodontitis is one of the most prevalent diseases affecting humankind, resulting in the destruction of the periodontal tissues by interaction of periodonto-pathogenic microorganisms and host's immune response.

Objective:-

1. To evaluate efficacy of curcumin as LDD in treatment of chronic periodontitis.
2. To evaluate efficacy of Tetracycline fibers as LDDin treatment of chronic periodontitis.
3. To evaluate antimicrobial activity of curcumin against Tetracycline fibers.

Methodology:-

Subgingival plaque samples diagnosed with chronic periodontitis will be collected with a sterile curette.These 10 patients will then be randomly assigned into 2 groups,Group I (Scaling + Tetracycline fibers)- 10 sites.Group II (Scaling + Curcumin)- 10 sites.These plaque samples will be collected in RTF from the sites prior to treatment,These collected samples will be sent to microbiology laboratory at Maratha's mandal dental college Belgaum for culturing colonies formed.Periodontal parameters were recorded at baseline, one month and three months.At one quadrant curcuma longa extract and on other side tetracycline fibers will be dispensed subgingivally to the base of the periodontal pocket.

Results and conclusion:- Awaiting.

Keywords: Periodontitis, Local drug delivery

References:

1. Abhilasha Singh,et al "Evaluation of Turmeric Chip Compared with Chlorhexidine Chip as a Local Drug Delivery Agent in the Treatment of Chronic Periodontitis": A Split Mouth Randomized Controlled Clinical Trial.,the journal of alternative and complementary medicine,2017. Volume 00, Number 00.
2. Nishat Sadaf et al, Evaluation of efficacy of tetracycline fibers in conjunction with scaling and root planing in patients with chronic periodontitis.Journal of Indian Society of Periodontology; July-Sep 2012:16(4).

HARNESSSING THE POWER OF ARTIFICIAL INTELLIGENCE IN PERIODONTICS AND IMPLANTOLOGY

**Dr Madhuri, #Dr Ghousia Fatima*

**Post Graduate Student, Department of Periodontology*

#HOD, Department of Periodontology

Abstract:

Periodontal disease is a complex inflammatory disease contributed by multiple causal factors simultaneously and interactively. They are one of the most common oral diseases affecting the mankind. Al in dentistry is a rapidly growing topic, mainly aiming to assist the dentist in providing high quality patient care and making the treatment more efficient and less time consuming.

Artificial Intelligence (Al) is gaining a lot of momentum in recent times in almost all walks of life. various applications of AI specific to the field of Periodontics and Implantology are Haptics-based virtual reality periodontal training simulator, Ultrasonographic periodontal probe, artificially intelligent olfaction in halitosis, Automated segmentation of gingival diseases from oral images, Diagnosis of periodontal bone loss using deep learning &Applications in Implantology and measuring amount of plaque present and much more. In the field of Periodontics, "Periosim" which is considered as a robotic arm that is widely used in evaluating periodontal pockets by utilizing tactile sensation to differentiate between soft and hard tissues displayed on the visual monitor. Periodontal diagnosis is the pillar of successful treatment planning since prevention and proper treatment depend on the accuracy and precision of specific diagnostic techniques.

Various studies have been done to ascertain AI technology application to diagnose and predict periodontal diseases. Deep learning analysis using radiographs can help in diagnosing and treatment planning of periodontal diseases by the early detection of periodontal changes. This helps in early intervention in implantology. One application of AI in implant dentistry is its use in digital three-dimensional (3D) treatment planning for aligning intraoral 3D images with cone beam computed tomography (CBCT) data in software for surgical evaluation and planning. In addition to promoting our understanding of periodontitis, this technology serves as a bridge to incorporate conventional indicators and immunologic and microbiological parameters into periodontal diagnosis and predicting the teeth that are compromised with periodontal health. Having said that, we must remember that every coin has two sides. AI also has its own set of advantages & disadvantages.

Conclusion:

Artificial intelligence with its application of machine learning will change the face of dentistry in future. Artificial intelligence (AI) may be used in dentistry, and more specifically,

periodontics, to improve the dentist's effectiveness. Uses of AI in the field of Dentistry and Periodontics in specific are multifarious and can augment the dentist's efficacy in more ways than conventional dentistry has. AI has enormous potential to transform the field of periodontology and implant dentistry. As technology advances, we can expect more innovative applications of AI in dental care that will improve patient outcomes while reducing costs and increasing efficiency.

Keywords: Artificial intelligence, Field of periodontics & Implantology

References:

1. 1.Ramani et al. Artificial intelligence in periodontics - An overview. International Journal of periodontology and Implantology.2023;8(2):71-74.
2. Shirmohammadi et al. The growing footprint of artificial intelligence in periodontology & implant dentistry. Journal of Advanced Periodontology & Implant Dentistry.2023;15(1):1-2.

HEMATOLOGIC TESTS AND THEIR ASSOCIATION WITHTHE SEVERITY OF PERIODONTITIS AND NON-COMMUNICABLE DISEASES (NCDS): AN OBSERVATIONAL STUDY

Dr Abdul Samee, #Dr Praveen Bankur
Post Graduate Student, Department of Periodontology
#Reader, Department of Periodontology*

Abstract:

Introduction:

Periodontitis and non-communicable diseases are worldwide representative chronic disorders that share many risk factors such as older age, active smoking, stress, and uncontrolled blood pressure and glucose level. Mechanisms of periodontitis and non-communicable diseases identified and reported through systematic reviews of experimental and epidemiological evidence.

Objectives of study:

1. To know association between periodontitis and non-communicable diseases.
2. To know systemic impact of periodontitis will be cause of non-communicable diseases.
3. To investigate patho-physiology involved in conversion of periodontitis into non-communicable disease through blood investigation and clinical evaluation.
4. To know severity of periodontitis in different non-communicable diseases.

Methodology:

A group of 30 patients are included, based on inclusion and exclusion criteria. Patients will be undergoing oral examination for diagnosing periodontitis, parameters recorded were probing pocket depth(PPD), clinical attachment loss(CAL), gingival index (GI), plaque index (PI). A 2 ml blood sample is taken for investigating blood parameter such as, complete blood count. Above periodontal parameters and result from blood investigation will be sent for statistical analysis.

Result and Conclusion: Awaited

Keywords: Periodontitis, non-communicable diseases,

References:

1. Lee et al, Association between periodontal disease and non-communicable diseases .A 12-year longitudinal health-examinee cohort study. Medicine.2017; 96:26.
2. Moradi Haghgoo et al.Hematologic tests and their association with the severity of COVID-19 and periodontitis in hospitalized patients: a case–control study .BMC Oral Health.2023;23;473.

DETECTION OF PERIODONTAL PATHOGENS IN THE UMBILICAL CORD BLOOD OF PRE-TERM LOW BIRTH WEIGHT INFANT AND IN SUBGINGIVAL PLAQUE OF PREGNANT WOMEN: A CLINICO-MICROBIOLOGICAL STUDY

Dr Nida, #Dr Ghousia Fatima

Post Graduate Student, Department of Periodontology

#HOD, Department of Periodontology

Abstract:

Introduction:

Pre-term low birth weight (PLBW) remains a significant public health issue and a major cause of neonatal death and long-term health problems. There is a growing consensus that infections remote from fetal–placental unit may influence PLBW infants. Studies have suggested that maternal periodontal disease may be an independent risk factor for PLBW.

Aim:

To evaluate the presence of periodontal pathogens in the umbilical cord blood of low-birth-weight infant and its correlation with the subgingival plaque of pregnant women

Material and method:

Total of 20 patients with pre-term low birth weight (PLBW) will be considered for the study. Umbilical cord blood and subgingival plaque sample will be collected after postpartum for identification of P. gingivalis, P. intermedia and T. forsythia. Clinical parameters such as gingival index, pocket depth, plaque index, and clinical attachment level will be recorded.

Results and conclusion: Awaited

Keywords:

Pre-term low birth weight, periodontal pathogens, pregnant women

References:

1. Swati P, Thomas B, Vahab A, Kapaettu S, Kushtagi P, Simultaneous detection of periodontal pathogens in subgingival plaque and placenta of women with hypertension in pregnancy. Arch Gynecol Obstet (2012) 285:613-619
2. Usin M, Julieta M, Veronica I, Anal'a G, Sandra T, Ricardo P. Association between maternal periodontitis and preterm and/or low birth weight infants in normal pregnancies., J Matern Fetal Neonatal Med, Early Online: 1-5 2014

Comparative Evaluation of Temperature Change with Two Different Implant Osteotomy Site Preparation Techniques in Bovine Bone: An Ex Vivo Study

*Dr Farha, #Dr Neha Bhutani
*Post Graduate Student, Department of Periodontology
#Professor, Department of Periodontology

Abstract:

Introduction:

Heat generated during the osteotomy site preparation for placement of implant could have an increased risk of impaired osseointegration and early implant failure. It is necessary to minimize heat production and optimize bone healing, a novel technique called osseodensification technique has been introduced which promotes peri-implant bone densification and compaction of bone. However, only few studies are available in the literature, hence our study aims to compare the heat generated from implant drilling at osteotomy site after preparation of the site with osseodensification technique using densah burs and conventional drilling technique.

Objectives:

1. To record the temperature changes during the preparation of the osteotomy site using conventional drilling technique 2. To record the temperature changes during the preparation of the osteotomy site using osseodensification technique

Methodology:

The study will use fresh bovine bone segments, a total number of 40 intermittent osteotomy sites will be prepared and divided into two groups. Group 1: 20 osteotomy sites prepared using a conventional drilling technique. Group 2: 20 osteotomy sites prepared using osseodensification technique using densah burs.

