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3.3.3. Average number of papers published per teacher in the Journals notified on UGC -CARE list in the UGC website/Scopus/ Web of Science/ PubMed during the last five years

INDEX SHEET

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Year	2018-19	2019-20	2020-21	2021-22	2022-23
No. of publications	40	33	16	20	18
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FACING SHEETS OF PUBLICATIONS

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ORIGINAL RESEARCH

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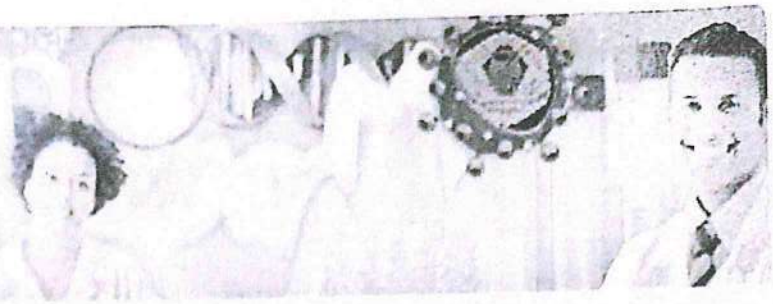

Disinfectant Efficacy of 0.525% Sodium Hypochlorite and Epimax on Alginate Impression Material

[1]Gopal Krishna Choudhury, [2]Rajkiran Chitumalla, [3]Litto Manual, [4]Santosh Kumar Rajalbandi
[5]Mahinder Singh Chauhan, [6]Pratim Talukdar

ABSTRACT

Aim: Species of *Streptococcus*, *Escherichia coli*, *Staphylococcus*, *Actinomyces*, *Pseudomonas*, *Klebsiella*, and *Candida* are commonly seen in the oral cavity. Impression materials are commonly contaminated with microorganisms. The present study was conducted to assess the disinfection efficacy of Epimax and 0.525% sodium hypochlorite on alginate impression over a period of 10 minutes.

Materials and methods: This study was conducted in the Department of Prosthodontics in the year 2015. An alginate impression material was prepared. For each bacteria species, 15 samples were used. Out of 15 samples, 3 were used by 0.525% sodium hypochlorite for disinfection for 5 minutes and 3 others for 10 minutes. Similarly, 3 samples were used by Epimax for 5 minutes and other 3 for 10 minutes. Three samples were used as controls. Each sample was polluted with *Candida albicans*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus* strains.

Results: There was no statistical difference in *P. aeruginosa* and *C. albicans* after 5 minutes, whereas *S. aureus* showed significant difference ($p<0.05$). Epimax was found to be more effective in removing *S. aureus* as compared with other disinfectants. Both Epimax and 0.525% sodium hypochlorite did not show significant difference against *P. aeruginosa* and *C. albicans*, whereas significant difference was found between both agents against *S. aureus* ($p < 0.05$). It was seen that Epimax eliminated *S. aureus* after 5 minutes and *P. aeruginosa* after 10 minutes and 99.8% *C. albicans* after 10 minutes. About 0.525% sodium hypochlorite eliminated 99.1% of *C. albicans* after 10 minutes, whereas 98.5 and 99% of *S. aureus* and *P. aeruginosa* were eliminated after 10 minutes respectively.

Conclusion: Both Epimax and 0.525% sodium hypochlorite can disinfect the alginate impression material against *C. albicans*, *P. aeruginosa*, and *S. aureus* strains. However, Epimax was found to be more effective against *S. aureus* as compared with 0.525% sodium hypochlorite.

Clinical significance: Efficacy of disinfection of sodium hypochlorite and Epimax on alginate impression.

Keywords: Disinfectant, Sodium hypochlorite, *Staphylococcus aureus*.

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INTRODUCTION

Pathogenic microorganisms can infect dental materials, such as alginate and putty. It has been observed that most of the organisms affect impression trays, impression materials, and so forth. Even dentists are affected by different pathogens during handling of dental products. Thus, infection from patients can reach the dentist through poured stone cast and alginate impression.[1]

Among various bacteria, species of *Streptococcus*, *E. coli*, *Staphylococcus*, *Actinomyces*, *Pseudomonas*, *Klebsiella*, and *Candida* species are commonly seen. Impression materials are commonly contaminated with microorgan-

ORIGINAL RESEARCH

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Long-term Retrospective Study based on Implant Success Rate in Patients with Risk Factor: 15-year Follow-up

[1]Baburajan Kandasamy, [2]Navleen Kaur, [3]Gulshan K Tomar, [4]Atul Bharadwaj, [5]Litto Manual, [6]Meghna Chauhan

ABSTRACT

Aim: The purpose of this retrospective study is to assess implant success rates with various risk factors.

