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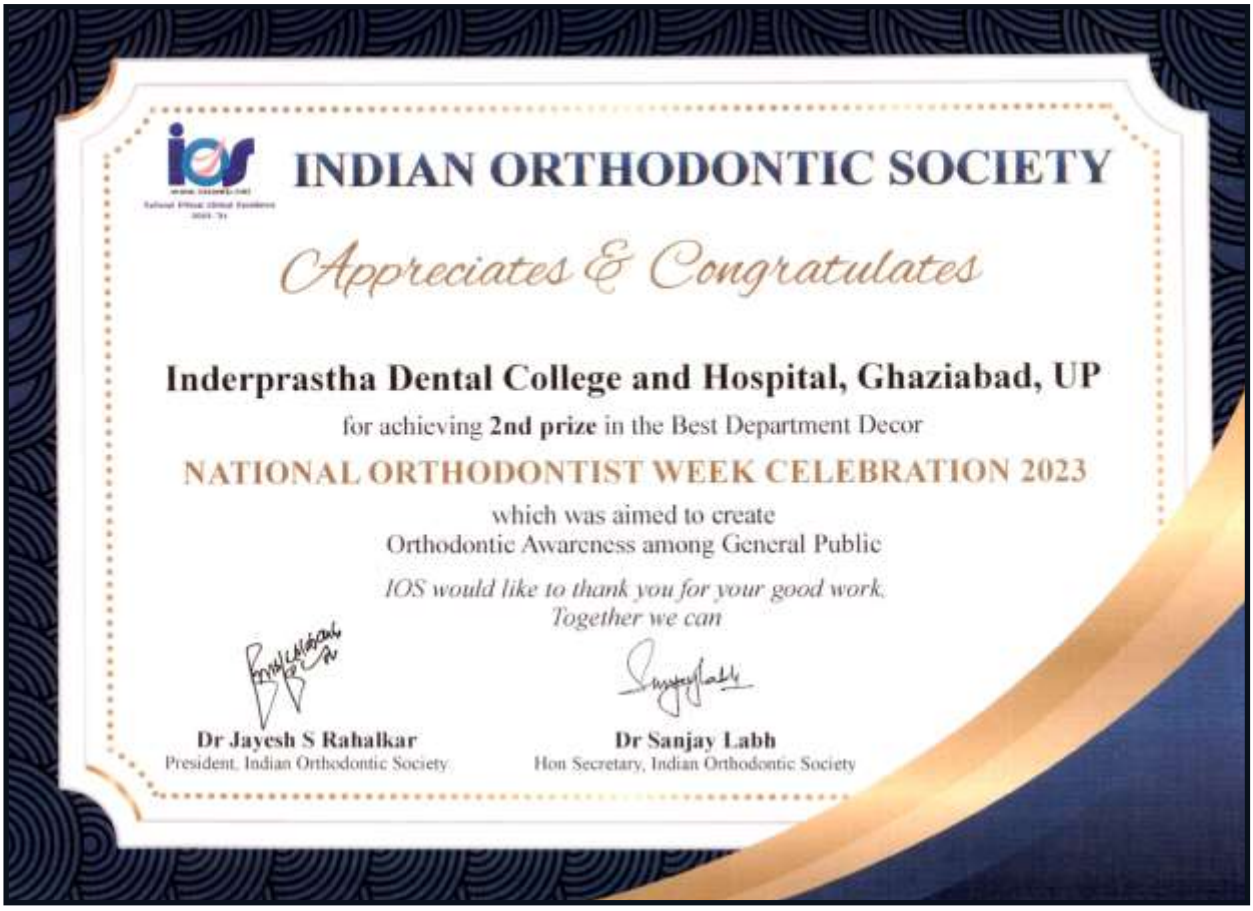

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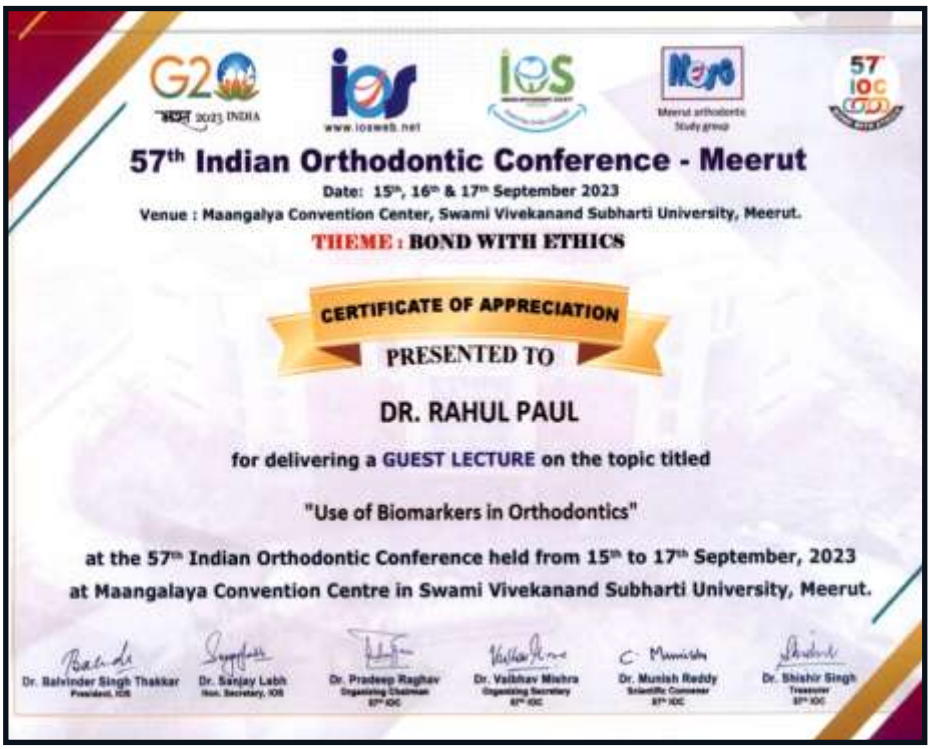

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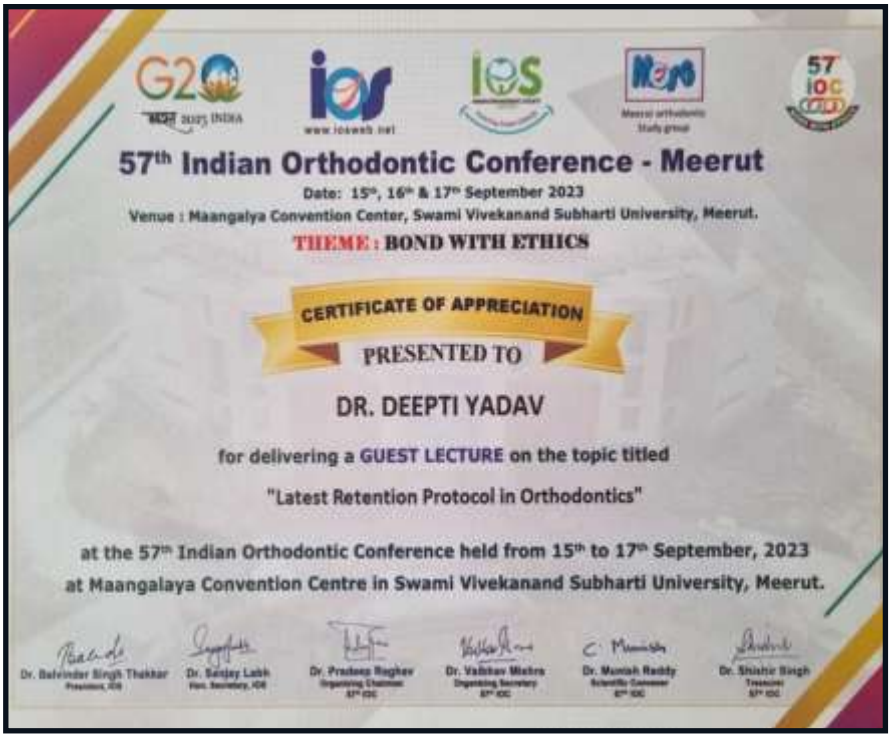

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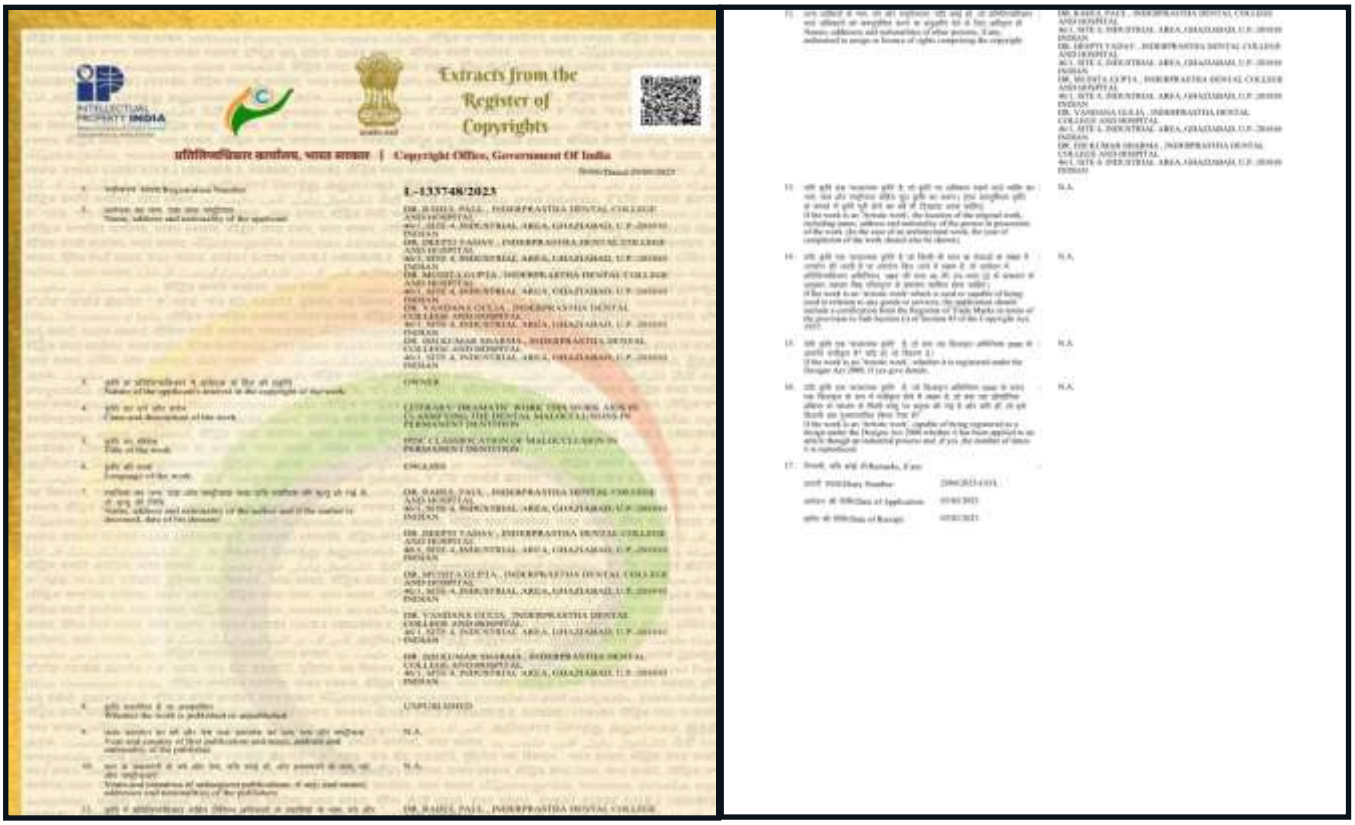