Results & conclusion: Results awaited.

Keywords:

Temperature changes during osteotomy preparation, Conventional drilling, Densah burs

References:

1. Alevizakos, V., Mitov, G., Schiller, M. et al. Comparison of temperature changes in different irrigation methods used in guided piezosurgery: in vitro study. Oral Maxillofac Surg (2023). https://doi.org/10.1007/s10006-023-01183-1.
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Unveiling The Effects of Air Polishing and Conventional Root Planing On Cementum Surface: A Profilometric Study

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Abstract:

Introduction:

Treatment of mild and moderate periodontitis can be achieved by nonsurgical periodontal therapy by scaling and root planing. Tooth surface polishing is an integral part of

periodontal therapy. It is an act of smoothening the tooth surfaces to make it glossy and lustrous. Although the term polishing has been used to describe the professional removal of soft deposits and stains from the tooth surfaces, in reality, this includes both cleaning and polishing. Enamel and cementum on root surface show a smooth surface clinically after debridement with the naked eye, but numerous surface irregularities can be detected microscopically.

Aim:

To evaluate and compare the surface roughness of cementum by using an air polishing device and conventional root planing.

Material and Method:

10 human extracted teeth will be randomly divided into two groups so that 5 teeth will be included in each group. Group A - Conventional root planing using area-specific curettes & Group B - Air polishing alone. The teeth will be initially embedded in a rectangular stone block, and the proximal surface will be examined using a magnifying glass to detect the anatomical cementoenamel junction (CEJ). Once the procedures are completed, each of the tooth block will be washed and dried using a three-way air syringe of the dental unit. They will be then placed in zip lock bag with saline and transported to the laboratory for profilometric analysis. Profilometer will be used to evaluate the surface roughness of a material.

Result and Conclusion: Awaited ED

Keywords: Air polishing, profilometric analysis, scaling and root planing

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TO EVALUATE AND COMPARE THE EFFECT OF HERBAL AND NON-HERBAL DENTIFRICES ON GINGIVAL HEALTH

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Abstract:

Introduction:

Gingivitis is the mildest form of periodontal disease caused by dental plaque. When left untreated, gingivitis can progress to periodontitis. Good oral hygiene has a key role in improving and promoting one's oral health. Mechanical tooth cleaning using a toothbrush and a dentifrice remains the most reliable and common method for controlling plaque. Following the demand for herbal toothpaste by consumers, manufacturers have switched to herbal to avoid harmful chemicals that are commonly found in conventional toothpaste.

Aim:-

To evaluate and compare the effect of herbal and non-herbal dentifrices on gingival health

Materials and Method: -

20 study subjects will be randomly chosen. Plaque and gingival index will be recorded and oral prophylaxis will be performed, then subjects will be assigned into two groups- the test group is the herbal group (Colgate herbal) and the control group is non-herbal (Colgate).

Using the provided toothpaste, each subject will be instructed to brush their teeth twice a day for 2 minutes using a modified bass approach for 30 days. Plaque and gingival index will be recorded after 30 days.

Result and Conclusion: Awaited

Keywords: entifrice, Herbal , Non herbal dentifrice, Plaque

References:

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COMPARATIVE EVALUATION OF THE EFFICACY OF AUTOGENOUS DENTIN GRAFT AND BIO-OSS GRAFT FOR PERIODONTAL REGENERATION BY CELL CULTURE

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Abstract:

Introduction:

Periodontitis is a multifactorial disease and is characterized by the destruction of supporting alveolar bone and connective tissue. Periodontal regeneration requires an orchestrated sequence of biological events which includes cell adhesion, migration, multiplication, and differentiation involving recruitment of locally derived progenitor cells to the site. The autogenous dentin graft is osteoinductive, osteoconductive and osteogenic in nature. Hence the need for study is to evaluate the efficacy of Autogenous dentin graft for regenerating the lost periodontal structures by cell culture method.

Objective:

1. To evaluate the efficacy of the Autogenous dentin graft using cell culture.
2. To evaluate the efficacy of Bio-Oss bone graft using cell culture.

To compare the effectiveness of Autogenous dentin graft and Bio-Oss graft.

Methodology:

The study will use 30 extracted teeth and divided into 2 groups: Group 1: Test group (n=15) for Autogenous dentin graft. Group 2: control group (n=15) for Bio-Oss graft. Both were sent for Molecular biology lab at Maratha Mandal Dental College Belgaum for cell culture.

Statistical Analysis: - Chi-square and fisher exact test will be applied

Results & Conclusion: Awaited.

Keywords: Cell culture, Periodontal regeneration, Bone graft, Autogenous dentin graft.

References:

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EVALUATION OF ANTIMICROBIAL EFFICACY OF 1% PHYTIC ACID INCORPORATED WITH 0.2% CHITOSAN NANOPARTICLES AGAINST ENTEROCOCCUS FAECALIS: AN IN VITRO STUDY

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Aim:

The aim of the study was to evaluate the antimicrobial activity of 1% phytic acid and ethylenediaminetetra acetic acid (EDTA) incorporated with 0.2% of chitosan nanoparticles (Csnps) against Enterococcus faecalis (E. faecalis) by agar diffusion and biofilm model.

Materials and Methods:

Antimicrobial efficacy was evaluated in two stages: (i) agar well-diffusion method and (ii) biofilm model. E faecalis (American Type Culture Collection 29212) strain was sub cultured and grown on the blood agar plates, followed by placement of test solutions in punched holes (5 mm diameter) and incubated for 24 h at 37°C as follows (n = 10): Group 1: normal saline (control), Group 2: EDTA, Group 3: EDTA +0.2% Csnps, Group 4: 1% phytic acid, and Group 5: 1% phytic acid + 0.2% Csnps followed by measurement of inhibition zone. For biofilm model, standardized dentin blocks were prepared from fifty human-extracted single-rooted premolars and sterilized and contaminated for 2 weeks by transferring 50 µl of bacterial inoculum to sterilized test tubes containing 1 mL of Mueller–Hinton agar broth (MHA) with alternate day replenishment of the broth. The specimens were cleaned and subjected to test solutions as mentioned above. Serial decimal dilutions were prepared, followed by inoculation on MHA plates and incubation for 24 h, accompanied by counting of the colonies per milliliter (colony-forming unit per milliliter). data were statistically analyzed using one-way analysis of variance and Post hoc Tukey's tests ($P < 0.05$).

Results:

Phytic acid incorporated with Csnps exhibited a greater zone of inhibition and least colony count against E. faecalis biofilm compared to all groups.

Conclusion:

Combination of Csnps and phytic acid exhibits effective antimicrobial activity against E. faecalis.

Keywords:

Antibacterial activity, biofilm, chitosan nanoparticles, Enterococcus faecalis, phytic acid

References:

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An In-Vitro Comparative Evaluation of Phytic Acid, Maleic Acid, and EDTA With and Without Activation In Removal of Smear Layer at The Apical Third of Root Canal

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Abstract:

Introduction:

Disinfecting the apical third of root canal is difficult due to the anatomical ramifications and presence of smear layer. Phytic acid has been recommended for smear layer removal.

Aim:

To compare the smear layer removal efficacy of different chelating agents with and without Endo Activator® at apical third.

Materials and Methods:

Eighty human single-rooted mandibular premolar teeth were decoronated and standardized the root length to 14 mm, instrumented with Protaper universal rotary files till F4 and randomly divided into four groups (n = 20); saline (Group 1), ethylenediaminetetraacetic acid (EDTA) (Group 2), 7% maleic acid (Group3), and 1% phytic acid (Group 4) and each group was further divided into two subgroups A & B (n=10) with and without Endo Activator® and irrigated accordingly for 1 min, split into two halves and observed under a scanning electron microscope (SEM) and images were assessed for the presence of smear layer in the apical third using scoring criteria.

Statistical Analysis: Data was analyzed using the Kruskal-wallis and Mann-Whitney U-test.

Results:

Endo activation of chelating agents was effective in smear layer removal in all groups except the control group (Group 1) with no significant difference between maleic acid and phytic acid. Statistically significant difference was seen between intergroup comparison without Endo Activator®; maleic acid and phytic acid showed better smear layer removal.

Conclusion:

Phytic acid 1% with Endo Activator® has a promising effect on smear layer removal in the apical third of the root.

Keywords: Smear Layer. Root Canal Irrigants. Phytic Acid.

References:

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Evaluation of Effectiveness of Mineral Trioxide Aggregate for Root Furcation Repair Using Diode Laser as Adjunct - An In Vitro Study

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Abstract:

Background:

Most of the materials used for furcation perforation repair often leads to microleakage. Therefore, novel techniques to prevent this are needed. This study aimed to determine the ability of Mineral trioxide aggregate (MTA), and Ethoxy benzoic acid (Super EBA) along with laser for sealing the root furcation

Methods:

About 108 human-extracted mandibular molar teeth were decoronated directly above and beneath the furcal area. After the access opening, the canal orifices were closed with sticky wax. A furcal defect of 1 mm width was prepared. The specimens were allocated into six groups for furcation repair (n=18). Group1: MTA, Group 2: Super EBA, Group 3: Laser + MTA, Group 4: Laser + Super EBA, Group 5 (positive control): Unrepaired furcal defect and Group 6 (negative control): Intact furcation. In Groups 3 and 4, furcal defects were irradiated with diode 980 nm laser before placing the materials. All specimens were submerged. in 2% methylene blue solution for two days, were cleaned with sterile water and sectioned mesiodistally. Microleakage was assessed using a stereomicroscope. Data was analysed using SPSS version 22. One-way ANOVA and Post hoc Tukey tests were used ($P \leq 0.05$).