Materials and methods: Two hundred patients with a total of 650 implants were selected. Risk factors, such as smoking, antidepressants, bruxism, diabetes, and bone augmentation procedures were considered, and patients were followed up for a period of 8 to 15 years.

Results: Of 650 implants placed, the success rate was 88%, i.e., a total of 572 implants were successful. A total of 78 implants were considered failure; and out of 78, twenty implants were surgically removed.

Conclusion: Based on this study's results, it is concluded that risk factors, such as smoking, bruxism, diabetes, and bone augmentation play an important role in success rate of dental implants.

Clinical significance: Several factors, such as bruxism, diabetes, and supporting bone can play an important role in dental implant success.

Keywords: Bone height, Bruxism, Dental implant, Diabetes, Failure, Smoking.

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INTRODUCTION

Dentition in human includes primary or permanent dentition. Aging is a natural process and as age advances there comes a stage of incomplete dentition, i.e., missing teeth. Holm-Pedersen and Loe[1] reported that more than 50% of the elderly populations are edentulous in industrialized society. Being edentulous not only affects the person functionally, i.e., difficulty in eating and speech, but it can also lead to psychological problems due to low self-esteem in society. One of the best ways for rehabilitation of the incomplete dentition is by osseointegrated dental implants therapy, as it provides the advantage of conserving the residual dentition and prevents the use of removable appliances.

Implant material should be biologically acceptable to the body and should not evoke body's immune response. Implants consist of three parts: First being the osseous part which interacts with the bone, second is transmucosal components that interact with mucosa, and third is restoration. A 95 to 98% success rate has been reported in the literature.[2] Selection of patients and clinical and laboratory phases play a major role in success of implant therapy. Various risk factors, such as smoking, bruxism, periodontal disease, diabetes, bone density, bone augmentation, and implant design affect the success rate of implants.[3,4] Hence, the aim of our retrospective study is to assess the implant success rates with various risk factors.

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Research Article

POST INSERTION PROBLEMS IN COMPLETE DENTURE PROSTHODONTICS - A SURVEY OF FREQUENCY OF DIFFERENT TYPES

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Complete denture, Questionnaire, Survey study, Reduced retention.

ABSTRACT

Objective: Fabrication of successful complete dentures is dependent on technical, biological, and psychological interplay between the clinician and the patient. Although every effort like proper diagnosis, patient education, mouth preparation, optimal clinical procedures etc are made, it is atmost impossible to deliver an absolutely problem–free complete denture. Postinsertion problems are a reality to be faced and tackled. Patient satisfaction is a critical determinant in the success or failure of complete denture therapy. This study was aimed at eliciting information regarding the frequency of post insertion problems in general, as well as the frequency of the individual types. Study design: A questionnaire survey was conducted among 200 randomnly selected practitioners of the state of Kerala and Karnataka to ascertain their subjective assessment regarding the above. **Results:** The data obtained is statistically analyzed and presented. The results of the study helped to establish: 1) Overall percentage of post insertion problem experienced; 2) Frequency of individual types of problems; and 3) Follow up periodicity. **Conclusion:** The study showed that the looseness or reduced retention was the most common post insertion complaint.

INTRODUCTION

Complete-denture therapy involves a complex interplay between the biologic and technical limitations. The successful solution of difficult diagnostic problems depends on powers of observation, artistic skill, and scientific preparation. For scientific therapy, knowledge of the disease is a prerequisite. Such knowledge is based on an under standing of the etiology. The treatment of a disease by utilization of knowledge of its etiology and an understanding of the action of the therapeutic agents is called the etiological mode of procedure.