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NATURALISTA CAMPANO
ISSN: 1827-7160
Volume 28 Issue 1, 2024

Validation and Comparsion of the Demirjian Method and Alqahtani Method in Pedatric Population of Sahibabad Region

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Abstract: Introduction: Age estimation plays a significant role in crime investigation, genetic research, and human identification. It is a vital technique in the field of forensic sciences. Most widely used, Demirjian's technique is a scoring standard based on maturation stages of seven permanent teeth in the lower left quadrant. Alqahtani's approach uses panoramic or lateral oblique radiographs for age estimation. Both these methods have various advantages and disadvantages. In order to reduce the bias amongst different modalities of age assessment our study compares the accuracy of dental age assessment by using these two systems.
Materials and methods: This retrospective, cross-sectional study was conducted on selected 100 Orthopantomogram (OPG) radiographs of children between 5 and 13 years of age of Sahibabad region. The same set of radiographs were used in the calculation of age using the two methods (Demirjian's method and Alqahtani's method) and the child's chronological age was also calculated.
Statistical analysis: Paired t-test was applied to find out the mean difference between chronological age and Alqahtani age and also between the chronological and Demirjian age. One way ANOVA test was applied to know the difference between the chronological age, Demirjian age and Alqahtani age.
Results: The mean difference between the chronological age and Alqahtani age and between the chronological and Demirjian age was statistically significant among males ($P<0.0001$). The mean difference between chronological and alqhatani age was statistically significant ($P<0.001$). While between the chronological and demirjian age, it was not found to be statistically significant among females ($P>0.352$). When the three age estimation methods were compared, there was no significant difference ($P>0.100$).
Conclusion: The Demirjian's method and the Al-Qahtani could accurately estimate the actual age of the patient. Instead of only using demirjian method for age estimation, Alqahtani's method must also be given equal importance since it is equally efficient.

Keywords: Demirjian's Method, Dental Age Estimation, Al-Qahtani's Method, Chronological Age.

1. Introduction

Personal identification, now-a-days has its role not only for the purpose of legal medicine but also in cases of crime investigations, genetic research, and human identification. [1] It plays a significant role in differentiation of guilty from innocent ones for ethical problems, in legal matters, for declaring death records, and the basic for penetrating in the criminal cases, mass disasters or war sufferers. [2]
The old school modalities for personal identification may include anthropometry, age estimation, finger prints, sex discrimination, identification of a particular person, height measurement, and gender distinction through blood groups. [3] The exact age estimation during the hour of death with the assistance of remains of dental tissues is a

DR MANISH BHALLA FOR PUBLISHING PAPER AT NATURALISTA CAMPANO

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Comparative Evaluation of The Success of Biodentine, Silver Diamine Fluoride and Dycal When Used as An Indirect Pulp Capping Material in Primary Molars – A Clinical and Radiological Assessment.

Dr. Ritika Malhotra[1*], Dr. Manish Bhalla[2], Dr. Sumeet Taneja[3], Dr. Anisha Jain[4], Dr. Ruchita Mehlawat[5], Dr. Singh Anu Arvind[6]

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Corresponding Author: Dr. Ritika Malhotra,
Professor, Department of Pediatric and Preventive Dentistry, Inderprastha Dental College and Hospital, Ghaziabad, Uttar Pradesh.

Abstract: Introduction: Dental caries is a prevalent disease in primary teeth, often requiring treatment to preserve pulp vitality. Indirect pulp treatment (IPT) is a minimally invasive procedure aimed at preserving the pulp in deep carious lesions. Calcium hydroxide has been the traditional material for IPT, but newer materials like Biodentine and Silver Diamine Fluoride (SDF) offer advantages over calcium hydroxide. This study aimed to compare the clinical and radiological outcomes of Biodentine, SDF, and Dycal as IPT agents in primary molars.
Materials and Methods: Forty-five primary molars in children aged 5–9 were randomly assigned to three groups: Biodentine, SDF, and Dycal. Clinical and radiographic assessments were conducted at baseline, 1 month, and 3 months after treatment. The mean distance between the pulp and the base of the restoration (Point A to Point B) was measured radiographically. Data were analyzed using statistical tests.
Results: All three materials showed reparative dentin formation at 1 and 3 months. Biodentine demonstrated the highest amount of reparative dentin formation, followed by SDF and Dycal. Biodentine and SDF showed 100% clinical and radiographic success rates, with no adverse pulpal reactions. Dycal also showed positive outcomes, although less favorable compared to Biodentine and SDF.
Conclusion: Biodentine, SDF, and Dycal are effective IPT materials for primary molars, with Biodentine demonstrating the highest reparative dentin formation. SDF can be considered an alternative in severe early childhood caries cases and uncooperative children. Further studies with larger sample sizes and histopathological investigations are needed to validate these findings.

1. Introduction

Oral health is a significant aspect of a child's comfort and growth. Dental caries, that remains a serious public matter globally, is one of the most frequently occurring diseases, predominantly in relation emergent countries, and in the previous decades. [1] Caries prevalence in primary teeth ied 1% to 80% out of which 75% of the teeth have pulpal exposure. [2] Preservation of deeply carious teeth in children is of a chief worry to the pedodontist and general

DR RITIKAMALHOTRA FOR PUBLISHING PAPER AT NATURALISTA CAMPANO

Dr Manish Bhalla / Afr.J.Bio.Sc. 6(S1) (2024) 1-9 ISSN: 2663-2187

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African Journal of Biological Sciences

Research Paper Open Access

Comparative evaluation of Instrumentation time and Child's behaviour after using Rotary, Reciprocating and Hand files in primary teeth using Frankel Behaviour rating in 5 –10 yrs old patients: An in -vivo study.

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DR MANISH BHALLA FOR PUBLISHING PAPER AT AFRICAN JOURNAL OF BIOLOGICAL SCIENCE

Knowledge attitude and practice amongst paediatricians towards oral health of children: An evidence based review of the global scenario

Knowledge attitude and practice amongst paediatricians towards oral health of children: An evidence based review of the global scenario

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ABSTRACT

Background: Primary care providers, such as general physicians, pediatricians, and school nurses, have the potential to significantly contribute to the delivery of preventive services, particularly for children under the age of three in demographic segments with restricted accessibility to dental care. In light of the existing challenges pertaining to the availability of dental services for individuals with low income in India, it is important to engage non-dental primary healthcare providers in the process of identifying and mitigating oral health issues.

Objective: The purpose of this overview is to present the findings derived from systematic reviews and cross-sectional studies regarding the current knowledge, attitude and practice of pediatric oral health care among physicians and explore the effectiveness of various interventions, such as continuing medical education, printed educational material, academic outreach, and reminders, in facilitating the adoption of new knowledge and practices among primary care providers.

Results: The present analysis shows that medical practitioners lack the overall knowledge to provide valid dental referrals for children and adolescents. This may be due to inadequate training in dental morphologies and diseases in medical schools, failure to follow AAP/AAPD criteria, or negligence of pediatric oral health. The review confirms the lack of knowledge about developmental aspects like tooth eruption timing, dental caries etiology, mother-to-child oral bacteria transmission, preventative services like topical fluorides and pit-fissure sealants, and others. Dental referrals have also failed due to timing constraints and insurance issues.

Conclusion: The data reveals that pediatricians need better oral health training. It is crucial to improve pediatricians' oral/dental health related knowledge and practices. Pediatricians, general physicians and dentists, must work together to promote oral health and prevent dental problems in children.

INTRODUCTION

Oral health is recognised by the World Health Organization (WHO) as an important subject for interprofessional collaboration within the primary health sector. A more comprehensive definition of oral health was introduced in 2016 by the Federal Dental International (FDI) Dental World Federation as the "capability to speak, taste, smile, touch, chew, swallow, and express a variety of emotions through facial expressions with confidence and no pain.

DR RACHITA MEHLAWAT FOR PUBLISHING PAPER AT EUROPEAN CHEMICAL BULLETIN

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Effect of premature loss of primary teeth on prevalence of malocclusion in permanent dentition: A systematic review and meta-analysis

DR SAUMYA TANEJA FOR PUBLISHING IN FRONTIERS IN DENTISTRY

Original Article

Cone-beam computed tomographic evaluation and fracture resistance of endodontically retreated teeth using hyflex remover, Mtwo, and ProTaper retreatment file systems: An *in vitro* study

Isha Singh, Dakshita Joy Sinha, Pallavi Sharma, Kunal Bedi, Priyanka Rani, Swapnil Vats
Department of Conservative Dentistry and Endodontics, Inderprastha Dental College and Hospital, Ghaziabad, Uttar Pradesh, India

Abstract

Introduction: One of the important factors contributing to the success of nonsurgical endodontic retreatment is the efficient removal of the obturating material from the root canal space. However, the fracture resistance of the tooth is likely to be affected by this procedure. Therefore, the study envisages assessing residual filling material in the root canals and the tooth's resistance to fracture postretreatment using different retreatment files.

Materials and Methods: Ninety extracted mandibular premolars with one root and a single canal were decoronated, followed by chemo-mechanical preparation, and thereafter, using the lateral compaction method, root canals were obturated. The samples were divided into three groups (n = 30) in accordance with retreatment file systems, namely Hyflex Remover, Mtwo, and ProTaper. All three groups were subjected to the cone-beam computed tomography evaluation to assess remnants of obturating material inside the canals postretreatment, and the same samples were further assessed for fracture resistance, respectively. The collected data were evaluated using the statistical analysis using the Kruskal–Wallis and *post hoc* Bonferroni tests.

Results: There were significant differences in the volume of residual filling among the tested groups in the cervical thirds ($P < 0.05$). The Hyflex remover file showed the highest fracture resistance (427.30 ± 33.53 N), followed by the Mtwo R (306.90 ± 27.17 N) and ProTaper R (178.50 ± 36.82 N).

Conclusion: All the tested nickel-titanium retreatment files performed satisfactorily. Hyflex remover left the least amount of filling material in the cervical third and displayed the highest fracture resistance among the respective groups.

Keywords: Cone-beam computed tomography, hyflex remover, retreatment Mtwo files, retreatment ProTaper files, tooth fracture resistance

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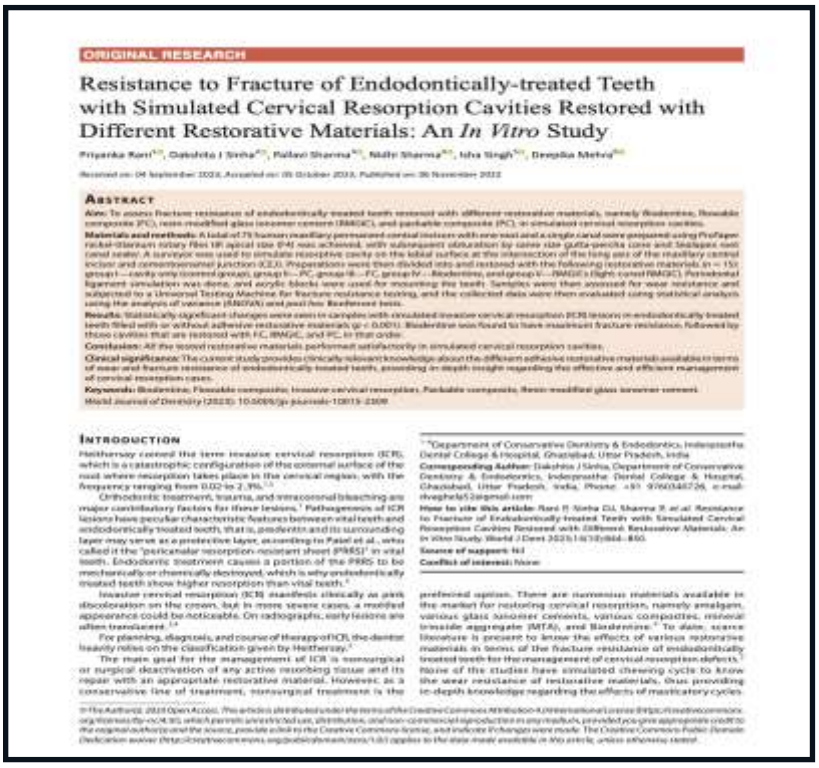
DR DAKSHITA JOY SINHA AND DR PALLAVI SHARMA PUBLISHED PAPER IN SAUDI ENDODONTIC JOURNAL



ORIGINAL RESEARCH

Resistance to Fracture of Endodontically-treated Teeth with Simulated Cervical Resorption Cavities Restored with Different Restorative Materials: An *In Vitro* Study

Priyanka Rani[1,2], Dakshita J Sinha[2,3], Pallavi Sharma[2,3], Nidhi Sharma[2,3], Isha Singh[2,3], Deepika Mehra[2,3]

Received on: 04 September 2023, Accepted on: 05 October 2023, Published on: 06 November 2023

Abstract

Aim: To assess fracture resistance of endodontically treated teeth restored with different restorative materials, namely Biodentine, flowable composite (FC), resin modified glass ionomer cement (RMGIC), and packable composite (PC), in simulated cervical resorption cavities.