Results:

Except for the MTA+ Laser, all groups demonstrated decreased microleakage, which was statistically significant. The positive control group showed highest microleakage and the negative control group showed none.

Conclusion:

MTA as adjunct to laser activation is effective in preventing microleakage in furcation defects.

Keywords:

Diode laser, Furcation repair, Microleakage, Mineral trioxide aggregate, Super EBA

References:

1. Parveen S, Hossain M, Sheikh MA, Abdin MJ. Repair of iatrogenic furcal perforation with glass ionomer cement. Bangabandhu Sheikh Mujib Medical University Journal 2018;11:70-4.
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Evaluation of Levels of Salivary Alpha-Amylase Stress Biomarker In Symptomatic and Asymptomatic Irreversible Pulpitis Patients: A Clinico-Biochemical Study

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Abstract:

Introduction:

Since pulpal pain causes distress to patients, therefore, evaluation of salivary alpha amylase (SAA) which is a stress biomarker in such cases helps evaluate the degree of stress; therefore, the present study aims to estimate SAA levels as stress biomarkers in patients with symptomatic and asymptomatic irreversible pulpitis.

Materials and Methods:

Forty-five individuals were included in the study and obtained informed written consent. Patients with symptomatic and asymptomatic irreversible pulpitis were selected based on history and clinical and radiographic examination, and participants were further separated into three groups (n = 15) such as Group 1: healthy individuals with no history of pulpal pain, Group 2: patients with symptomatic irreversible pulpitis, and Group 3: patients with asymptomatic irreversible pulpitis. Unstimulated saliva samples were collected using the spit method, and SAA levels were estimated after centrifugation of saliva samples using a colorimetric method known as the 3,5-dinitrosalicylic acid method. The intensity of color change was measured using a spectrophotometer at 540 nm for estimating SAA levels. The collected data were later subjected to statistical analysis using one-way ANOVA and post hoc Tukey's multiple comparison tests ($P \leq 0.05$).

Results:

Group 2 showed the highest values followed by Group 3 and least in Group 1. Multiple comparisons between the groups using post hoc Tukey's test showed a significant difference between all the groups.

Conclusion:

A direct correlation was found between SAA levels and the severity of pulpal diseases indicating the highest stress in patients with symptomatic irreversible pulpitis compared to asymptomatic irreversible pulpitis and least in individuals with no pulp disease.

Keywords:

Asymptomatic irreversible pulpitis, saliva, salivary amylase, stress biomarker, symptomatic irreversible pulpitis

References:

1. Sessle BJ. Mechanisms of dental pain and their implications for oral health. J Oral Rehabil 2008; 35:922-49.
2. Lan C, Chen S, Jiang S, Lei H, Cai Z, Huang X. Different expression patterns of inflammatory cytokines induced by lipopolysaccharides from Escherichia coli or Porphyromonas gingivalis in human dental pulp stem cells. BMC Oral Health 2022; 22:121.

In Vitro Comparative Evaluation of Antioxidative Effect of Selenium Alone and In Combination With Green Tea and Alpha-Tocopherol On The Shear Bond Strength of Universal Composite Resin To Enamel After In-office Bleaching

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Abstract:

Background:

Antioxidant application soon after bleaching process increases the shear bond strength (SBS) of composite resin to enamel.

Aims:

The aim of the study was to evaluate the antioxidant effects of selenium alone and in combination with alpha-tocopherol (αT) and green tea (GT) on SBS of composite resin to enamel following in-office bleaching with 38% hydrogen peroxide (HP).

Methods:

Sixty extracted human single -rooted premolar teeth were cleaned and embedded in acrylic resin blocks at the level of cementoenamel junction(CEJ) followed by bleaching with 38% hydrogen peroxide (HP) and arbitrarily divided into seven groups (n=10) for antioxidant application: Group I (negative control): intact teeth, Group II (positive control): only bleaching, Group III:10% selenium (Se), Group IV: 10% alpha tocopherol (αT), Group V:10% αT +10% Se, Group VI:10% Green tea (GT), Group VII: 10%GT+10% Se. In all groups, self-etch adhesive was applied and composite restoration was done, and specimens were stored in distilled water for 24h followed by SBS evaluation.

Statistical Analysis:

One-way analysis of variance and post hoc Tukey's tests were used ($P < 0.05$).

Results:

The highest SBS was found in negative control Group I (intact teeth) and least in positive control Group II (bleached teeth), whereas in experimental groups, Group VII (GT + Se) showed highest followed by Groups V (αT + Se), III (Se), and VI (GT) and least in Group IV (αT).

Conclusion:

Combination of selenium with green tea and alpha tocopherol enhanced the SBS of composite resin following in-office bleaching.

Keywords:

Alpha-tocopherol; antioxidants; composite resin; green tea; in-office bleaching; selenium; shear bond strength

References:

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2. Vidhya S, Srinivasulu S, Sujatha M, Mahalaxmi S. Effect of grape seed extract on the bond strength of bleached enamel. Oper Dent 2011;36:433-8.

EVALUATION OF FRACTURE RESISTANCE OF MAXILLARY PREMOLARS OF DIFFERENT GEOMETRICAL CAVITIES RESTORED WITH DIFFERENT COMPOSITE RESINS INCORPORATED WITH CHITOSAN NANOPARTICLES

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Abstract:

Background:

Composites with 0.2% chitosan nanoparticles (CSN) are used recently; however, this combination needs to be studied in different cavity designs.

Aims:

The aim of the study was to compare the fracture resistance of maxillary premolars with different cavity geometries restored with different types of composite resins incorporated with 0.2% CSN.

Methods:

About 130 extracted human single-rooted maxillary premolars were embedded in acrylic molds 2 mm below cementoenamel junction, divided into five groups for cavity preparations of standardized dimensions. Group 1: (control) intact teeth (n = 10), Group 2: Class I cavities (n = 40), Group 3: Class II mesio-occlusal (MO) (n = 40), Group 4: Class II mesio-occluso-distal (MOD) (n = 40). Groups 2, 3, and 4 were subdivided into four subgroups for composite restoration; A:Neo spectra ST-Universal (NST); B: Tetric N-Ceram Bulk-fill (TNC); C: NST + CSN; and D: TNC + CSN and tested for fracture resistance using universal testing machine.

Statistical Analysis:

One-way analysis of variance and post hoc Tukey's tests were used for data analysis ($P \leq 0.05$).

Results:

In all groups, the highest fracture resistance was found in MOD cavities, followed by MO and least in Class I cavities. Subgroup D (TNC with CSN) showed the highest fracture resistance in all groups ($P \leq 0.05$).

Conclusion:

Tetric N-Ceramic bulk fill with 0.25% CSN showed high fracture resistance in cavities with different geometries.

Keywords: Bulk-fill composite; chitosan nanoparticles; fracture resistance; universal composite

References:

1. Ravi RK, Alla RK, Shammas M, Devarhubli A. Dental composites-a versatile restorative material: An overview. Indian J Dent Sci 2013;5:2231-93.
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AN INVITRO EVALUATION OF DENTINE-WETTABILITY AND SURFACE ROUGHNESS OF 1%PHYTIC ACID WITH 0.2%CHITOSAN NANOPARTICLES

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Aim:

To assess and compare the wettability and surface roughness of of 1% Phytic acid (PA) incorporated with and without 0.2% Chitosan nanoparticles (CSN)

Methodology:

Fifty intact single-rooted human teeth were cleaned followed by decoronation and apical third resection of the specimens was done to obtain standardized root segment of about 6mm height using high-speed diamond abrasives under water cooling. The specimens were then split longitudinally through the root canal in bucco-lingual direction into 2 parallel dentine blocks of dimensions (6×6mm). The inner dentinal portions of the specimens were smoothened using abrasives and were randomly divided into 5 groups and subjected to different experimental irrigating solutions for 5 minutes as follows (n=20).Group 1-Normal saline (Control),group 2-EDTA,group 3-EDTA +0.2% CSN, group 4-1% Phytic acid, group 5-1% Phytic acid +0.2% CSN. Half of the specimens in each group were tested for wettability (n=10) by evaluating contact angle using goniometer and another half were subjected to surface roughness (n=10) testing using Atomic force microscopy. The data collected was statistically analyzed using One-way Anova and Post hoc Tukey test ($p \leq 0.05$)

Results:

Addition of 0.2%Csnps to 1%PA exhibited decreases surface roughness and increased wettability followed by 1 %PA, 17%EDTA + Csnps and least in 17%EDTA alone.

Conclusions:

Within the limitations of the study, the incorporation of 0.2% Csnps to 1% PA and 17% EDTA resulted in a reduction in surface roughness and an enhancement in wettability.

Keywords:

Atomic force microscopy, Chitosan nanoparticles, Contact angle, Phytic acid, Surface roughness, Wettability.

References:

Hu X, Ling J, Gao Y. Effects of irrigation solutions on dentin wettability and roughness. Journal of endodontics. 2010;36:1064-7.