Even when utmost care is taken in the fabrication of complete dentures, there are always unforeseen problems that arise when the patient is attempting to adjust to the new prosthesis. The majority of complete denture patients are apparently well satisfied, but a small percentage of patients persistently seek adjustments. Technical faults aside, the patients psychological well-being is postulated as a source of denture problems. Many practitioners will experience a situation, whereby a patient with newly fabricated complete dentures continues to experience difficulty in adapting to them. Post insertion problems are a reality to be faced and tackled. Studies have confirmed that approximately 50% of complete denture patients present post insertion complaints. This article provides information regarding the frequency of post insertion problems in general, as well as the frequency of individual types. This survey study was aimed at eliciting information from dental practitioners regarding their experiences related to post insertion problems in complete denture practice in general, frequency of the individual types of complaints, and overall follow up regimen.

METHODOLOGY

For collecting information about post insertion complaints a questionnaire survey was conducted among 200 randomnly selected practitioners of Northern Kerala and Southern Karnataka to ascertain their subjective assessment. For the ease of the data collection, a three page questionnaire was prepared and sends to the selected practitioners with stamped envelope for return of the same. Then the filled questionnaires were categorized in to two groups based on the type of the respondents that is general practitioners or specialists. Finally the collected data was pooled up for the ease of statistical analysis.

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Oral Medicine

Nanorobots -The New Champions in the Making!

Dr. Anjana Mohan Kumar*, Dr. Jayesh J Unnithan
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Review Article

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Article History
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Abstract: Nanotechnology, has redefined the very concept of the medicine and dentistry by transforming mere pipe dreams to actual reality. As forecasted, it has revolutionized various scientific and technological fields by enabling the control over material properties at ultrafine scales. This review article focuses on nanorobots; their development, mechanism of action and applications and their various challenges in the field of medicine and dentistry.

Keywords: Nanorobots, nanotechnology, nanodentistry.

INTRODUCTION

"There's plenty of room at the bottom" was the title of the path breaking lecture by Richard Feynman in 1959, that introduced the concept of nanotechnology, the focus for future scientific researches [1]. As predicted, nanotechnologies in general, and Nano robots in particular, have radically transformed the field of medicine, especially the concept of drug delivery systems. Nanotechnology is not just a mere shrinking of larger objects to the microscopic scale of a nanometer (10^{-9} meters) but also altering its physical and chemical properties accordingly[2,3].

Conceptual origins

Theoretically, nanorobots are microscopic devices which measure approximately a nanometer in dimension (1nm = 1 millionth of a millimeter). They are employed to work in both the medical and industrial fields at atomic, molecular and cellular levels, turning what seemed like fiction yesterday, into reality today[4-6].

Mechanism of action- How it works?

Nanorobots can be considered as the 'tailor-made mechanised version' of bacteria [7, 8]. They are designed to function like bacteria or any normal virus. These 'miracle particles' are composed of tiny silicon pieces called transducers and are powered by a battery or a tiny solar cell. These transducers utilize the energy generated by the robot's solar cell and convert it into mechanical power. The structural design of a nanorobot consists of an interior and exterior component. The external component is built to withstand exposure to various chemical fluids in the body. It comprises of carbon atoms forming a unique diamond structure which contributes to its enhanced strength and inert properties. In addition, its super smooth surfaces reduce the probability of triggering body's immune mechanism, thereby permitting nanorobots to work without any interference [7]. The internal component of a nanorobot is a confined vacuum type environment which doesn't permit external fluids to enter, unless required for chemical analysis.

The doctor's commands are encoded to acoustic signals at carrier wave frequencies (1-100 MHz), and are received via acoustic sensors attached to the surface of nanorobots. Once the commands are executed, nanorobots are easily disposed from the body to prevent further break down and malfunction.

Biomedical applications of Nanorobots – What to Expect?

Nano medicine [3,9]

- Early diagnosis and targeted drug-delivery for cancer, instrumentation, surgery, pharmacokinetics, and health care.
- Employing nanorobots to work at a cellular level by simply injecting them into the patient's bloodstream.
- Introduction of a plethora of advanced technologies that offer customized solutions to optimize delivery of pharmaceuticals.
- Assistance in the repair of tissue cells in conjunction with white blood cells.
- Application in diabetic patients, to control and monitor blood sugar levels.
- A remarkable tool in targeting and destroying kidney stones.
- A novel aid in the treatment of atherosclerosis

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- Application in diabetic patients, to control and monitor blood sugar levels.
- A remarkable tool in targeting and destroying kidney stones.
- A novel aid in the treatment of atherosclerosis

ORIGINAL ARTICLE

Three-dimensional finite element analysis of the stress distribution around the implant and tooth in tooth implant-supported fixed prosthesis designs

G Arun Kumar, Lin Cherian Kovoor, Vinni Mary Oommen

ABSTRACT

Aim: The study evaluates the stress formed around an implant and a natural tooth under occlusal forces, on different tooth implant-supported fixed prosthesis (TIFP) designs in order to suggest a design, which transmits less stress to the bone.