Materials and methods: A total of 75 human maxillary permanent central incisors with one root and a single canal were prepared using ProTaper nickel-titanium rotary files till apical size (F4) was achieved, with subsequent obturation by cone-size gutta-percha cone and Sealapex root canal sealer. A surveyor was used to simulate resorptive cavity on the labial surface at the intersection of the long axis of the maxillary central incisor and cementoenamel junction (CEJ). Preparations were then divided into and restored with the following restorative materials (n = 15): group I — cavity only (control group), group II — FC, group III — FC, group IV — Biodentine, and group V — RMGIC (light-cured RMGIC). Periodontal ligament simulation was done, and acrylic blocks were used for mounting the teeth. Samples were then assessed for wear resistance and subjected to a Universal Testing Machine for fracture resistance testing, and the collected data were then evaluated using statistical analysis using the analysis of variance (ANOVA) and *post hoc* Bonferroni tests.

Results: Statistically significant changes were seen in samples with simulated invasive cervical resorption (ICR) lesions in endodontically treated teeth filled with or without adhesive restorative materials ($p < 0.001$). Biodentine was found to have maximum fracture resistance, followed by those cavities that are restored with FC, RMGIC, and PC, in that order.

Conclusion: All the tested restorative materials performed satisfactorily in simulated cervical resorption cavities.

Clinical significance: The current study provides clinically relevant knowledge about the different adhesive restorative materials available in terms of wear and fracture resistance of endodontically treated teeth, providing in-depth insight regarding the effective and efficient management of cervical resorption cases.

Keywords: Biodentine, Flowable composite, Invasive cervical resorption, Packable composite, Resin-modified glass ionomer cement.
World Journal of Dentistry (2023): 10.5005/jp-journals-10015-2309

Introduction

Heithersay coined the term invasive cervical resorption (ICR), which is a catastrophic configuration of the coronal surface of the root where resorption takes place in the cervical region, with the frequency ranging from 0.02 to 2.9%.[1,2]

Orthodontic treatment, trauma, and intracoronal bleaching are major contributory factors for these lesions.[3] Pathogenesis of ICR lesions have peculiar characteristic features between vital teeth and endodontically treated teeth, that is, predentin and its surrounding layer may serve as a protective layer, according to Patel et al., who called it the "pericanalar resorption-resistant sheet (PRRS)" in vital teeth. Endodontic treatment causes a portion of the PRRS to be mechanically or chemically destroyed, which is why endodontically treated teeth show higher resorption than vital teeth.[4]

Invasive cervical resorption (ICR) manifests clinically as pink discoloration on the crown, but in more severe cases, a reddish appearance could be noticeable. On radiographs, early lesions are often translucent.[1,4]

For planning, diagnosis, and course of therapy of ICR, the dentist heavily relies on the classification given by Heithersay.[1]

The main goal for the management of ICR is nonsurgical or surgical deactivation of any active resorbing tissue and its repair with an appropriate restorative material. However, as a conservative line of treatment, nonsurgical treatment is the preferred option. There are numerous materials available in the market for restoring cervical resorption, namely amalgam, various glass ionomer cements, various composites, mineral trioxide aggregate (MTA), and Biodentine.[5] To date, scarce literature is present to know the effects of various restorative materials in terms of the fracture resistance of endodontically treated teeth for the management of cervical resorption defects.[6] None of the studies have simulated chewing cycle to know the wear resistance of restorative materials, thus providing in-depth knowledge regarding the effects of masticatory cycles.

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DR DAKSHITA JOY SINHA AND DR PALLAVI SHARMA FOR PUBLISHING PAPER IN WORLD JOURNAL OF DENTISTRY

ORIGINAL RESEARCH

Evaluation of Fracture Resistance of Endodontically Treated Teeth after Retreatment with Different Retreatment Files Systems: An *In Vitro* CBCT Study

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Abstract

Aim: To assess residual filling material in the root canals and the tooth's resistance to fracture postretreatment utilizing retreatment files, namely ProTaper Universal Taper (ProTaper), Mtwo, and NeoEndo.

Materials and methods: A total of 90 human-extracted mandibular premolars with one root and a single canal were selected for this study. Samples were decoronated, followed by chemomechanical preparation, and thereafter, using the lateral compaction method, root canals were obturated. The samples were divided into three groups (*n* = 30)—retreatment file systems, namely ProTaper, Mtwo, and NeoEndo. All three groups were subjected to cone-beam computed tomography (CBCT) evaluation to assess remnants of obturating material inside the canals, and the same samples were further assessed for fracture resistance using the universal testing machine (UTM). The collected data was then evaluated using statistical analysis using the Kruskal–Wallis and post hoc Bonferroni tests.

Results: There were significant differences among the tested groups in the cervical thirds, following statistical analysis ($p < 0.05$). The least residual material was found using ProTaper R (0.0260 ± 0.16107), followed by NeoEndo R (1.1000 ± 0.29814), and the maximum by Mtwo R (1.3500 ± 0.21960). In terms of fracture resistance after retreatment using ProTaper, Mtwo, and NeoEndo retreatment file systems, no significant differences were observed.

Conclusion: All the tested nickel–titanium (Ni-Ti) retreatment files performed satisfactorily in removing the material from the obturated canals. The filling material could not be entirely removed from any of the file systems. ProTaper R left the least amount of filling material in the cervical third. No statistically significant difference was displayed in terms of the fracture resistance among the respective groups.

Clinical significance: Retreatment is necessary in order to save a tooth that has undergone erroneous root canal treatment. To save time retreatment rotary files are being widely used these days. But these files may weaken the tooth by excessive removal of tooth structure. The current study provides clinically relevant knowledge about the different retreatment file systems available, providing in-depth insight into the effective and efficient management of challenging endodontic retreatment cases.

Keywords: AH Plus sealer, Cone-beam computed tomography, Mtwo retreatment files, NeoEndo retreatment files, ProTaper retreatment files.

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Introduction

Innate reluctance is observed in patients to undergo tooth extraction, and more and more individuals desire to retain their natural dentition. Toward achieving this goal, endodontic retreatment or surgery may enable dental practitioners to save teeth that have previously undergone erroneous root canal treatment, thereby delivering in a "second wind" for the patients.

Retreatment is indispensable in the case of such endodontic failure, as is the case with other clinical setbacks.[1] Option exists to proceed with non-surgical retreatment (orthograde) or opical surgery (retrograde) for undertaking endodontic retreatment. Thorough knowledge of dental anatomy is a crucial factor for a precise approach to endodontic retreatment. While considering the retrograde approach, many factors should be considered, like the approximation of the root apex to dental or local anatomical structures like nerves and foramen, thus making the procedure intricate.[2] However, as a conservative line of treatment, nonsurgical retreatment is the preferred option. To enable clean-up of the entire root canal's orthograde retreatment focuses on reclaiming the entrance to the apex through the thorough removal of obturation material.[3]

There are numerous methods to remove filling materials from the root canal system, including the use of endodontic hand files, nickel–titanium (Ni-Ti) rotary instruments, Gates-Glidden burs, heat, ultrasonic instruments, lasers, and adjunctive solvents. The gutta-percha removal using hand files can be a tedious and time-consuming process. Savings in chairside clinical time have been achieved by the usage of specially designed rotary Ni-Ti instruments, namely, Professional Taper (ProTaper) retreatment, D-RaCe, RaCeEndo, R-Endo, HyFlex removeL and Mtwo. For the removal of obturation material, and they have proved to be more efficient and safer than the traditional hand files.[4]

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Original Article

Comparative evaluation of fracture resistance of endodontically treated teeth restored with and without horizontal posts, using packable and bulkfill flowable composite: An *in vitro* study

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Abstract

Introduction: Root canal therapy is often required due to the pulpal and periradicular infection after coronal hard tissue loss. A high risk of biomechanical failure is associated with loss of structural integrity with endodontically treated teeth. Prognosis is affected by various parameters, such as extent of tooth structure loss, ferrule height, post and cores, and materials used for restoration.

Aim: The aim of this study was to comparatively evaluate the fracture resistance of endodontically treated teeth with mesio-occluso-distal (MOD) cavities restored with horizontal glass fiber resin posts and composite.

Materials and Methods: Ninety intact extracted maxillary molars were collected, subjected to endodontic treatment, and were divided into 6 groups ($n = 15$): Group 1 (control group, untreated teeth), Group 2 (cavity without restoration), Group 3a (cavity restored with Neo Spectra ST), Group 3b (cavity restored with Neo Spectra ST after placement of horizontal glass fiber resin posts), Group 4a (cavity restored with SDR Plus), and Group 4b (cavity restored with SDR Plus after placement of horizontal fiber resin posts). Then samples were subjected to a universal testing machine for evaluation. Data were statistically analyzed.

Results: The mean (standard deviation) fracture load among groups was 334.46 N (±31.15N) to 1241.73 N (±29.97N). Significant statistical difference at $P = 0.05$ was present between the groups. Group 1>Group 4b>Group 3b>Group 4a>Group 3a>Group 2.

Conclusion: Under the limitations of this *in vitro* study, it can be concluded that samples of MOD cavities in endodontically treated teeth, when incorporated with horizontal glass fiber resin posts, resulted in higher fracture resistance.

Keywords: Endodontically treated molars, fracture resistance, glass fiber post, Neo Spectra ST, SDR Plus.

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DR DAKSHITA JOY SINHA, DR SUGANDHA BHALLA, DR NIDHI SHARMA AND DR PALLAVI SHARMA FOR PUBLISHING PAPER IN SAUDI ENDODONTIC JOURNAL

Case Study

MANAGEMENT OF ENAMEL STAINS USING A COMBINATION TECHNIQUE OF MICROABRASION AND REMINERALIZING AGENT

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ABSTRACT

The most common cause of an unaesthetic smile is Dental fluorosis which leads to discolouration of the teeth due to staining. The staining of the incisor and cuspids gives a disagreeable and unaesthetic smile which ranges from mild-to-moderate fluorosis stains and tobacco stains. To overcome these problems, a minimally invasive approach, Enamel Microabrasion can be considered which not only enhances esthetics but also leads to minimal enamel loss. Due to the abrasive effect of the material, there are chances of postoperative sensitivity. To overcome these effects topical application of remineralizing agents after microabrasion is considered beneficial. The present case reports of 28 and 33-year-old male patients emphasize the management of fluorosis and tobacco stains respectively with microabrasion followed by a remineralizing agent which can be topically applied, and the outcome shows the efficacy of the blending technique of microabrasion and remineralization. Clinical significance is providing the minimally invasive non-restorative technique that provides excellent long-term esthetic outcomes.