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EVALUATION OF DENTIN SURFACE-ROUGHNESS AND MICROHARDNESS BY NOVEL IRRIGANT "TRITON" AN-INVITRO STUDY

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Abstract:

Aim:

To evaluate the effect of triton on dentin surface roughness and microhardness

Methodology:

About 80 single rooted premolar teeth are cleaned and were decoronated at CEJ level using a highspeed drill and then longitudinally split using a diamond disk under water coolant into two halves hence total specimens are 160. One half of each specimen (n= 80) will be subjected to surface roughness (SR) and another half (n=80) will be subjected to microhardness (MH). For both tests, samples will be divided into four groups(n=20) as follows: Group 1: Normal saline (control), Group 2: 2.5% Sodium hypochlorite (NaOCl) & 17%EDTA, Group 3: Q.mix, Group 4: Triton. Each group is further subdivided into two subgroups (n=40) for Before irrigation (Subgroup A) and After irrigation (Subgroup B). Surface roughness will be measured using surface roughness tester. Five measurements from each specimen will be obtained with a total of 1.25 mm. The arithmetic mean of all five values will be considered as the surface roughness value for each specimen. Microhardness was evaluating using digital Vickers Microhardness tester using diamond intender applying 500-gram force load with a dwell time of 10 seconds. Three indentations will be made at the apical, middle, and cervical third of the roots and average of all three reading will be recorded as microhardness value of each specimen.

Results:

Within the limitation of this study, Triton irrigating solution will not hamper the root dentin surface roughness and microhardness when compared with 2.5% NAOCl + 17% EDTA and Qmix

Conclusion:

Thus, the development of Triton serves as an alternative irrigant to provide significant benefits in leading a simplified and effective irrigation era in clinical practice

Keywords: microhardness, surface roughness, triton.

References:

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ANTIMICROBIAL EFFICACY OF SODIUM HYPOCHLORITE, CHLORHEXIDINE, MTAD AND TRIPHALA AGAINST ENTEROCOCCUS FAECALIS - AN IN VITRO STUDY

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1Reader, 2Senior Lecturer

Introduction:

The goal of root canal treatment is to reduce bacteria from the infected root canal system and to avoid reinfection. The antimicrobial efficiency of MTAD (Mixture of Tetracycline Isomer, an Acid and a Detergent), Chlorhexidine, Sodium hypochlorite (NaOCl), Triphala against E. faecalis (Enterococcus faecalis) was assessed in this research.

Materials and Method:

In this research, one hundred and fifty single-rooted extracted teeth were chosen. Samples were split randomly into five groups of thirty in each group. Teeth were immersed in 5.25percent NaOCl to eliminate surface soft tissue and debris. The teeth were divided horizontally into three sections. The middle segment was placed in a brain-heart infusion broth of E. faecalis culture. The samples were split randomly into five groups on the basis of irrigant used. Dentinal canal shavings were scrapped with a round bur on a sterile aluminum foil to test for bacterial survival. The standard deviation and mean Colony Forming units (CFU/mg) values were computed.

Results:

The antibacterial property of MTAD was superior to NaOCl, Chlorhexidine and Triphala againstE. faecalis. Post hoc analysis showed a significant difference in all four experimental groups

Conclusion:

MTAD had increased antibacterial action when compared to 2percent Chlorhexidine, 3percent Sodium hypochlorite, and Triphala against E. faecalis.

Keywords: antibacterial, Chlorhexidine, E. faecalis, MTAD, Sodium hypochlorite, Triphala

References:

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COMPARATIVE EFFECTIVENESS OF THE PROTAPER UNIVERSAL RETREATMENT SYSTEM (PTR) USING FOUR DIFFERENT TECHNIQUES FOR REMOVAL OF AH PLUS SEALER – AN IN VITRO STUDY

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1Senior Lecturer,2Reader

Aim:

Present study compares the effectiveness of the Pro-Taper Universal retreatment System (PTR) using four different techniques for removing the AH Plus sealer.

Methodology:

Forty extracted mandibular premolar were decoronated to a standard size of 16 mm. Canals were prepared till Pro-Taper F2 size and obturation was done using Gutta percha and AH-Plus sealer. The specimens were arbitrary divided into four groups (n=10) each. Re-treatment was executed with, Group I - PTR system without solvent, Group II - PTR system with resin solvent, Group III - PTR system succeeded by Pro-Taper finishing files without resin solvent, Group IV- PTR system succeeded by Pro-Taper finishing files with resin solvent. All the teeth were sectioned and stereomicroscopic images were used for analysis with image J analyzer software.

Results:

None of the technique completely removed the root canal filling material. The PTR system succeeded by Pro-Taper finishing files along with resin solvent showed better outcomes.

Conclusion:

All the techniques were not able to remove the entire root canal filling material. The PTR system succeeded by Pro-Taper finishing files along with resin solvent showed efficient cleaning and showed lesser remnants.

Keywords: Gutta-percha, Pro-taper universal re-treatment system, Sealers

References:

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2. Aruna Kanaparthy and Rosaiah Kanaparthy. The comparative efficacy of files in the removal of sealers in simulated root canal retreatment- an in-vitro study. Journal of clinical and diagnostic research. 2016;10(5): 130-133.

COMPARATIVE EVALUATION OF SMEAR LAYER REMOVAL ABILITY OF HERBAL ENDODONTIC IRRIGANTS - SEM STUDY

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1Senior Lecturer,2Reader

Objective:

The aim of this article is to compare the efficacy of Herbal irrigants versus Sodium hypochlorite (NaOCl) and Ethylene diamine tetra acetic acid (EDTA) on smear layer removal by using scanning electron microscope.

Methods:

40 extracted single rooted teeth were randomly divided into 4 groups. Different irrigants were used for each group.17% EDTA & 3%NaOCl for group1, Triphala for group 2, Azardirachta indica (Neem) for group 3 and Curcuma longa (Turmeric) for group 4. Teeth canal were flooded with 1ml irrigant of respective group. After instrumentation, final irrigation was also done with 2ml of respective irrigant for two minutes for smear layer removal followed by irrigation with 2ml of saline and dried. All samples were analyzed using SEM for smear layer removal. Efficacy of smear layer removal was calculated using median (Interquartile range).

Results:

EDTA (17%) & NaOCl (3%) were most efficient in smear layer removal at all the levels with median (IQR) i.e. at coronal 1(0), middle 1(3) and apical level 3(1) respectively compared to Triphala ,Turmeric and Neem. Kruskal–Wallis test revealed statistically significant difference in smear layer removal by root canal irrigants at coronal third but no significant difference at middle and apical third.

Conclusion:

Triphala, Neem and Turmeric showed the potential to remove the smear layer. However, EDTA and NaOCl showed the maximum efficacy in removing the smear layer.

Keywords: EDTA, NaOCl, Neem, Smear layer, Triphala, Turmeric

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ECOINNOVATIVE 4D ALIGNER: "SHAPING SMILE WITH INGENUITY"

Dr. Snehalatha C M

Aesthetics is one of the major demands of patients who seek dental treatment. The 4D aligners are clear aligner trays that are 3D-printed using shape memory polymers (SMPs), and implications of this material in clear aligner therapy could include reducing the cost of treatment and its burden on the environment.

On implication the aligners were capable of achieving significant tooth movement within the range and the range of maximum forces delivered varied according to the different temperatures but they were all within the range of acceptable physiological orthodontic forces.

YES, the **ECOINNOVATIVE** indicating eco-friendly aligner diminish plastic waste and the number of aligner by half-through reducing material usage and reducing operation expenses by over 50% making orthodontic care more accessible by shaping smile with ingenuity (clever material SMP'S).

This poster represents application of 4D ALIGNERS provides qualitative treatment to the patient with satisfied outcome of result with limited use of aligners and cost effectiveness within a short period of time.

ROBOTICS IN ORTHODONTIC

Dr. Rahul Mullatti

Abstract:

Robotics has emerged as a pioneering tool in customizing orthodontic treatments, leveraging technologies like 3D printing to create personalized devices such as braces, aligners, and retainers.

Innovations in computer-assisted orthodontics, empowered by robotics and imaging technologies, offer comprehensive treatment planning and simulation. These advancements enable orthodontists to visualize treatment processes in intricate detail, contributing to enhanced precision and efficacy.

The integration of robotics in patient monitoring fosters remote supervision, allowing orthodontists to track treatment progress and provide timely interventions.

The convergence of robotics with AI and machine learning holds promise for smarter treatment planning, leveraging patient data for predictive analysis and refining treatment protocols. However, the potential benefits in terms of enhanced treatment precision, patient comfort, and shortened treatment durations underscore the significance of further research and development in this domain.

Overall, robotics stands as a transformative force in orthodontics, poised to reshape treatment modalities, elevate patient care standards, and propel the field toward unprecedented advancements with effectiveness in highly personalized and patient-centric approach.

ORTHODONTIC CORRECTION OF CLASS II SKELETAL MALOCCLUSION USING CLEAR ALIGNERS

Dr. Dawood Bangalorewale

Over several decades, several studies have demonstrated that the prevalent skeletal feature in Class II patients consists of mandibular retrusion. For such reason, an effective universally accepted treatment strategy is based on promoting a mesial repositioning of the mandible to correct the Class II relationship. Hence, any appliance that demonstrates the ability to significantly stimulate mandibular growth would be an important asset to a clinician's armamentarium. More recently, clear aligner technology has evolved over the years with such appliances continuously being modified to broaden the range of tooth movements they can achieve.

Clear aligner therapy has one of the most interesting new techniques in orthodontics since its introduction in the late 1990s by Align Technology in the United States. Clear aligners are particularly suitable in cases where moderate anterior crowding should be treated without the need for tooth extractions, although some reports have suggested that clear aligners can be used for even more complicated cases. Current advances in technology and the introduction of CAD/CAM systems and a variety of auxiliaries are being integrated with clear aligners, making it possible for orthodontists to treat more complex cases without the need for fixed orthodontic appliances.