Materials and Methods: A distal extension situation was utilized in this study to evaluate stress distribution around a natural tooth and an implant in TIFP models with three connection designs (i.e., rigidly connected to an abutment tooth, connected to an abutment tooth with a nonrigid connector [NRC], and connected to an abutment implant with an NRC). The stress values of the three models loaded with vertical forces (300 N) were analyzed using three-dimensional finite element analysis.

Results: The highest level of stress around the implant and natural tooth was noted on the TIFP models with the RC. On the other hand, NRCs incorporated into the prostheses reduced the stress in the bone around the implant and natural tooth.

Conclusion: The present study recommends the use of NRCs on the implant abutment-supported site, if the tooth and implant abutment are to be used together as fixed prosthesis supports. The NRC placed on the implant abutment site reduces the stress around the implant and natural tooth in a fixed prosthesis supported by tooth and implant increasing the life span of both.

KEY WORDS: Finite element, fixed prosthesis, tooth implant

INTRODUCTION

Treatment with implant-supported fixed partial dentures (FPDs) has shown excellent long-term results, in the rehabilitation of partially edentulous patients.[1] However, because of anatomic limitations and reduced bone volume, in some cases it may be necessary to join an implant to a natural tooth. Combining teeth with implants provides support for a fixed partial prosthesis and may allow the restoration of a unilateral posterior edentulous segment when only one implant can be placed.

Rigid connections between natural teeth and osseointegrated implants present a biomechanical dilemma because of their difference in movement under masticatory forces. Teeth with a sound periodontal ligament have mobility characteristics between 50 and 200 μm, while osseointegrated implants demonstrate a mobility less than 10 μm.[2] The difference in mobility causes extensive torsion movements and could result in the fracture of the framework, loosening or fracture of screws in screw-retained prostheses, cement failure on the abutments, gradual loss of the crestal bone around the implant or breakdown of implant osseointegration.[3,4] Previous research has advocated the use of nonrigid FPD designs as a method of compensating for this differential movement.[5-7] Rigid partial denture designs are also advocated by many clinicians.[8,9] Misch and Ismail could not report any difference between models upon comparison of the tooth implant-supported fixed

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Case Series

Treatment Outcomes in the Sagittal and Vertical Dimensions with the AdvanSync2 Class II Corrector—A Case Series

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ABSTRACT

Class II malocclusions are challenging to treat especially when associated with a skeletal component of either maxillary protrusion, mandibular retrusion or combinations. Use of fixed functional Class II correctors is the treatment of choice in cases of Class II div 1 malocclusions with a retrusive mandible during the growth phase. The AdvanSync2 Class II corrector is the latest in a long series of fixed functional appliances introduced over the years. Literature relating to its efficacy is scarce, especially in the Indian context due to its recent introduction. Four case reports of patients treated with the AdvanSync2 Class II corrector and the findings observed in the sagittal and vertical dimensions are presented. The findings are similar to most fixed functional appliances except treatment duration which is reduced in all cases.

Key words: AdvanSync2, Class II corrector, cephalometrics, modified Herbst.

INTRODUCTION

Management of Class II malocclusions is a challenge for most orthodontists due to the variable nature of the problem and multifactorial etiology.[1] Class II malocclusions may or may not always be associated with a skeletal component.[2] Treatment depends on the age of the patient, type of malocclusion(div1, div2, subdivisions) and presence or absence of a skeletal component. In the Indian scenario, orthodontists are usually confronted with Class II div 1 malocclusions with a component of mandibular retrusion. Class II malocclusions with mandibular retrusions are deemed more common than those exhibiting maxillary prognathism.[3] Use of functional appliances has been advocated for patients with Class II malocclusion associated with mandibular retrusion in the growing years.[4-7] Mandibular retrusion, if left uncorrected, tends to worsen during the pubertal growth spurt and remains the same until adulthood.[8] The prevalence of Class II malocclusion in India is around 14.6% in the age groups between 10 and 13 years when most patients present to the orthodontist for correction.[9] The preferred approach to management of patients with Class II malocclusion with a retrusive mandible is use of fixed Class II correctors in conjunction with fixed orthodontic appliances to reduce treatment time and improve patient compliance. Removable functional appliances like twin blocks are generally used in younger patients who are yet to reach the pubertal growth spurt. A study by Baccetti[10] et al indicated that more skeletal changes with use of functional appliances could be expected when treatment is initiated just before peak as compared to after the onset of the pubertal growth spurt.