Key words: Combination technique, Microabrasion, Macro-reduction, Remineralization

Introduction

An unaesthetic smile can psychologically impact young patients thereby leading to lowered self-esteem[1].The unacceptable discolorations or pitting of teeth can be due to several factors including fluoride stains amelogenesis imperfecta, and enamel hypoplasia which are developmental disturbances due to some extrinsic factors like intake of tobacco, coffee, tea, and red wine, and some intrinsic etiology [2]. Dental Fluorosis is characterized by mottle patches present on the enamel, that can be opaque and whitish in appearance, and striations that can be streaky or blemished. The mottled areas usually become stained on the enamel which gives a disagreeable appearance. This becomes challenging for the dentist to meet the requirement of desired aesthetics of patients. For enhancing aesthetics, the preferred and favorable treatment which gives a desirable outcome in cases of mild to moderate degree of fluorosis and extrinsic stains such as tobacco stains is Enamel microabrasion. Microabrasion causes a minimum reduction in tooth surface as well as minimum discomfort to the patient that leaves behind an even and glossy surface with a long-lasting result. Besides improving esthetics, the need for a restorative approach is reduced, which is a prime concern in young patients [3].Microabrasion is a process in which only a small and minute layer of enamel is grooved and abraded simultaneously with a unique material that leaves behind an undamaged enamel surface. In 1916, hydrochloric acid (HCl) was introduced by Dr. J Kane for the cases of fluorosis to refine the improved desirability of teeth[4].After this revolutionization, more research was carried out for the technique of Microabrasion to examine the efficacy of different concentrations of HCl ranging from 6.6% to 18% and different concentration of phosphoric acid (H3 PO4) in the range of 30% to 40% in association with abrasives [5].Enamel Microabrasion has shown to have a promising outcome for stains or defects of enamel that are superficially present and is considered as esthetic and conservative treatment[6].Postoperative sensitivity after microabrasion is reduced by applying remineralizing agent like Remin Pro[7].Remin Pro® contains fluoride, hydroxyapatite, and xylitol to fortify remineralization and re-strengthen the enamel sub-surface[8].

Case history

Case 1

A 33-year-old male patient reported at Department of Conservative Dentistry and Endodontics,Subharthi dental college and Hospital,Sahibabad , giving chief complaint of the staining of his upper and lower anterior teeth.The patient gave a history of discoloration for 5-6 years and a history of tobacco consumption in the last 9-10 years.No relevant systemic disorder was recorded. The family history given by the patient was not relevant.During clinical examination, generalised brown stains were noted. Vitality test- electric pulp testing and the cold test was done wrt to the upper and lower anterior. The teeth were vital. Various treatment plans were suggested to the patient and the patient opted for a conservative approach. The treatment plan was explained in detail to the patient and the patient's consent was obtained. The treatment proceeded

DR DAKSHITA JOY SINHA AND DR NIDHI SHARMA FOR PUBLISHING PAPER IN ANNALS OF DENTAL SPECIALTY

Original Article

Effect of remineralizing agent on laser and nonlaser bleached enamel surfaces subjected to erosion: An *in vitro* study

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Abstract

Aim: Assessment of remineralizing agent's effect on laser and nonlaser bleached enamel surfaces subjected to erosion.

Materials and Methods: In this study, 80 extracted human permanent anteriors were collected and divided into 4 groups with 20 teeth per sample. Enamel specimen of 3 mm × 3 mm were made using polyvinyl chloride rings and acrylic and randomly divided into four groups. Then the specimens were subjected to initial microhardness test using Vickers hardness tester (WK-CO, Mitutoyo, Japan). Two indentations were placed at 100 μm from one another in the center of all the samples. Bleaching with laser and without laser using hydrogen peroxide was performed followed by remineralization in the groups (Group I: no and 2x) and then were subjected to erosion. The final hardness was measured using the above method used for initial microhardness.

Results: Microhardness in the remineralized groups showed least variation. The group in which laser bleaching was performed along with remineralization as compared with nonlaser bleaching group with remineralization showed improvement in microhardness but the data was not statistically significant. A significant difference was noted between the laser and remineralization group when compared with the groups in which no remineralization was done.

Conclusion: After bleaching the enamel surface is more prone to erosion, so to improve the microhardness of bleached enamel a remineralizing agent should be used. A combination of diode laser bleaching and remineralizing agents leads to improved microhardness of the bleached enamel thus proving this combination to be efficacious.

Keywords: Bleaching; erosion; hydrogen peroxide; microhardness; remineralization

INTRODUCTION

Modern society places more emphasis on aesthetic appearance, thereby dental aesthetic procedures have gained importance for their potential to complement facial aesthetics. Numerous methods have been suggested for managing the discolored teeth including veneers, crowns and bleaching procedures. While treatments using veneers and full coverage prosthesis can be invasive, thereby leading to more dental hard tissue loss; bleaching procedures have an esteemed standing as they are conservative in approach.[1] Bleaching is a method of applying a chemical agent for oxidizing the organic pigmentation in the tooth which results in lightening of the color of the tooth. Vital and nonvital tooth bleaching are two types of bleaching procedures. The method of externally applying bleaching agent is the vital bleaching of teeth, whereas applying bleaching agent internally that is inside the chamber of pulp is the nonvital bleaching.[2]

Bleaching of vital teeth proves to be an effective treatment option for stained teeth. Bleaching of vital

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DR DAKSHITA JOY SINHA, DR SARITA SINGH AND DR RUCHI RATHI FOR PUBLISHING PAPER IN JOURNAL OF CONSERVATIVE DENTISTRY AND ENDODONTICS

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African Journal of Biological Sciences

Research Paper Open Access

ORIGINAL RESEARCH

To evaluate and correlate nasolabial angle, mentolabial sulcus angle and throat angle using cephalometric and photographic measurement

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ABSTRACT

Background: This study was conducted to evaluate and correlate nasolabial angle, mentolabial sulcus angle and throat angle using cephalometric and photographic measurement.

Material and methods: A sample size of 30 subjects were included in the study. Lateral cephalograms were taken of all the subjects using CS 8000C (Carestream Health, Inc, France) in the department of Oral Medicine and Radiology, Inderprastha Dental College and Hospital. The lateral cephalograms were manually traced by one investigator. 3 parameters were evaluated in each lateral cephalogram. Similarly lateral profile photograph for each subject in NHP (natural head position) was also taken from canon 1500d DSLR camera. 3 parameters were also evaluated in each lateral profile photographs. All the data were collected and statistically analyzed using SPSS statistical software. Comparison was assessed by using Student t-test. Correlation was assessed by Pearson correlation test.

Results:The average value for nasolabial angle, mentolabial angle and throat angle were found to be 92.46°± 9.43°, 103.66°± 20.27° and 129.6°± 13.86° respectively when assessed from cephalometric radiograph. The average value for nasolabial angle, mentolabial angle and throat angle were found to be 93.4°± 10.61°, 108.1°± 2.97° and 129.1°± 16.03° respectively when assessed from profile photograph.

Conclusion: The current study came to the conclusion that photography, which enables the recording of significant numbers of photographs for analysis, is a reliable and cost-effective tool for identifying soft tissue landmarks.

Keywords:mentolabial angle, nasolabial angle, throat angle, cephalogram, photographs, profile, orthodontics.

DR RAHUL PAUL, DR DEEPTI YADAV, DR ISH KUMAR SHARMA AND DR VANDANA GULIA FOR PUBLISHING IN AFRICAN JOURNAL OF BIOLOGICAL SCIENCES

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Effectiveness of New Activated Charcoal Orthodontic Toothbrush on Plaque Removal in Orthodontic Patients Using Orthodontic Plaque Index and Gingival Index: A Randomized Cross-Over Study

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KEYWORDS: charcoal, orthodontic, toothbrush, plaque, gingival index, plaque index

ABSTRACT:

Background: This study was conducted to assess the Effectiveness Of New Activated Charcoal Orthodontic Toothbrush On Plaque Removal In Orthodontic Patients Using Orthodontic Plaque Index And Gingival Index: A Randomized Cross-Over Study.

Material and methods: A small-scale study (pilot study) was conducted beforehand to assess the practicality of carrying out the main research. This preliminary investigation examined key areas such as the ease of recruiting participants, the effectiveness of data collection methods, and whether participants would follow the study guidelines. The pilot study's results demonstrated alignment with the main study's intentions and objectives, hence proceed with the full-fledged research.

Results: When intra-brush comparison was made for the observation period of complete six weeks, i.e., T0-T3, for the 60 patients having three types of brushes (Table 4). For brush I, there was an overall improvement in the mean gingival index from baseline to T3 (0.138±0.404, p-value=0.010) that was significant, while significant improvement was seen at all the intervals except for T1 to T2 (-0.088±0.144, p-value=0.000). At all the intervals no significant difference was observed in Eastmann interdental bleeding index. Also, there was an overall significant improvement in the mean OPI score from T0 to T3 (0.267±0.972, p-value=0.038). However, a significant improvement was seen at only T0 to T1 (0.300±1.078, p-value=0.035). For Brush II, on the contrary, no significant change in the mean gingival index was seen at any observation interval. When the mean Eastmann bleeding index was observed, there was a significant improvement from T0 to T3

DR RAHUL PAUL, DR DEEPTI YADAV, DR MUDITA GUPTA AND DR VANDANA GULIA FOR PUBLISHING IN JOURNAL OF CHEMICAL HEALTH RISKS

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Original Article **Open Access**

Evaluation and Correlation of Salivary Bone-Specific Alkaline Phosphatase Level with Skeletal Age

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Abstract

Aim: This study aimed to measure bone-specific alkaline phosphatase (B-ALP) levels in saliva and determine how they relate to different stages of skeletal development, as assessed by hand-wrist X-rays using the Hagg and Taranger method. Since orthodontic treatment is closely linked to an individual's growth, the development of the jaws, face, and overall body, and how they affect the alignment of teeth, the suggestion to use biomarkers to evaluate an individual's skeletal maturity has emerged as a promising approach. Unlike traditional radiographic methods, which are subjective and based on morphology, biomarkers provide objective indicators related to the patient's chronology, and they do not involve radiation exposure or magnification errors. The main goal of this study was to measure B-ALP levels in saliva and examine their correlation with varying degrees of skeletal maturity. If a positive correlation, the total ALP present in saliva could be a valuable biological indicator in growing patients.

Methods: Thirty patients were randomly selected for the study based on the inclusion criteria: Age of the individual: 9–19 years, with good general health and no nutritional issues. A sample of unstimulated whole saliva was collected using a passive drooling method to estimate levels of the bone alkaline phosphatase using an enzyme-linked immunosorbent assay (ELISA) kit. After saliva collection, hand-wrist radiographs were immediately obtained and manually traced onto 30-micron-thick lead acetate tracing sheets using an 0.5-mm lead pencil. The hand-wrist radiographs were then categorized into five groups, which involved analyzing the morphology of the hand-wrist radiographs: group SO (prepubertal), group S (pubertal onset), group MP3 (peak pubertal), group DP3 (pubertal deceleration), and group RJ (growth completion).