Fixed orthodontic appliances have been known to achieve better tooth movement and control and can be used to treat the majority of challenging cases; nevertheless, they have several pitfalls, including pain, discomfort, gingivitis, root absorption, conspicuous appearance, and tooth decay.

The treatment objectives using aligners were achieved and the patient was pleased with the aesthetic and treatment outcomes.

Using aligners along with proper auxiliaries and attachments is an effective method of addressing orthodontic difficulties, such as Class II or Class III in a reasonable time. Further, clear aligners offer less pain, better oral hygiene, and more aesthetics comparable to that of conventional fixed orthodontic appliances.

ACCELERATED ORTHODONTICS

Dr. Umer Farooque

Abstract:

Orthodontic treatment is possibly, in terms of duration, the lengthiest dental procedure performed.

Accelerated orthodontics is a revolutionary approach to straightening teeth that has gained popularity in recent years. This innovative treatment option allows patients to achieve their desired results in a shorter amount of time compared to traditional orthodontic methods. With this approach, patients can achieve their desired results in as little as 3-8 months, compared to the 18-36 months typically required with traditional braces or aligners.

This accelerated timeline is particularly appealing to individuals with busy lifestyles or special events on the horizon, such as weddings or graduations.

Today, accelerated orthodontics may be accomplished by several approaches that include invasive, minimally invasive and non-invasive procedures. In addition to shorter treatment times, accelerated orthodontics also offers the advantage of reduced discomfort.

Invasive approach includes interseptal alveolar surgery and corticotomy while minimal invasive methods include modifications of surgical procedure such as peizocision, corticision and microosteoperforations. The non-invasive methods include use of pharmacological agents and various physical devices such as laser therapy and pulsatile stimulation. These methods have been successfully proven to reduce treatment times by up to 70%.

Furthermore, accelerated orthodontics can produce long-lasting results that are just as effective as traditional orthodontic methods. Patients can enjoy a beautifully aligned smile and improved oral health without having to wait for years to see the final outcome.

MYOBRACES -SHAPING HEALTHY SMILES NATURALLY

Dr. Hridhi Krishana

Myobraces are orthodontic devices designed to address various dental and facial issues, offering an alternative to traditional braces. These appliances focus on correcting the underlying causes of misalignments and promoting proper oral habits.

The key indications, advantages, and uses of Myobraces can be summarized as follows:

Myobraces are primarily indicated for individuals with malocclusion, crowded teeth, and related orthodontic issues. They are suitable for children as young as five years old and are often used as a preventive measure to guide facial and dental development. Myobraces are designed for early intervention, targeting the root causes of orthodontic problems in growing children. Unlike traditional braces, Myobraces focus on promoting the natural growth and development of the jaw and facial muscles. Myobraces can help improve breathing by addressing issues such as mouth breathing, which is often associated with certain types of malocclusion. Myobraces may contribute to better speech development by addressing tongue posture and oral muscle function. In many cases, Myobraces treatment can reduce or eliminate the need for tooth extractions, preserving natural teeth.

Myobraces are used to correct misalignments of the teeth and jaw, promoting a harmonious bite. These appliances assist in guiding the natural development of the face, helping achieve a balanced and aesthetically pleasing facial profile. Myobraces are often employed to maintain orthodontic corrections achieved through other methods, ensuring long-term stability. Myobraces are utilized as a preventive measure to address oral habits that could lead to orthodontic issues if left untreated.

Myobraces revolutionize orthodontic care through a holistic approach, emphasizing early intervention, natural development, and prevention. Advantages include promoting proper oral habits, addressing root causes, and enhancing facial harmony. These devices reshape orthodontic treatment, particularly in early childhood interventions.

INSIGHT INTO 3 DIMENSIONS

Dr. Rishika

Abstract:

The conventional radiograph that are currently in use involve, imaging techniques which uses X rays, gamma rays and other ionizing and non-ionizing radiation to view the internal form of any object in 2-d film, adding to its limitation the human body being a complex 3 D structure, the errors produced during projection further hampers its accuracy. To overcome this 3 D imaging comes in handy for the purpose of diagnosis in 3 planes. 3 D imaging: Three-dimensional imaging of the human body through computed tomography has been accessible in medical field for 30 years now but the significant amount of radiation exposure associated with this technology, precluded its widespread use in dentistry. With development of Cone Beam Computed Tomography, there has been a drastic reduction in radiation exposure to the patient allowing it to be used safely to obtain the 3-dimensional images of the craniofacial structures. The said development that is CBCT allows the clinician to visualize both hard and soft tissues from multiple frames of references there by further facilitating the process of treatment planning in orthodontics and orthognathic surgery. Here, we can extend our knowledge on 3D imaging techniques that are put into practice in orthodontics and their applications. : FACIAL - Stereophotogrammetry : DENTAL - Intraoral 3d camera, digital models : SKELETAL – CT and CBCT.

SOCIAL MEDIA AND ORTHODONTICS: ARE OUR PATIENTS SCROLLING

Dr. Farheen

Aim:

To analyses the public perception of professional credibility and willingness to become client, based on content posted by orthodontists on social media.

In the digital age, patients and heath care professionals use social media, which improves orthodontists' relationships with active and potential patients, both as a marketing tool and for providing educational information that help potential patients to learn about professionals' clinical practices.

Prospective patients go online to investigate us and our practices well before they walk through our doors and place much weight on experiences shared by others as online reviews.

Orthodontist posts clinical pictures by Social networking, blogging and you tube. These are seen by many non-dentally qualified persons. What impression it gives to these individuals?

Patients may percieve differently the content shared by professionals with no altruistic motive and dubious value which may breach individuals confidentiality. The first aspect of this type of social media activity is that it needs to be analysed who this information is posted for. Is it for the benefit of that patient and society in general, for the benefit of the profession or for the benefit of that one practitioner?

Conclusion:

Guidance for posting anything online should follow the protocol of taking consent, compliance, motivation, focus, perspective of lay viewers. Given the availability of

information on social media there is a need to assess the quality of this information to increase the individuals perception of professional credibility and if appropriate navigate patients towards high-quality, effective resources.

Introduction:

This study aimed to assess the remineralization effect of hydroxyapatite nanoparticle (HA NP) coating on aligners.

Methods:

Twenty samples of aligners were coated with HA nanoparticles and compared with twenty uncoated samples. The remineralization effect was assessed on Surface zone mineral content of enamel, surface microhardness of enamel, surface morphology, and enamel thickness using SEM fitted with energy dispersive X-ray analysis, Micro Vickers hardness tester.

The remineralization effect was evaluated for two months at the following time points: at the end of first and second month.

Results: HA NP -coated aligners showed significant remineralization efficacy ($P < 0.001$).

Conclusions:

The orthodontic treatment with clear aligner developed larger and shallower white spot lesions.

This study indicated that an application of nano-HA gel is an attractive route to deliver the material and can be more effective and less toxic than conventional formulations and provide its effectiveness directly at the site of action through coating it on aligners and can prevent white spot lesions.

EVALUATION AND COMPARISON OF CHANGES IN BUCCAL CORRIDOR AND DENTAL ARCHES IN TRANSVERSE AND SAGITTAL PLANE WITH SELF LIGATING AND CONVENTIONAL BRACKET SYSTEM

Dr. Amreera

Objectives:

To Compare the changes in the buccal corridor maxillary and mandibular arch dimension in transverse and sagittal plane and effectiveness of both conventional and self-ligating brackets before and after orthodontic treatment with self-ligating and conventional orthodontic brackets.

Material and methods:

Total of 52 patient records were selected from department of orthodontics and divided into group I patients with 0.022-in MBT prescription and Group II 0.022-in Passive self-ligating brackets and pre and post treatment models were evaluated using a metal scale and digital calipers while the models are placed in Class I molar relation

Results:

The results showed that maxillary intercanine, maxillary and mandibular inter first premolar, maxillary and mandibular inter second premolar, maxillary intermolar width, mandibular intermolar widths were significantly greater after treatment with both systems. Outcomes for the within-treatment mandibular intercanine width group showed positive width increases of 0.91mm within the

Results:

The results showed that maxillary intercanine, maxillary and mandibular inter first premolar, maxillary and mandibular inter second premolar, maxillary intermolar width, mandibular intermolar widths were significantly greater after treatment with both systems. Outcomes for the within-treatment mandibular intercanine width group showed positive width increases of 0.91mm within the conventional bracket group and 1.82mm within the self-ligating group. However, it was not statistically significant in the conventional bracket group. Buccal corridor space and overjet showed a significant difference in both the bracket system. For the overjet measurement outcome, there was a significant decrease of 0.98mm and 1.94mm in a group I and group II respectively. Similarly, the buccal corridor space decreased by 1.9mm and 3.04mm in group I and Group II respectively.

Conclusion:

Both conventional ligating bracket (Group I) and self-ligating bracket (Group II) showed a statistically significant increase in all variables in the transverse plane and except for the mandibular inter-canine distance in conventional bracket. Which shows that, self-ligating bracket system is more effective in treating cases with mild to moderate crowding cases than the conventional bracket system.

"EVALUATION OF VARIOUS NASAL AND CHIN PARAMETERS AND THEIR RELATIONSHIP TO DIFFERENT MAXILLARY INCLINATION GROUPS - A CEPHALOMETRIC STUDY"

Dr. Alina

Abstract:

Objective: 1.To evaluate the relationship between various nasal, chin parameters and maxillary inclination. 2. To correlate the nasal, chin morphology with different maxillary inclination groups.