The Herbst appliance was introduced in the 19th century for keeping the mandible in a constantly protruded forward position.[5,11] The change in molar relationship from Class II to Class I has both skeletal and dental components.[4,5,11] Minimum skeletal changes have also been noticed after use of the Herbst appliance in patients who had passed their pubertal growth spurt.[6,11,12] However, case selection remains of paramount importance as results could vary when similar appliances are used at different times. The AdvanSync2 Class II corrector is a recently introduced fixed functional appliance. It was modeled on the original Herbst but has a much smaller size, is easier to place, activate and remove and most importantly, can be used in conjunction with full arch fixed appliances throughout. There is no need to level and align both arches and use heavy stainless steel stabilizing wires prior to placement of the Class II corrector like in conventional fixed functionals. As a result, residual growth can be better utilized with overall treatment times being reduced.[13] Most of the orthodontics can be completed along with simultaneous orthopaedic correction which helps reduce overall treatment time by a few months.

Original Article

Effect of Recasting on Physical Properties of Base Metal Alloys: An *In Vitro* Study

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ABSTRACT

Aims and Objectives: This study aims to establish the outcome of recasting on tensile strength, modulus of elasticity, and hardness of Nickel–chromium alloys.

Materials and Methods: Fifty wax patterns were fabricated, using the lost wax technique, the measurements of which were standardized. They were categorized into five groups of ten each. Group I included samples casted with new alloy alone. Group II samples consisted of 75% new alloy and 25% once casted alloy. Group III was casted with 50% of each. Group IV with 25% new metal and 75% previous alloy and samples of Group V samples were casted with once casted alloy alone. Modulus of elasticity and tensile strength were measured by universal testing machine, whereas hardness using microhardness tester. The values were statistically analysed. IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. IBM Corp. Armonk, NY, USA. for Windows software was used for analysis.

Results: We found a slight variation in mean tensile strength and modulus of elasticity, which was statistically insignificant variation among the groups. However, there was a significant difference in mean hardness between Groups III, IV, and V.

Conclusion: It is prudent to use pure alloy alone for casting. However, in view of environment and economical factors, addition of <50% reused alloy to pure alloy is satisfactory clinically.

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KEYWORDS: *Hardness, lost-wax technique, microhardness tester, modulus of elasticity, tensile strength, universal testing machine*

INTRODUCTION

The procedure of casting of a dental alloy involves the conversion of a wax pattern of a restoration into a replicate. It is used in restorations such as onlays, inlays, crowns, bridges, and removable partial dentures. More or less all casting procedures are prepared by usage of alteration of lost-wax technique of casting process.[1,2] Cast gold alloy is regarded as an ideal restorative material as it has advantages such as resistant to tarnish and corrosion, hardness, percentage elongation, castability, burnishability, and capacity to take high polish. Whereas, its extremely discernible color and high cost are its disadvantages.[1-3]

Recently, the usage of gold alloys is limited or eliminated due to its high cost. Base metal alloys satisfy properties of gold alloys with further advantages of reduced specific gravity and less cost. Hence, cobalt–chromium (Co–Cr) and nickel–Cr (Ni–Cr) alloys are enormously well liked in restorative dentistry procedures.[4,5]

Composition of noble gold alloys allows it to be recasted over and over again without any loss of their required properties. However, recasting of base metal alloys has not been suggested owing to the paucity of research, with manufacturers instructing their single usage only.[5-7]

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A Rare Case of Severe Hunter's Syndrome

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Abstract

Hunter's Syndrome or mucopolysaccharidosis Type II is a rare metabolic disorder caused by the deficiency of lysosomal enzyme iduronate-2-sulfatase. It results in progressive accumulation of deramatan and heparan sulfates in tissues leading to a wide clinical spectrum of systemic manifestations. This is a case report of a 6-year-old boy with classical features of Hunter's Syndrome who presented with a chief complaint of multiple decayed teeth. The purpose of this case report is to highlight the role of a pediatric dentist in the management of such special children with advanced dental care.