Results: There were significant differences between the B-ALP levels between different skeletal ages. The salivary B-ALP values of the group MP3 were significantly higher than those of groups SO and RJ. The mean salivary B-ALP levels consistently increased from the group SO to the group MP3, followed by a gradual decrease.

Conclusion: Salivary alkaline phosphatase activity was significantly higher during the peak pubertal period (group MP3) compared to both the pre-peak (group SO) and post-peak (group RJ) values. This finding suggests that salivary bone alkaline phosphatase can be used as an additional indicator alongside conventional skeletal maturation indicators to assess pubertal development.

Keywords: Alkaline Phosphatase, Puberty, Saliva, Skeletal Age, Skeletal Maturity.

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Effect of Varying Etching Times on the Bond Strength of Ceramic Brackets

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KEYWORDS
etching, bond strength, ceramics, brackets

ABSTRACT:
Background: This study was conducted to evaluate the effect of varying etching times on the bond strength of ceramic brackets.
Material and methods: Samples of 30 extracted teeth were taken from the Department of Oral and Maxillofacial Surgery, Inderprastha Dental College & Hospital, Sahibabad, Ghaziabad, according to the inclusion criteria. A thorough examination of the teeth was done to rule out any damage or malformation. The teeth were cleansed and then polished with non-fluoridated pumice using rubber prophylactic cups for 10 seconds. The teeth were divided into three groups of 10 and placed in an acrylic base.
Results: The shear bond strength descriptive statistics for the three etching groups are outlined in Table 1. The analysis of variance results indicates statistically significant differences ($p = 0.000$) in bond strengths among the various etching groups. The application of Duncan's multiple range test (DMRT), also known as Duncan's new multiple range test, which is a test used in statistical analysis to determine significant differences between multiple group, revealed that the bond strengths of the 5"-second etching group were significantly lower compared to the 15- second group and the 15-second group had slightly lower bond strength than 30-second group. The bond failure location between different samples and etching groups was determined using the ARI (Adhesive Remnant Index). The frequency of ARI scores for each etching group and the results of the Chi-square test comparing the groups are presented in Table 2. The Chi-square test revealed significant

DR RAHUL PAUL, DR DEEPTI YADAV, DR ISH KUMAR SHARMA AND DR MUDITA GUPTA FOR PUBLISHING IN JOURNAL OF CHEMICAL HEALTH RISKS

Cureus

Open Access Original Article

An Evaluation of the Effectiveness of Various Luting Cements on the Retention of Implant-Supported Metal Crowns

Abstract

Background and objective

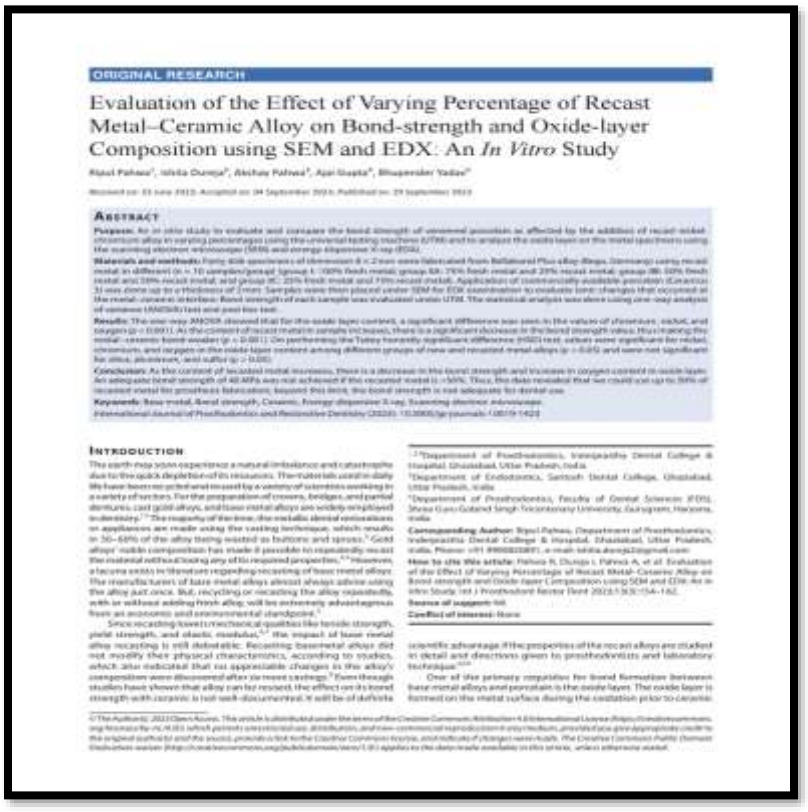
Materials and methods

Results

Conclusion

Introduction

DR SURBHI MEHTA FOR PUBLISHING IN CUREUS



ORIGINAL RESEARCH

Evaluation of the Effect of Varying Percentage of Recast Metal–Ceramic Alloy on Bond-strength and Oxide-layer Composition using SEM and EDX: An *In Vitro* Study

Abstract

Introduction

DR RIPUL PAHWA, DR ISHITA DUREJA AND DR AJAI GUPTA FOR PBLISHING IN INTERNATIONAL JOURNAL OF PROSTHODONTICS AND RESTORATIVE DENTISTRY

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Role of Sticky Bone in the Management of Various Alveolar Bone Defects: A Systematic Review

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Abstract

Aim: This systematic review aimed to evaluate the effectiveness of sticky bone in managing various alveolar bone defects, examining both its benefits and drawbacks.

Materials and methods: The review adhered to PRISMA guidelines and employed a thorough search strategy using major databases, medical subject headings (MeSH) keywords, and Boolean operators. As a result, the systematic review identified 11 studies focusing on the efficacy of sticky bone in treating alveolar bone defects. Inclusion criteria consisted of randomized controlled trials and case series reporting on the outcomes of sticky bone use for bone defect treatment. Two examiners meticulously performed screening, data extraction, and bias assessment, with the risk of bias evaluated using the Cochrane tool.

Result: The findings indicated significant improvements in bone quality, width, height, and volume, with enhanced predictability in socket preservation and implant placement. Sticky bone was particularly effective in ridge augmentation, guided bone regeneration, and filling periodontal defects, often outperforming alternatives like concentrated growth factors (CGFs) and autologous fibrin glue (AFG). It simplified procedures and reduced resorption during healing, underscoring its value as a versatile adjunct to bone reconstruction surgery.

Conclusion: Sticky bone demonstrated exceptional results in various oral surgeries, effectively addressing issues such as furcation defects, bone loss, and ridge augmentations, with significant clinical and radiographic improvements. Further research is needed to explore its full potential and refine protocols for broader oral surgery and periodontics applications.

Categories: Dentistry, Oral Medicine, Palliative Care
Keywords: systematic review, bone graft, ridge augmentation, regenerative material, oral surgery, growth factors, alveolar bone defects, sticky bone

Introduction And Background

Oral surgeries aim to enhance healing within encountering environments, and restoring tissues to their proper structure and function [1]. Rich in growth factors, platelets are crucial for wound healing [2]. Platelet aggregates have shown promise in expediting tissue regeneration in medical and dental contexts [3].

Platelet concentrates like platelet-rich plasma (PRP) and platelet-rich fibrin (PRF) yield various growth factor derivatives [4,5], merging fibrin-rather qualities with platelet-derived growth factors (PDGFs) for optimal tissue regeneration and wound healing [7]. Sticky bone, which combines autologous fibrin glue (AFG) with a bone graft, has become a standard in regenerative techniques [6]. It stabilizes bone grafts, accelerates tissue healing, and reduces bone loss [7].

'Sticky bone' is a composite biomaterial designed for bone regeneration, combining particulate bone substitutes with autologous platelet aggregates, such as PRF and concentrated growth factors (CGFs) [8]. This adaptable material conforms to various bone defects, preventing graft movement and preserving bone volume during healing, thus minimizing the need for block bone and vitrobone grafts. Its fibrin network captures platelets and leukocytes, releasing growth factors that accelerate bone and soft tissue regeneration without requiring biochemical additives [9]. Additionally, the fibrin interconnection prevents soft tissue ingrowth, making sticky bone suitable for treating intra-bone defects, furcation defects, ridge augmentation, and tuberculous alveolar ridge defects [6]. Though studies are limited, a systematic review supports its

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DR ISHA SAXENA AND DR SHALINI CHAUHAN FOR PUBLISHING IN CUREUS

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Promising treatment option for recession coverage

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ABSTRACT

Introduction: Surgical techniques, including pedicle and free soft-tissue grafting, are offered to treat the exposed root surface in the cosmetic zone of the dentition. A coronally advanced flap is an effective approach for root covering in managing gingival recessions on single or many teeth.

Aim: This case report highlighted the use of a Porcine collagen matrix with a coronally advanced flap technique for covering roots in the upper dentition aesthetic zone.

Materials and methods: Miller's class I gingival recessions on teeth 21, 22, 23, and 24 were identified. To improve the cosmetic covering, a Porcine collagen matrix was combined with a coronally advanced flap.

Results: The results show successful and stable recession coverage and are considered a promising therapeutic option for improving all clinical parameters.

Keywords: Gingival recession, Porcine Collagen Matrix, coronally advanced flap

INTRODUCTION

Gingival recession (GR) is the apical movement of the gingival edge relative to the cementoenamel junction (CEJ), which is related to loss of attachment and exposure of the root surface to the oral environment[1]. It causes dentinal hypersensitivity and an unattractive appearance, and, if left untreated, can develop into caries of root, abrasion or cervical wear, erosion, and increased dental plaque deposition[1]. GR can be caused by a variety of causes, including improper tooth cleaning habits, abnormal frenal attachment pull, occlusion stress, thin gingival biotype, and bony plate thinning due to tooth malposition or prominence of the root[1]. A variety of surgical methods can be used to treat gingival recessions; however, the

DR PREETI UPADHYAY, DR PRAGYA TRIPATHI, DR ARPITA GOSWAMI AND DR SIDDHANT SINGH FOR PUBLISHING IN AFRICAN JOURNAL OF BIOLOGICAL SCIENCES

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Original Research Article

A mixed method study to assess orodental problems and barriers to utilisation of orodental care in pregnant ladies of Himachal Pradesh

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ABSTRACT

Background: The hormonal changes along with decreased salivation during pregnancy result in many orodental problems. The existing orodental conditions worsen due to barriers to the utilisation of orodental care during pregnancy. The objective of this study is to assess orodental problems and barriers to utilisation of orodental care in pregnant ladies

Methods: Sample size is calculated using Cochran's formula. The Purposive sampling technique was used to select hospitals and pregnant women from OPD of the gynecology and obstetrics department of hospitals selected in Himachal Pradesh. Using DMFT and CPI index, interview schedules the study's specific objectives are achieved.

Results: Out of a sample of 112, 92.8% of pregnant women had dental caries, 34.8% of pregnant women had got restorative treatment and 25.8% had their teeth extracted. The majority of pregnant women (51.8%) had dental calculus and (29.5%) shallow periodontal pockets. The system, personal, and caregiver-related barriers are responsible for the underutilisation of orodental care among pregnant women.

Conclusions: This study concluded many pregnant women face orodental problems along with a major factor of lack of dental education and no dental insurance associated with their orodental problems.