Methods:

Total of 36 Orthodontic patients, aged between 16-38yrs were selected were assessed and were subjected to cephalometric radiography in the Department of Oral Medicine and Radiology on a cephalostat. Tracing of the cephalometric radiograph were done manually using a sharp 3H Lead pencil on matte-acetate tracing paper (8 x 10 inches). All essential landmarks, angles & planes were identified and traced. Traced lateral cephalograms were divided into three groups on the basis of the angle given by Schwarz for rotation of the maxillary Plane of the anterior cranial base (N Se), Pn perpendicular - perpendicular line dropped from Se-N at N'and Palatal plane, Marking of the inclination angle and of the angle between the N Se line and the palatal plane.

Results:

Prevalence of age and gender wise distribution of patients with minimum age was 16 years and maximum age was 32 years There was no statistical significant difference of mean age between males and females (P>0.05). Male to female ratio M: F was 1:1.8. Comparison of chin measurements between Group II and Group III there was no statistically

significant difference of mean Symphysis Height (mm), Symphysis Thickness, Inclination angle (α) degrees and Orientation angle (β)degrees between Group-II and group-III (P>0.05). Whereas there was statistically highly significant difference of mean Chin projection, Glabella projection (mm), pog-pog', gn-gn' and me- me' between Group-II and group-III (P<0.001) and (P<0.05). : Data was analyzed by IBM SPSS 25.0 version software. For quantitative data analysis of descriptive statistics were done mean, standard deviation initially; independent samples "t-" test was used to compare the mean values between two variables For qualitative data analysis chi-square test was applied for statistical significant and $P \leq 0.05$ was considered statistically significant for all comparisons.

Conclusions: On comparing different maxillary inclination with linear nasal parameters, nasal height, and NBL was found to be increased in the Group III and gradually decreases as the inclination progresses toward Group II and further toward Group I. Group I patients are characterized by a thicker symphysis compared to the Group III. Symphysis height was found to be the longest in the Group III and the shortest in the Group I.

Keywords:

Lateral cephalometry, matte-acetate tracing paper, maxilla.Plane of the anterior cranial base (N Se), Pn perpendicular, symphysis.

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ORTHODONTICS BY ORTHODONTIST ONLY

**Afaf Mohammed Rafiq. #Dr. Safiya Sana*

**I Year MDS, # Professor, Department of Orthodontics and Dentofacial Orthopedics*

Abstract:

The practice that has generated the most controversy in orthodontics has been the sale of clear plastic aligners directly to public. By cutting out in-person dental supervision and monitoring, companies offer treatment for thousands of dollars less than a similar in-office procedure, the American Dental Association and the American Association of Orthodontists have referred to this phenomenon as DIY dentistry.

Correcting malocclusion is a multistep process. It involves both treatment planning and execution of the treatment plan. Both tasks require specialized education and training that includes a minimum of 4 years of dental school followed by 2 to 3 years of orthodontic residency. Tooth movement is not something for DIY amateurs. Unfortunately, most of the general population is unaware of the implications of such methods of orthodontic tooth movement. It is the responsibility of dental professionals to put their educational background to use and uphold the ethical principles of clinical practice by educating the public regarding the consequences of using these methods to straighten their teeth. DIY orthodontics is undoubtedly a threat and an opportunity for the orthodontic community, and its potential to impact the field should not be underestimated.

Keywords: Orthodontic treatment, Braces, Brackets, Do-it-yourself, Straight teeth.

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“EVALUATION OF ASSOCIATION BETWEEN BODY FAT PERCENTAGE WITH SKELETAL MATURATION AND DENTAL DEVELOPMENT IN ORTHODONTIC PATIENTS.”

Dr. Afaf II Year Post Graduate, Department of Orthodontics and Dentofacial Orthopedics,

Abstract;

Objective:

This study aims to examine the association between body fat percentage with skeletal maturation and dental development in orthodontic patients.

Methods:

Total of 192 Orthodontic patients, aged between 10 and 16 years
were assessed and subjects were divided into two groups 96 (50%) Boys and 96 (50%) Girls. Body fat percentage was measured using skin fold thickness and it was assessed using equations given by Slaughter et al. BMI was calculated using height and weight data and it was assessed with the formula used by the Centers for Disease Control and Prevention (CDC). Skeletal maturation was assessed using the Cervical Vertebral Method (CVM) and dental age using the Demirjian method.

Results:

Prevalence of overfat and obesity using BF% was 26% and 5.2% among boys and 24% and 8.3% among girls. Prevalence of overweight and obesity using BMI percentile was 17.7% and 7.3% among boys and 16.7% and 5.2% among girls. There was statistically significant

difference ($p<0.05$) found between distribution of BMI and BF% among boys and girls. 24% boys and 21.7 % girls belonging to overfat category had normal BMI. Correlation of BMI and BF% showed statistically significant difference in relation to CVMI among both boys ($r=0.377$, $P < 0.001$) and girls ($r=0.381$, $P < 0.001$). Data were analysed using Unpaired t-test, ANOVA and Chi-square test. Bivariate correlation analysis using Pearson's correlation coefficient (r) was used to test the strength and direction of relationships between the interval levels of variables.

Conclusions:

Orthodontists should consider Body fat percentage when evaluating the timing for growth modification treatment. Along with height and weight data, skin fold thickness can be assessed, which is simple, inexpensive and it may increase the sensitivity for the determination of percentage body fat.

Keywords: Body fat percentage, Body mass index, Skeletal maturation, Dental development

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DEPARTMETN OF PROSTHODONTICS, CROWN & BRIDGE INCLUDING IMPLANTOLOGY

CHEEK PLUMPER:- RECREATING THE ESTHETIC

Dr Tanveer Fatima

Reader Department of Prosthodontics Crown and Bridge Including Implantology

In today's world, facial esthetics play a vital role in social and professional life. Prosthodontic rehabilitation deals not only with the replacement of missing teeth but also with enhancing facial aesthetics. Aging brings a lot of changes to the face, the most common being sunken cheeks. Aging leads to a high impact on external facial esthetics resulting in slumped cheek leading to undesirable facial esthetics. Cheek plumper is a commonly used prosthesis to enhance the support of sunken cheeks providing better esthetic and provides better support to the muscles encircling the mouth.

AUTONOMOUS, ELECTRIFYING "SMART" DENTAL IMPLANT.

Dr Nazia Afreen.
Assistant Professor
Department of Prosthodontics, crown and bridge including Implantology

The dental implant failure is primarily attributed to the susceptibility of the implant and implant-supported restorative surface to bacterial colonisatiion and subsequent inflammation of the gingival tissues. They were many attempts to achieve the effective prevention of peri-implant disease by incrporating antimicrobial molecules in the restorative dental crown to reduce bacterial activity. Among many tissue regenerative therapies, photo-biomodulation therapy has a significant biological effects. This paper presents a smart dental implants(called SDI) system for a in-situ ambulatory PMB therapy, which allows the in-situ light delivery, enabled by the energy harvesting from dynamic human oral motion via an engineered pezoelectric dental crown made of BTO (Barium Titanate-Piezoelectric, ferroelectric) an associated circuit and microlight emitting diodes(LEDs).

BTO is a clinically viable infection-resistant energy harvested hybrid functionalised nanoparticles that show adequate mechanical properties with the outstanding biocompatibility. This coupled with non-bacterial activity, stability and non-toxicity suggests that it can serve as apotent biomaterial platform for developing futuristic dental implants which could never fail of peri-implantitis.

SUCCESS RATE AND FAILURES IN FIXED PARTIAL DENTURES AND ITS MANAGEMENT

Dr Shilpa Sinnurkar

Abstract:

An objective evaluation of an existing restoration is necessary before coming to a conclusion that it is defective and require either repair or replacement. What hconstitutes a failure? Are failures absolute or are there degree of failures? There are, of course, minor failure, which are a matter of opinion and could possibly left without immediate repair or replacement, and there are obvious failures where repair or replacement is essential to avoid further damage to the dentition.

Further it is impossible to say how long a tooth with crown or bridge should last, failure may occur at any time. Loss of vitality, for instance may occur years after cementing a bridge and may be the end result of chronic inflammation and degenerating pulp beneath an otherwise intact bridge.

CASTING THE CAST PARTIAL DENTURE. (DESIGN CONSIDERATION, SURVEYING, BLOCK OUT FOLLOWED BY OVERVIEW ON CASTING PROCEDURE)

Dr Shilpa Sinnurkar

Aims and Objectives:

We as a Prosthodontist preferably not to treat partial edentulous arches with cast partial denture despite of knowing all the advantages and disadvantages compare to any other

Prosthetic treatment. The only thing which is making us not to select cast partial denture as a treatment option is because of the numerous steps involved, various materials used and never ending casting defects and its failures which ultimately lead us to the frustrating mind set for any prosthodontist who perform the treatment. We will discuss each steps in cast partial denture fabrication starting with the principle's involved in designing distal extension, surveying, block out, wax up design focusing preferably on the laboratory procedures and not to forget selection of the right material in each step.

DEALING OF AN ATROPHIC JAWS WITH ALL-ON-FOUR CONCEPT

Dr Vaishali Chuniyani.

One of the greatest challenges in implant dentistry is the treatment of patients with severely atrophic jaws. A solution for such situations in implant dentistry is the All-on-four concept . The "all-on-four" treatment concept was developed to maximize the use of available remnant bone in atrophic jaws. The All-on-Four concept is an exception which uses only four implants to support an acrylic, screw-retained provisional prosthesis, followed by a definitive prosthesis. This All-on four concept is much reliable treatment ,alternative of conventional dentures which had shown successful outcomes in short term, long term studies. This All-on-four protocol gives new hope for a perceivable success, while becoming a promising treatment method of choice and standard in the care for severely compromised patients.