Keywords: Pregnant women, Healthcare, Dental problems, Barriers, Periodontal health status

INTRODUCTION

Oral health is often overlooked as a critical component of overall health, with developed countries giving it equal importance. In India, oral health care remains the most neglected aspect of health.[1] World health organisation (WHO) defines oral health as oral to embarrassment health is the state of the mouth, teeth and orofacial structures that enable individuals to perform essential functions such as eating, breathing and speaking, and encompasses psychosocial dimensions such as self-confidence, well-being and the ability to socialize and work without pain, discomfort, and embarrassment.[2] As a result of impaired oral health, oral disease, which is preventable, is the most common non-communicable disease that affects people throughout their lifetime, causing pain, discomfort, and disfigurement. Reports estimated that around 3.5 billion people worldwide are affected by oral disease, out of which around 2 billion, surprisingly suffer from dental caries only. Additionally, 5 out of 4 people living in middle-income countries are affected by dental issues.[3] According to the Global Oral Health Status Report (GOHSR) by the WHO in November 2022, India has the highest number of cases of caries of permanent teeth and severe periodontal disease, with a global caseload of 18.1% and 20.3% respectively.[4]

Women fall under the vulnerable group as, during puberty, pregnancy, and menopause, they face physiological changes along with non-physiological

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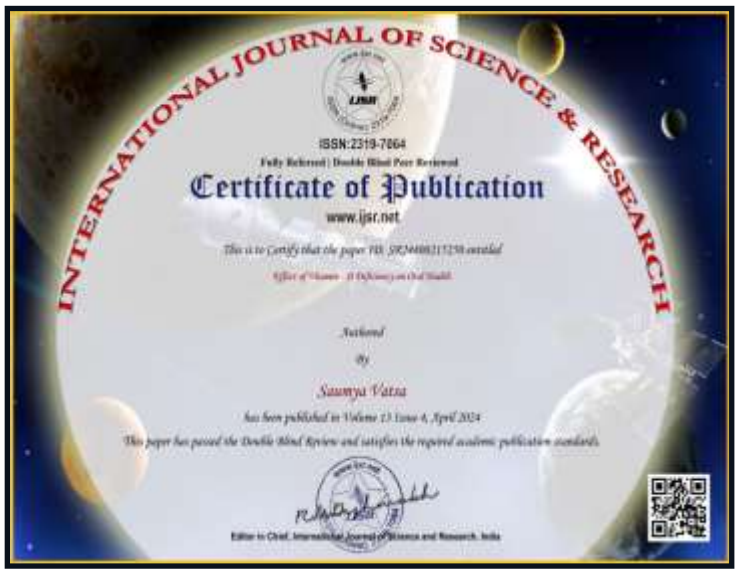

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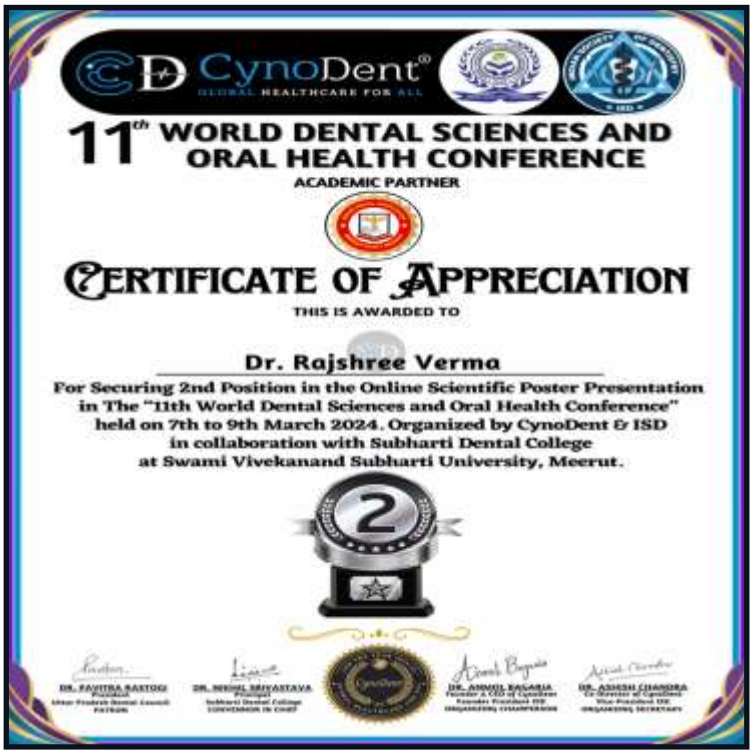

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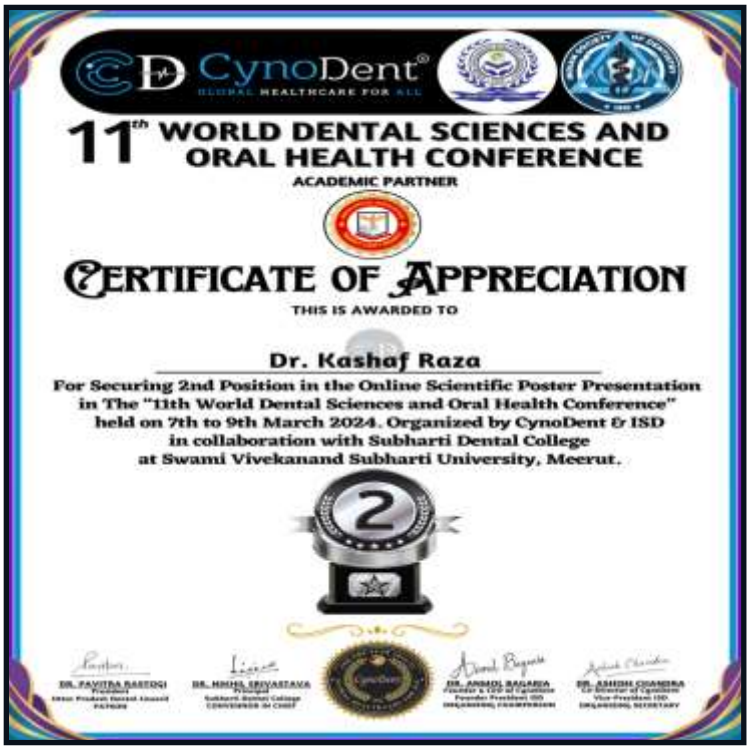

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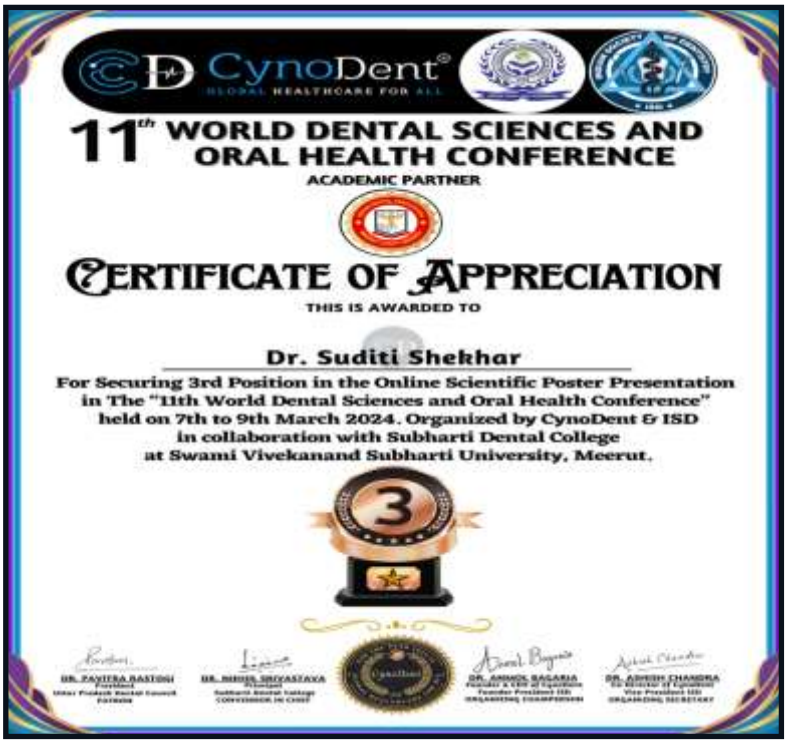

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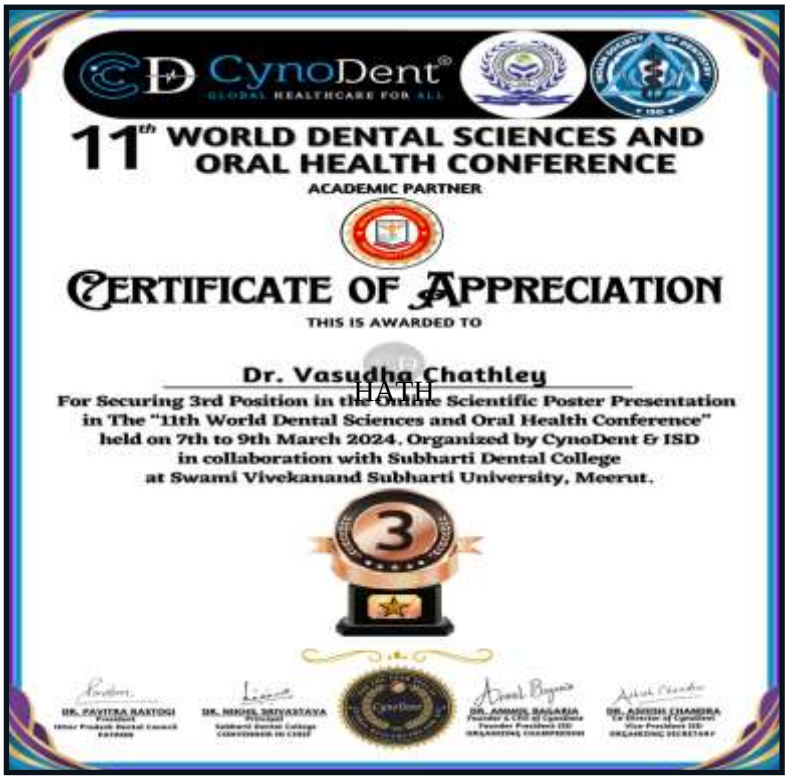

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Original Article

Cone-beam computed tomographic evaluation and fracture resistance of endodontically retreated teeth using hyflex remover, Mtwo, and ProTaper retreatment file systems: An *in vitro* study

Isha Singh, Dakshita Joy Sinha, Pallavi Sharma, Kunal Bedi, Priyanka Rani, Swapnil Vats
Department of Conservative Dentistry and Endodontics, Inderprastha Dental College and Hospital, Ghaziabad, Uttar Pradesh, India

Abstract

Introduction: One of the important factors contributing to the success of nonsurgical endodontic retreatment is the efficient removal of the obturating material from the root canal space. However, the fracture resistance of the tooth is likely to be affected by this procedure. Therefore, the study envisages assessing residual filling material in the root canals and the tooth's resistance to fracture posttreatment using different retreatment files.

Materials and Methods: Ninety extracted mandibular premolars with one root and a single canal were decoronated, followed by chemo-mechanical preparation, and thereafter, using the lateral compaction method, root canals were obturated. The samples were divided into three groups (n = 30) in accordance with retreatment file systems, namely Hyflex Remover, Mtwo, and ProTaper. All three groups were subjected to the cone-beam computed tomography evaluation to assess remnants of obturating material inside the canals posttreatment, and the same samples were further assessed for fracture resistance, respectively. The collected data were evaluated using the statistical analysis using the Kruskal–Wallis and *post hoc* Bonferroni tests.

Results: There were significant differences in the volume of residual filling among the tested groups in the cervical thirds ($P < 0.05$). The Hyflex remover file showed the highest fracture resistance (427.30 ± 33.53 N), followed by the Mtwo R (306.90 ± 27.17 N) and ProTaper R (278.20 ± 36.82 N).

Conclusion: All the tested nickel-titanium retreatment files performed satisfactorily. Hyflex remover left the least amount of filling material in the cervical third and displayed the highest fracture resistance among the respective groups.

Keywords: Cone-beam computed tomography, hyflex remover, retreatment Mtwo files, retreatment ProTaper files, tooth fracture resistance

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DR ISHA SINGH, DR KUNAL BEDI AND DR SWAPNIL VATS FOR PUBLISHING PAPER AT SAUDI ENDODONTIC JOURNAL

Comparison of 4% articaine and 2% lignocaine in evaluating the efficacy during dental procedures in pediatric patients

Comparison of 4% articaine and 2% lignocaine in evaluating the efficacy during dental procedures in pediatric patients

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ABSTRACT
Background: Pulpectomy has also reported to be helpful for retained primary molars that aren't severed with significant malocclusion or increasing root resorption. The present study was conducted to compare 4% articaine and 2% lignocaine in evaluating the efficacy during dental procedures in pediatric patients.

Materials & Methods: 48 pediatric patients with deep carious lesion were divided into 2 groups. In group I, 4% articaine was injected and in group II, 2% lignocaine was injected. Onset of action of anesthesia was assessed using a straight probe and checking it after 1.5, 2.5, 3.5 and 4.5 minutes. Dental procedure was performed and completed. The duration of action was again checked after 30, 45, 60 and 90 minutes of the local anesthetic administration. Pain was determined using VAS scale.
Results: Group I had 13 males and 11 females and group II had 12 males and 12 females. In group I and group II, onset of action at 2.5 min was seen in 8 and 0, at 3.5 min was seen in 10 and 14 and at 4.5 min in 6 and 10 patients in group I and II respectively. Duration of action at 60 min was seen in 13 and 0 and at 90 min in 11 and 24 patients in group I and II respectively. Pain score0 was seen in 16 and 12, 2 score in 8 each and 4 score in 0 and 4 patients in group I and II respectively. The difference was significant (P< 0.05).
Conclusion: It was discovered that lignocaine and articaine have similar potencies and physical characteristics.

Key words: articaine, lignocaine, Pulpectomy
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Introduction

Pulptherapy, described as "a conservative approach for prevention of premature loss of primary teeth," is helpful for anticipating insufficient room for erupting permanent teeth, loss of arch length, impaction, and tilting of premolars and molars.[1] However, pulpectomy has also reported to be helpful for retained primary molars that aren't severed with significant malocclusion or increasing root resorption.[2] In order to allow for natural tooth shedding or to

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DR ANISHA JAIN FOR PUBLISHING PAPER AT EUROPEAN CHEMICAL BULLETIN

ORIGINAL RESEARCH

Resistance to Fracture of Endodontically-treated Teeth with Simulated Cervical Resorption Cavities Restored with Different Restorative Materials: An *In Vitro* Study

Priyanka Rani, Dakshita J Sinha, Pallavi Sharma, Nidhi Sharma, Isha Singh, Deepika Mehra

Abstract

Introduction

DR PRIYANKA RANI, DR ISHA SINGH AND DR DEEPIKA MEHRA FOR PUBLISHING PAPER AT WORLD JOURNAL OF DENTISTRY

ORIGINAL RESEARCH

Evaluation of Fracture Resistance of Endodontically Treated Teeth after Retreatment with Different Retreatment Files Systems: An *In Vitro* CBCT Study

Isha Singh[1], Dakshita J Sinha[1], Pallavi Sharma[2], Kunal Bedi[3], Priyanka Rani[3], Swapnil[3]

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Abstract

Aim: To assess residual filling material in the root canals and the tooth's resistance to fracture postretreatment utilizing retreatment files, namely ProTaper Universal Retreatment (ProTaper), Mtwo, and NeoEndo.

Materials and methods: A total of 90 human-extracted maxillofacial premolars with one root and a single canal were selected for this study. Samples were decoronated, followed by chemomechanical preparation, and thereafter, using the lateral compaction method, root canals were obturated. The samples were divided into three groups (*n* = 30)—retreatment file systems, namely ProTaper, Mtwo, and NeoEndo. All three groups were subjected to cone-beam computed tomography (CBCT) evaluation to assess remnants of obturating material inside the canals, and the same samples were further assessed for fracture resistance using the universal testing machine (UTM). The collected data was then evaluated using statistical analysis using the Kruskal–Wallis and post hoc Bonferroni tests.

Results: There were significant differences among the tested groups in the cervical thirds following statistical analysis ($p < 0.05$). The last residual material was found using ProTaper R (0.0260 ± 0.16107), followed by NeoEndo R (1.1000 ± 0.29814), and the maximum by Mtwo R (7.1500 ± 0.21908). In terms of fracture resistance after retreatment using ProTaper, Mtwo, and NeoEndo retreatment file systems, no significant differences were observed.

Conclusion: All the tested nickel-titanium (Ni-Ti) retreatment files performed satisfactorily in removing the material from the obturated canals. The filling material could not be entirely removed from any of the file systems. ProTaper R left the least amount of filling material in the cervical third. No statistically significant difference was displayed in terms of the fracture resistance among the respective groups.

Clinical significance: Retreatment is necessary in order to save a tooth that has undergone erroneous root canal treatment. To save time, retreatment rotary files are being widely used these days. But these files may weaken the tooth by excessive removal of tooth structure. The current study provides clinically relevant knowledge about the different retreatment file systems available, providing in-depth insight into the effective and efficient management of challenging endodontic retreatment cases.

Keywords: AH Plus sealer, Cone-beam computed tomography, Mtwo retreatment files, NeoEndo retreatment files, ProTaper retreatment files.

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Introduction

Innate reluctance is observed in patients to undergo tooth extraction, and more and more individuals desire to retain their natural dentition. Toward achieving this goal, endodontic retreatment or surgery may enable dental practitioners to save teeth that have previously undergone erroneous root canal treatment, thereby offering in a "second wind" for the patients.

Retreatment is indispensable in the case of such endodontic failures, as is the case with other clinical setbacks.[1] Option exists to proceed with non-surgical retreatment (orthograde) or apical surgery (retrograde) for undertaking endodontic retreatment. Thorough knowledge of dental anatomy is a crucial factor for a precise approach to endodontic retreatment. While considering the retrograde approach, many factors should be considered, like the approximation of the root apex to dental or local anatomical structures like nerves and foramen, thus making the procedure intricate.[2] However, as a conservative line of treatment, nonsurgical retreatment is the preferred option. To enable clean-up of the entire root canals, orthograde retreatment focuses on reclaiming the entrance to the apex through the thorough removal of obturation material.[3]

There are numerous methods to remove filling materials from the root canal system, including the use of endodontic hand files, nickel-titanium (Ni-Ti) rotary instruments, Gates-Glidden burs, heat, ultrasonic instruments, lasers, and adjunctive solvents. The gutta-percha removal using hand files can be a tedious and time-consuming process. Savings in chairside clinical time have been achieved by the usage of specially designed rotary Ni-Ti instruments, namely, Professional Taper (ProTaper) retreatment, D-RaCe, RaCe, NeoEndo, R-Endo, HyFlex removers, and Mtwo. For the removal of obturation material, and they have proved to be more efficient and safer than the traditional hand files.[4]

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With utmost admiration.

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DR SWATI JHA AND DR SWAPNIL VATS FOR PUBLISHING PAPER IN SAUDI ENDODONTIC JOURNAL

Case Study

MANAGEMENT OF ENAMEL STAINS USING A COMBINATION TECHNIQUE OF MICROABRASION AND REMINERALIZING AGENT

Swapnil Vats[1], Dakshita Joy Sinha[1], Nidhi Sharma[1], Anjali Meena[1]*

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ABSTRACT

The most common cause of an unaesthetic smile is Dental fluorosis which leads to discolorations of the teeth due to staining. The staining of the incisor and canids gives a disagreeable and unaesthetic smile which ranges from mild-to-moderate fluorosis stains and tobacco stains. To overcome these problems, a minimally invasive approach, Enamel Microabrasion can be considered which not only enhances esthetics but also leads to minimal enamel loss. Due to the abrasive effect of the material, there are chances of postoperative sensitivity. To overcome these effects topical application of remineralizing agents after microabrasion is considered beneficial. The present case reports of 28 and 33-year-old male patients emphasize the management of fluorosis and tobacco stains respectively with microabrasion followed by a remineralizing agent which can be topically applied, and the outcome shows the efficacy of the blending technique of microabrasion and remineralization. Clinical significance is providing the minimally invasive non-restorative technique that provides excellent long-term esthetic outcomes.

Key words: Combination technique, Microabrasion, Macro-reduction, Remineralization

Introduction

An unaesthetic smile can psychologically impact young patients thereby leading to lowered self-esteem[1].The unacceptable discolorations or pitting of teeth can be due to several factors including fluoride stains amelogenesis imperfecta, and enamel hypoplasia which are developmental disturbances due to some extrinsic factors like intake of tobacco, coffee, tea, and red wine, and some intrinsic etiology [2]. Dental Fluorosis is characterized by matte patches present on the enamel, that can be opaque and whitish in appearance, and striations that can be streaky or blemished. The mottled areas usually become stained on the enamel which gives a disagreeable appearance. This becomes challenging for the dentist to meet the requirement of desired aesthetics of patients. For enhancing aesthetics, the preferred and favorable treatment which gives a desirable outcome in cases of mild to moderate degree of fluorosis and extrinsic stains such as tobacco stains is Enamel microabrasion. Microabrasion causes a minimum reduction in tooth surface as well as minimum discomfort to the patient that leaves behind an even and glossy surface with a long-lasting result. Besides improving esthetics, the need for a restorative approach is reduced, which is a prime concern in young patients [3].Microabrasion is a process in which only a small and minute layer of enamel is gnawed and abraded simultaneously with a unique material that leaves behind an undamaged enamel surface. In 1916, hydrochloric acid (HCl) was introduced by Dr. D Kane for the cases of fluorosis to refine the improved desirability of teeth[4].After this revolutionization, more research was carried out for the technique of Microabrasion to examine the efficacy of different concentrations of HCl ranging from 6.6% to 18% and different concentration of phosphoric acid (H3 PO4) in the range of 30% to 40% in association with abrasives [5].Enamel Microabrasion has shown to have a promising outcome for stains or defects of enamel that are superficially present and is considered an esthetic and conservative treatment[6].Postoperative sensitivity after microabrasion is reduced by applying remineralizing agent like Remin Pro[7].Remin Pro® contains fluoride, hydroxyapatite, and xylitol to fortify remineralization and re-strengthen the enamel sub-surface[8].

Case history

Case 1

A 33-year-old male patient reported at Department of Conservative Dentistry and Endodontics,Inderprastha dental college and Hospital,Sahibabad , giving chief complaint of the staining of his upper and lower anterior teeth.The patient gave a history of discoloration for 5-6 years and a history of tobacco consumption in the last 9-10 years.No relevant systemic disorder was recorded. The family history given by the patient was not relevant.During clinical examination, generalized brown stains were noted. Vitality test- electric pulp testing and the cold test was done wrt to the upper and lower anterior. The teeth were vital. Various treatment plans were suggested to the patient and the patient opted for a conservative approach. The treatment plan was explained in detail to the patient and the patient's consent was obtained. The treatment proceeded

DR SWAPNIL VATS AND DR ANJALI MEENA FOR PUBLISHING CASE STUDY IN ANNALS OF DENTAL SPECIALTY

Original Article

Effect of remineralizing agent on laser and nonlaser bleached enamel surfaces subjected to erosion: An *in vitro* study

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Abstract

Aim: Assessment of remineralizing agent's effect on laser and nonlaser bleached enamel surfaces subjected to erosion.