Keywords: All-on-four concept; dental implant; severe atrophy; tilted implants; dental prosthesis.

SMART MATERIALS IN PROSTHODONTICS: A REVIEW

Dr. Sheshnag Ghalgond

Abstract:

There is no single material in dentistry that is ideal in nature and fulfils all the requirements of an ideal material. As the research for the newer material was continued, the introduction of smart materials came into existence. These smart materials support the tooth structure and allows to prepare much conservative preparation for the success of the prosthesis without hampering the surrounding oral tissues. Conventionally used materials, which are placed for long term are harmless only if passive but they can become active in the presence of stimuli leading to harmful reaction. An important aspect of smart materials been used in various areas of dentistry is their remarkable biocompatibility which have marked the beginning of new era of bio smart dentistry.

Conclusion:

As dentistry keeps evolving, in future the smart materials should be used to promote much better aesthetic prognosis for the patient related to the prosthesis and also should try to incorporate the smartness into the traditionally used

EFFECTS OF DIFFERENT DENTURE CLEANSING METHODS TO REMOVE CANDIDA ALBICANS FROM DENTURE BASE RESIN MATERIALS

Dr. Syeda Safoora

Introduction:

The need for complete dentures has been rising due to longer life expectancy. Felton et al. have reported that about 69% of adult population has variability in edentulism. The tissue surface of denture is more susceptible for microbial contamination due to stagnation, lack of cleansing action of tongue and its unpolished nature. Constant supply of microbial flora from mouth to respiratory tract and digestive system can have huge deleterious effect on such person's health. Even though several techniques were shown to disinfect dentures, there is a need to compare the most effective denture cleansing method.

Aims and Objectives:

This study aims to evaluate and compare the most effective antimicrobial action among three different denture cleansing methods like UV irradiation, Ultrasonic and chemical disinfection.

Methodology:

We generated 80 identical acrylic resin specimens and soaked them in a suspension of Candida albicans. The reduction in microorganism counts after application of the different denture cleaning methods was calculated. The effectiveness of the denture-cleaning methods in reducing C albicans was evaluated following a single cleaning event.

Results:

The test for normality showed that Ultrasonic group was not normally distributed and hence Kruskal Wallis test was performed. The Kruskal Wallis test showed a p value less than 0.001, which is highly statistically significant. The post hoc Dunn test showed that all groups are different from each other.

Conclusion:

Sodium hypochlorite is the best disinfectant against Candida Albicans

SMART MATERIALS IN PROSTHODONTICS: A REVIEW

Dr. Ankit Pardeshi

Abstract:

There is no single material in dentistry that is ideal in nature and fulfils all the requirements of an ideal material. As the research for the newer material was continued, the introduction of smart materials came into existence. These smart materials support the tooth structure and allows to prepare much conservative preparation for the success of the prosthesis without hampering the surrounding oral tissues. Conventionally used materials, which are placed for long term are harmless only if passive but they can become active in the presence of stimuli leading to harmful reaction. An important aspect of smart materials been used in various areas of dentistry is their remarkable biocompatibility which have marked the beginning of new era of bio smart dentistry.

Conclusion:

As dentistry keeps evolving, in future the smart materials should be used to promote much better aesthetic prognosis for the patient related to the prosthesis and also should try to incorporate the smartness into the traditionally used material to overcome the limitation of the conventional materials.

EFFECTS OF DIFFERENT DENTURE CLEANSING METHODS TO REMOVE CANDIDA ALBICANS FROM DENTURE BASE RESIN MATERIALS

Dr. Kishwer Sameen

Introduction:

The need for complete dentures has been rising due to longer life expectancy. Felton et al. have reported that about 69% of adult population has variability in edentulism. The tissue surface of denture is more susceptible for microbial contamination due to stagnation, lack of cleansing action of tongue and its unpolished nature. Constant Constant supply of microbial flora from mouth to respiratory tract and digestive system can have huge deleterious effect on such person's health. Even though several techniques were shown to disinfect dentures, there is a need to compare the most effective denture cleansing method.

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Sodium hypochlorite is the best disinfectant against Candida Albicans

SHAPE MEMORY ABUTMENT

Dr. Sheshnag Ghalgond

Background:

Screws and cements are the 2 methods of attaching restorations to dental implants. Screw-retained implant restorations permit a retrievability that, it allows for effortless inspection of underlying components. But in clinical practice it is retrieved only for repair of damaged or fractured component because retrieval , reinsertion and cementation is time consuming.

Methodology:

Kreissl et al evaluated more than 200 implants over a 5-year period and observed 6.7% screw loosening and 5.7% porcelain fracture. In a systematic review, Zurdo et al reported that over 20% of fixed implant restorations suffered porcelain fracture or screw loosening. The lingual set crew gives excellent occlusion but also requires extra expertise and chair time.

Discussion:

This innovative abutment system combines the retrievability of screw-retained abutments with the ease of use, occlusion control, adaptability to implant angulation, and esthetics of cement-retained prostheses. Shape memory abutment eliminates the need for occlusal composite resins and the risk of subgingival residual cement.

Summary:

The screw cement retained prosthesis have their own perks but the moving to this newer technique would ease the workload for the practioner and be helpful in a satisfying the patient.

Conclusion:

These distinct advantages can be justified by further detailed investigations, longer clinical evaluation, and more in-depth analysis of physical, electrochemical, and biological performance of the abutment.

EFFECTS OF DIFFERENT DENTURE CLEANSING METHODS TO REMOVE CANDIDA ALBICANS FROM DENTURE BASE RESIN MATERIALS

Dr. Syeda Safoora

Abstract:

Introduction:

Graphene was discovered by Andre Geim and Konstantin Novoselov at the University of Manchester in 2004 Graphene family nonmaterial, with supercilious mechanical, chemical, and biological properties, have grabbed attention on the path of researches seeking newer materials for future biomedical applications. Stick a flake of graphite to a scotch tape and then exfoliated it to separate the graphite layers and repeated this process several times to reduce the thickness of graphite until few layers of graphene sheet was isolated.

Structure: Graphene is a single sheet of one-atom thickness arranged in a honeycomb-like lattice

Advantages:

1. It is the thinnest yet the strongest, it is a good conductor of heat and electricity
2. Enhance differentiation of stem cells
3. Biocompatible
4. High elastic modulus

Disadvantages:

1. Super expensive
2. Graphene is prone to oxidative

Dental Application:

1. Detection of bacteria
2. Antibacterial activity of graphene
3. Restorative dentistry
4. Prosthodontics
5. Coating for implants

Conclusion:

Graphene has special properties that alter the world of prosthodontics in better way. Graphene has 2D like nature and its superior properties, making it useful for prosthodontics and implant dentistry. It is the strongest material till now; however, its brittle nature so it cannot be used structurally. However, it can be used to reinforce other materials. It has various applications in medical field. Further research is needed to look into depth of its usage in prosthodontics and implant dentistry

APPLICATION OF 3D PRINTING IN PROSTHODONTICS

Dr. Ankit Pardeshi

Background:

3-Dimensional (3D) printing is an industrial technology that has rapidly evolved over the years. This additive manufacturing approach differs from classical subtractive manufacturing principles and is currently utilized in a plethora of disciplines ranging from aerospace industries to personalized medicine and dentistry

Methodology:

The procedure employed in 3D printing, based on the deposition of exact layers using biomaterials. The whole process mainly includes the preparatory phase, printing phase, and post-handling phase.

Discussion:

Recent development in 3D printing technology enabled fabrication of customized prosthesis. It can be used in fabrication of surgical guides, physical models, copings and frameworks for implant.

Summary:

3D printing is a versatile manufacturing technology offering precise manufacturing and abundant choices of biomaterials.

FORENSIC ODONTOLOGY

Dr. Kishwer Sameen

Abstract:

Forensic odontology, is a specialized field of forensic science that involves the study and application of dental evidence in legal proceedings. The role of forensic odontology is crucial particularly in cases where other forms of evidence like fingerprints or DNA is not available.
Role of Prosthodontist in forensic dentistry comes into play where the victim has lost natural dentition and has been wearing prosthesis. Thus, forensic identification by using prosthodontic appliances such as labelling of dentures, bite mark analysis, rugoscopy is gaining popularity as it could provide important identification clues. Artificial Intelligence can be used to create 3D model of teeth and jaws that can be used to assist in facial reconstruction of unidentified remains.
This poster highlights evolution of forensic dentistry. From engraving a person's initials on prosthesis to scanning QR code for patient detail to usage of artificial intelligence, Forensics in prosthodontics have come a long way and has a promising future.

PHOTOBIOMODULATION: A NOVEL PERSPECTIVE TO PROSTHODONTIC CARE

Dr. Diksha Kasnale

Abstract:

Background:

Photobiomodulation (PBM), which is further termed as low-level laser therapy is a noninvasive type of therapy. PBM can promote tissue healing, manage pain, maintain oral health, improve implant success, relieve TMJ disorders, reduce complications, and manage oral mucositis in cancer patients in prosthodontics.

Methodology:

The present poster helps us to discover the various application of Photobiomodulation and their various uses in the field of prosthodontics. Data has been acquired from various publications journals and digital search engines like PubMed, google scholar , scopus.

Discussion:

Prosthodontic procedures often involve surgery, such as implant placement, tissue grafting, or denture adjustments. PBM can promote faster tissue healing and reduce postoperative discomfort by stimulating cellular repair mechanisms, also helps in treating denture stomatitis, better implant osseintegration , treating oral lesions, TMJ disorders and many more.