Materials and Methods: In this study, 80 extracted human permanent anteriors were collected and divided into 4 groups with 20 teeth per sample. Enamel specimen of 3 mm × 3 mm were made using polishing (Waterjet ring) and acrylic and randomly divided into four groups. Then the specimens were subjected to vitral microhardness test using Vickers hardness tester (MVK-CO, Mitutoyo, Japan). Two indentations were placed at 100 μm from one another in the center of all the samples. Bleaching with laser and without laser using hydrogen peroxide was performed followed by remineralization in the groups (Groups 1a and 2a) and then were subjected to erosion. The final hardness was measured using the above method used for initial microhardness.

Results: Microhardness in the remineralized groups showed best variation. The group in which laser bleaching was performed along with remineralization as compared with nonlaser bleaching group with remineralization showed improvement in microhardness but the data was not statistically significant. A significant difference was noted between the laser and remineralization group when compared with the groups in which no remineralization was done.

Conclusion: After bleaching the enamel surface is more prone to erosion, so to improve the microhardness of bleached enamel a remineralizing agent should be used. A combination of diode laser bleaching and remineralizing agents leads to improved microhardness of the bleached enamel thus proving this combination to be efficacious.

Keywords: Bleaching; erosion; hydrogen peroxide; microhardness; remineralization

INTRODUCTION

Modern society places more emphasis on aesthetic appearance, thereby dental aesthetic procedures have gained importance for their potential to complement facial aesthetics. Numerous methods have been suggested for managing the discolored teeth including veneers, crowns and bleaching procedures. While treatments using veneers and full coverage prosthesis can be invasive, thereby leading to more dental hard tissue loss, bleaching procedures have an esteemed standing as they are conservative in approach.[1] Bleaching is a method of applying a chemical agent for oxidizing the organic pigmentation in the teeth which results in lightening of the color of the tooth. Vital and nonvital tooth bleaching are two types of bleaching procedures. The method of externally applying bleaching agent is the vital bleaching of teeth, whereas applying bleaching agent internally that is inside the chamber of pulp is the nonvital bleaching.[2]

Bleaching of vital teeth proves to be an effective treatment option for stained teeth. Bleaching of vital

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DR SWAPNIL VATS, DR SWATI JHA AND DR ISHA SINGH FOR PUBLISHING PAPER IN JOURNAL OF CONSERVATIVE DENTISTRY AND ENDODONTIC

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ORIGINAL RESEARCH

To evaluate and correlate nasolabial angle, mentolabial sulcus angle and throat angle using cephalometric and photographic measurement

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ABSTRACT

Background: This study was conducted to evaluate and correlate nasolabial angle, mentolabial sulcus angle and throat angle using cephalometric and photographic measurement.

Material and methods: A sample size of 30 subjects were included in the study. Lateral cephalograms were taken of all the subjects using CS 8000C (Carestream Health, Inc, France) in the department of Oral Medicine and Radiology, Inderprastha Dental College and Hospital. The lateral cephalograms were manually traced by one investigator. 3 parameters were evaluated in each lateral cephalogram. Similarly lateral profile photograph for each subject in NHP (natural head position) was also taken from canon 1500d DSLR camera. 3 parameters were also evaluated in each lateral profile photographs. All the data were collected and statistically analyzed using SPSS statistical software. Comparison was assessed by using Student t-test. Correlation was assessed by Pearson correlation test.

Results:The average value for nasolabial angle, mentolabial angle and throat angle were found to be 92.46°± 9.43°, 103.66°± 20.27° and 129.6°± 13.86° respectively when assessed from cephalometric radiograph. The average value for nasolabial angle, mentolabial angle and throat angle were found to be 93.4°± 10.61°, 108.1°± 2.97° and 129.1°± 16.03° respectively when assessed from profile photograph.

Conclusion: The current study came to the conclusion that photography, which enables the recording of significant numbers of photographs for analysis, is a reliable and cost-effective tool for identifying soft tissue landmarks.

Keywords:mentolabial angle, nasolabial angle, throat angle, cephalogram, photographs, profile, orthodontics.

DR TEISOVINUO KESIEZIE AND DR ANUDEEP SAIRAL FOR PUBLISHING IN AFRICAN JOURNAL OF BIOLOGICAL SCIENCES

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Effectiveness of New Activated Charcoal Orthodontic Toothbrush on Plaque Removal in Orthodontic Patients Using Orthodontic Plaque Index and Gingival Index: A Randomized Cross-Over Study

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KEYWORDS
charcoal, orthodontic, toothbrush, plaque, gingival index, plaque index

ABSTRACT:

Background: This study was conducted to assess the Effectiveness Of New Activated Charcoal Orthodontic Toothbrush On Plaque Removal In Orthodontic Patients Using Orthodontic Plaque Index And Gingival Index: A Randomized Cross-Over Study.

Material and methods: A small-scale study (pilot study) was conducted beforehand to assess the practicality of carrying out the main research. This preliminary investigation examined key areas such as the ease of recruiting participants, the effectiveness of data collection methods, and whether participants would follow the study guidelines. The pilot study's results demonstrated alignment with the main study's intentions and objectives, hence proceed with the full-fledged research.

Results: When intra-brush comparison was made for the observation period of complete six weeks, i.e., T0-T3, for the 60 patients having three types of brushes (Table 4). For brush I, there was an overall improvement in the mean gingival index from baseline to T3 (0.138±0.404, p-value=0.010) that was significant, while significant improvement was seen at all the intervals except for T1 to T2 (-0.088±0.144, p-value=0.000). At all the intervals no significant difference was observed in Eastmann interdental bleeding index. Also, there was an overall significant improvement in the mean OPI score from T0 to T3 (0.267±0.972, p-value=0.038). However, a significant improvement was seen at only T0 to T1 (0.300±1.078, p-value=0.035). For Brush II, on the contrary, no significant change in the mean gingival index was seen at any observation interval. When the mean Eastmann bleeding index was observed, there was a significant improvement from T0 to T3

DR PRAKHER SAINI AND DR AASHUTOSH CHHABRA FOR PUBLISHING IN JOURNAL OF CHEMICAL HEALTH RISKS

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Original Article **Open Access**

Evaluation and Correlation of Salivary Bone-Specific Alkaline Phosphatase Level with Skeletal Age

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Abstract

Aim: This study aimed to measure bone-specific alkaline phosphatase (B-ALP) levels in saliva and determine how they relate to different stages of skeletal development, as assessed by hand-wrist X-rays using the Hagg and Taranger method. Since orthodontic treatment is closely linked to an individual's growth, the development of the jaws, face, and overall body, and how they affect the alignment of teeth, the suggestion to use biomarkers to evaluate an individual's skeletal maturity has emerged as a promising approach. Unlike traditional radiographic methods, which are subjective and based on morphology, biomarkers provide objective indicators related to the patient's physiology, and they do not involve radiation exposure or magnification errors. The main goal of this study was to measure B-ALP levels in saliva and examine their correlation with varying degrees of skeletal maturity. If a positive correlation, the total ALP present in saliva could be a valuable biological indicator in growing patients.

Methods: Thirty patients were randomly selected for the study based on the inclusion criteria: Age of the individual 9–19 years, with good general health and no nutritional issues. A sample of unstimulated whole saliva was collected using a passive drooling method to estimate levels of the bone alkaline phosphatase using an enzyme-linked immunosorbent assay (ELISA) kit. After saliva collection, hand-wrist radiographs were immediately obtained and manually traced onto 50-microns-thick lead acetate tracing sheets using an 0.5-mm lead pencil. The hand-wrist radiographs were then categorized into five groups, which involved analyzing the morphology of the hand-wrist radiographs: group SO (prepubertal), group S (pubertal onset), group MP3 (peak pubertal), group DP3 (pubertal deceleration), and group RJ (growth completion).

Results: There were significant differences between the B-ALP levels between different skeletal ages. The salivary B-ALP values of the group MP3 were significantly higher than those of groups SO and RJ. The mean salivary B-ALP levels consistently increased from the group SO to the group MP3, followed by a gradual decrease.

Conclusion: Salivary alkaline phosphatase activity was significantly higher during the peak pubertal period (group MP3) compared to both the pre-peak (group SO) and post-peak (group RJ) values. This finding suggests that salivary bone alkaline phosphatase can be used as an additional indicator alongside conventional skeletal maturation indicators to assess pubertal development.

Keywords: Alkaline Phosphatase, Puberty, Saliva, Skeletal Age, Skeletal Maturity.

DR TEISOVINUO KESIEZIE FOR PUBLISHING IN IRANIAN JOURNAL OF ORTHODONTICS

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Effect of Varying Etching Times on the Bond Strength of Ceramic Brackets

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KEYWORDS
etching, bond strength, ceramics, brackets

ABSTRACT:
Background: This study was conducted to evaluate the effect of varying etching times on the bond strength of ceramic brackets.
Meterial and methods: Samples of 30 extracted teeth were taken from the Department of Oral and Maxillofacial Surgery, Inderprastha Dental College & Hospital, Sahibabad, Ghaziabad, according to the inclusion criteria. A thorough examination of the teeth was done to rule out any damage or malformation. The teeth were cleansed and then polished with non-fluoridated pumice using rubber prophylactic cups for 10 seconds. The teeth were divided into three groups of 10 and placed in an acrylic base.
Results: The shear bond strength descriptive statistics for the three etching groups are outlined in Table 1. The analysis of variance results indicates statistically significant differences ($p = 0.000$) in bond strengths among the various etching groups. The application of Duncan's multiple range test (DMRT), also known as Duncan's new multiple range test, which is a test used in statistical analysis to determine significant differences between multiple group, revealed that the bond strengths of the 5-second etching group were significantly lower compared to the 15- second group and the 15-second group had slightly lower bond strength than 30-second group. The bond failure location between different samples and etching groups was determined using the ARI (Adhesive Remnant Index). The frequency of ARI scores for each etching group and the results of the Chi-square test comparing the groups are presented in Table II. The Chi-square test revealed significant

DR PARUL KOTWAL AND DR AKSHITA ARYA FOR PUBLISHING IN JOURNAL OF CHEMICAL HEALTH RISKS

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African Journal of Biological Sciences

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Promising treatment option for recession coverage

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ABSTRACT

Introduction: Surgical techniques, including pedicle and free soft-tissue grafting, are offered to treat the exposed root surface in the cosmetic zone of the dentition. A coronally advanced flap is an effective approach for root covering in managing gingival recessions on single or many teeth.

Aim: This case report highlighted the use of a Porcine collagen matrix with a coronally advanced flap technique for covering roots in the upper dentition aesthetic zone.

Materials and methods: Miller's class I gingival recessions on teeth 21, 22, 23, and 24 were identified. To improve the cosmetic covering, a Porcine collagen matrix was combined with a coronally advanced flap.

Results: The results show successful and stable recession coverage and are considered a promising therapeutic option for improving all clinical parameters.

Keywords: Gingival recession, Porcine Collagen Matrix, coronally advanced flap

INTRODUCTION

Gingival recession (GR) is the apical movement of the gingival edge relative to the cementoenamel junction (CEJ), which is related to loss of attachment and exposure of the root surface to the oral environment[1]. It causes dentinal hypersensitivity and an unattractive appearance, and, if left untreated, can develop into caries of root, abrasion or cervical wear, erosion, and increased dental plaque deposition[2]. GR can be caused by a variety of causes, including improper tooth cleaning habits, abnormal frenal attachment pull, occlusion stress, thin gingival biotype, and bony plate thinning due to tooth malposition or prominence of the root[1]. A variety of surgical methods can be used to treat gingival recessions; however, the

DR PRIYA SHARMA AND DR ABHILASHA SINHA FOR PUBLISHING IN AFRICAN JOURNAL OF BIOLOGICAL SCIENCES