Summary:

It employs a specific wavelength of red and infrared light to induce numerous physiological effects in cells and tissues, forming the foundation of PBM. PBM in prosthodontics can facilitate tissue repair, control pain, maintain oral health, enhance implant success, alleviate TMJ conditions, lessen complications, and treat oral mucositis in cancer patients.

Conclusion:

In conclusion,Photobiomodulation (PBM) shows promise as a complementary treatment in the prosthodontics . While more investigation is required to establish exact protocols and fully comprehend their efficacy across different prosthodontic procedures and patient populations.

SECTIONAL IMPRESSION TECHNIQUES FOR PATIENTS WITH MICROSTOMIA

Dr. Ankit Pardeshi

Abstract:

Prosthetic rehabilitation of patient with limited mouth opening can pose a lot of difficulties especially during impression making procedures. Microstomia is defined as an abnormality with small oral orifice. It can occur due to electrical, thermal, or chemical burns or due to facial trauma. The condition can also result from genetic disorders such as partial duplication of chromosome, Freeman–Sheldon syndrome, Burton skeletal dysplasia, and diseases such as Plummer–Vinson syndrome or scleroderma. Other causes include surgical treatment for orofacial cancers and reconstruction of lip defects, surgical treatment of orofacial neoplasms and cleft lips. During impression procedures, ample mouth opening is required for proper tray insertion, but this is not possible in patients with microstomia. A maximum oral opening which is smaller than the size of the tray can make prosthetic treatment challenging. Due to the restricted mouth opening, insertion and removal of the impression trays can be a cumbersome process and various modifications of the trays needs to be done. Few of the modifications include the use of flexible trays and the sectional trays used with different modes of reassembling the segments extra orally after the impression is made. This demands for alterations and newer innovations of the standard impression procedures. The practitioner must make a preliminary impression that is accurate enough to facilitate the modified custom tray to be used for final impression.

ROLE OF DIGITAL TECHNOLOGY IN PROSTHODONTICS: ADVANCEMENTS, APPLICATIONS, AND IMPLICATIONS

Dr. Diksha Kasnale

Introduction:

The field of prosthodontics has witnessed a transformative shift with the integration of digital technology, revolutionizing traditional methods and enhancing patient care outcomes. This abstract delves into the pivotal role of digital technology in prosthodontics, elucidating its advancements, diverse applications, and profound implications.

Abstract:

Digital technology encompasses an array of innovative tools such as computer-aided design (CAD), computer-aided manufacturing (CAM), 3D printing, intraoral scanners, and virtual reality (VR). These technologies have streamlined various prosthodontic procedures, facilitating precise diagnostics, treatment planning, and prosthetic fabrication. CAD/CAM systems enable the fabrication of customized restorations with unparalleled accuracy and efficiency, reducing chairside time and enhancing patient satisfaction.Furthermore, intraoral scanners have revolutionized the traditional impression-taking process, offering a non-invasive, time-efficient alternative.The integration of digital technology in prosthodontics not only enhances clinical efficiency but also promotes patient-centered care. By enabling collaborative treatment planning and digital smile design, patients can actively participate in the decision-making process, leading to enhanced treatment satisfaction and aesthetic outcomes. AI is a reliable tool to make dental care smooth, better, time-saving, and economical for practitioners. The dentists can use AI to ensure quality treatment, better oral health care outcome, and achieve precision. AI can help to predict failures in clinical scenarios and depict reliable solutions. However, AI is increasing the scope of state-of-the-art models in dentistry but is still under development. Further studies are required to assess the clinical performance of AI techniques in dentistry.

DEPARTMETN OF ORAL PATHOLOGY & MICROBIOLOGY

EXPLORING THE TRANSFORMATIVE POTENTIAL OF CHAT GPT IN DENTAL MEDICINE AND ACADEMIA: IMPLICATIONS, APPLICATIONS, AND CONSIDERATIONS

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**Intern*

National Undergraduate Students Conference "Anveshan 2023" M.R. Ambedkar Dental Conference 3rd & 4th June 2023

Chat GPT, a powerful LLM(Large Language Model) trained on vast textual data, has transformative potential in academia and its impact extends to dental medicine. Recognizing the potential benefits and challenges is crucial in integrating LLMs effectively. This paper aims to provide an overview of the implications of Chat GPT on academia and their specific applications and considerations in dental medicine. Chat GPT can be utilized for clinical decision support, facilitating efficient access to evidence-based information. It also has the potential to enhance efficient writing and communication, especially in multilingual contexts. LLMs present challenges concerning patient data confidentiality and cybersecurity, emphasizing the need for robust privacy measures and data protection protocols in dental practice.

Chat GPT can offer benefits by enhancing academic writing fluency and supporting students in their research endeavours. However, it is important to establish acceptable boundaries for LLM usage in scientific writing, ensuring the preservation of scientific rigor and adherence to ethical standards.Understanding the implications of LLMs in dental medicine allows practitioners and educators to navigate the evolving landscape of AI technologies effectively.While Chat GPT holds potential for various applications in dental medicine, their integration must be approached with caution. The limitations, including the potential for misinformation and risks associated with malicious use, must be carefully considered.

Keywords:

Chat GPT, dental education, dental medicine, large lang exuage models.

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HISTOTRIPSY: A SOUND WAVE THERAPY IN TARGETING CANCER CELLS

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Famdent Show, Hyderabad, 3rd, and 4th February 2024

This paper delves into the cutting-edge application of ultrasound waves, specifically histotripsy, as a promising technique for the destruction of oral cancer cells and tumors. Histotripsy employs focused ultrasound pulses to generate controlled mechanical forces, disrupting targeted tissue with precision. The abstract explores the potential of histotripsy in oral cancer treatment, emphasizing its non-invasive nature and the ability to selectively target malignant cells. By providing insights into the mechanism and efficacy of ultrasound-based histotripsy, this review contributes to the evolving landscape of therapeutic modalities in oral oncology, offering a glimpse into a promising approach that holds great potential for advancing cancer treatment strategies.

Keywords: histotripsy, oral cancer, ultrasound

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SALIVARY HCG AS A BIOMARKER IN DETECTION OF PREGNANCY

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Saliva is a clinically important biologic fluid that can be utilized for novel approaches in prognosis, diagnosis, monitoring, and management of patients with oral and systemic disease. Saliva can be easily collected and stored and is ideal for early detection of disease. It is known to contain specific soluble biologic markers commonly referred to as biomarkers. The presence of multiple biomarkers makes it useful for multiplexed assays that can be developed as point-of-care devices, rapid tests, and for centralized clinical laboratory operations.

The measurement beta-human chorionic gonadotropin(beta-HCG) in plasma and urine are currently used in the detection of pregnancy. Beta-HCG levels in saliva are usually detectable at about 3-4 weeks of pregnancy and continue to increase throughout the pregnancy. However, only a few studies have been carried out to evaluate the role of saliva as a non-invasive, rapid and more acceptable biofluid for pregnancy detection. With this objective, the present study was carried out to determine the role of saliva in the detection of pregnancy using home -based pregnancy detection kits.

Keywords: Human chorionic gonadotropin , Pregnancy , Saliva, Salivary diagnostics.

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ASSESSMENT OF BACTERIAL FLORA IN PAEDIATRIC SUBJECTS USING CARIES ACTIVITY TESTS

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Dental caries, a prevalent bacterial disease, often afflicts children, particularly during the mixed dentition stage, causing discomfort and diminishing their quality of life. Key bacteria like Streptococcus mutans and Lactobacillus drive its progression. Factors such as crowded teeth and increased carbohydrate intake elevate the risk of caries during this developmental stage.

In this prospective study, saliva samples were collected from 6 to 12-year-old children at our outpatient department, aiming for a sample size of 100. Each participant provided two samples: one through spitting and the other via tongue swabs. The saliva was cultured on Rogosa's SL agar, and tongue swabs were cultured on mitis salivarius sucrose bacitracin agar, with colony counts performed manually which shows consistent bacterial counts across ages 7 to 11, indicating no significant difference in mean colonies between the age groups. These findings underscore the importance of caries activity tests in predicting caries risk among paediatric subjects and implementing preventive measures to mitigate the development of carious lesions, thereby enhancing overall oral health.

Keywords: Dental caries, Rogosa 's SL agar , Mitis salivarius sucrose bacitracin agar

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JAGGERY :- A NATURAL SUBSTITUTE TO FORMALIN FIXATIVE

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Fixation is a crucial process ensuring cells or tissues maintain their structure during subsequent treatments. Typically, fixatives, whether natural or synthetic, work by denaturing or precipitating proteins, aiming to prevent decomposition, putrefaction, or autolysis, thus preserving tissue integrity. While formalin is commonly used despite its carcinogenic effects, there is a growing interest in natural alternatives to mitigate risks. This study compares natural (jaggery) and synthetic (formalin) fixatives using routine methods on 60 tissue samples which concludes that natural fixatives, particularly jaggery, offer a safer alternative to formalin, recommending their adoption to minimize carcinogenic risks associated with synthetic fixatives.

In summary, fixation processes play a vital role in preserving tissue integrity, with fixatives like formalin commonly used despite associated health risks. This study underscores the importance of exploring natural alternatives such as jaggery to mitigate the carcinogenic effects of synthetic fixatives. Hence, the study advocates for the adoption of natural fixatives like jaggery over synthetic options like formalin, promoting safer working environments for personnel routinely handling fixation chemicals.

Keywords: Formalin, Microwave, Jaggery, Fixation.

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