Keywords: *Dental care, Hunter's syndrome, mucopolysaccharidosis, severe form*

Introduction

Mucopolysaccharidosis (MPS) is a group of metabolic disorders caused by the absence or malfunctioning of lysosomal enzymes needed to breakdown molecules called glycosaminoglycans.[1] The presentation of the disease depends on the specific enzyme deficit out of the 11 enzymes involved in the MPS pathway [Table 1]. MPS Type II, first described by Major Charles Hunter, in 1917, is a rare hereditary metabolic disorder caused by the absence, deficiency, or malfunction of lysosomal enzyme iduronate-2-sulfatase resulting in accumulation of dermatan and heparan sulfates.[1] It is an X-linked recessive disorder that affects between 1 in 100,000–150,000 male live births.[2] Although this disease occurs almost exclusively in males, Hunter's syndrome has also been reported in a small group of female patients, manifesting with equal severity.[3] Life expectancy of patients diagnosed with Hunter's syndrome depends on the severity of disease and central nervous system involvement, the average length of survival being 10–20 years in severe forms and 20–60 years in milder forms.[2] The purpose of this case report is to highlight the role of pediatric dentists in the management of such special children with MPS Type II.

Case Report

A 6-year-old boy presented with his mother to the Department of Pediatric Dentistry in a postgraduate training institute in North India with a chief complaint of multiple decayed teeth in upper and lower jaw. Medical history revealed that though the child was normal at birth, he developed noisy breathing and floppy movements in a few days. At 2 months of age, the mother noticed an abnormal increase in body proportion. The patient was diagnosed with MPS Type II at the age of 2 years. The boy is the 2nd child of healthy nonconsanguineous parents. There was no family history of the similar condition.

On clinical examination, the patient had a protuberant abdomen with an umbilical hernia. He was short-statured for his chronological age, had stubby hands and feet with Grade III clubbing in fingers and toes [Figure 1]. Lumbar scoliosis and joint contractures were noted bilaterally on the knees and elbows [Figure 2]. Mental retardation was present with speech and learning impediment along with a lack of responsiveness to verbal commands.

Extraoral findings included macrocephaly, coarse facies, hirsutism, depressed nasal bridge, flared nostrils, low set ears, short neck, broad mandible, thickened lips, and limited mouth opening. Intraorally, the patient had macroglossia, protruding tongue, wide spaced dentition, and maxillary peg laterals. Maxillary and mandibular right and left deciduous molars were found to be carious with root stumps in relation to the mandibular deciduous canines and the left first deciduous molar [Figure 3].

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RESEARCH ARTICLE

EFFECT OF IMMERSION AND SPRAY ATOMIZATION TECHNIQUE OF DISINFECTION ON COMPRESSION RESISTANCE OF TWO INTEROCCLUSAL RECORDING MATERIALS.

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Key words:-
Polyvinyl siloxane interocclusal recording material; polyether interocclusal recording material; compression resistance; tear strength; sodium hypochlorite solution.

Abstract

This in-vitro study investigated the effect of immersion and spray atomization technique of disinfection using 0.5% of sodium hypochlorite solution on compression resistance of polyvinyl siloxane and polyether interocclusal recording materials. This study comprised of a total of 60 samples, wherein 30 samples each of polyvinyl siloxane and polyether underwent compression resistance. These 30 samples of each were again divided into 3 subgroups comprising of 10 specimens each - a control group, a group subjected to spray atomization disinfection technique for 10 mins and a group subjected to immersion technique for 10 mins following which they were subjected to compression resistance in a universal testing machine. One-way ANOVA and Post-Hoc Tukeys test were used for statistical analysis. Results showed that Polyvinylsiloxane interocclusal recording material showed better resistance to compression than polyether interocclusal recording material and Immersion technique of disinfection was better for polyvinylsiloxane and spray atomization technique of disinfection for polyether. Hence it could be concluded that Polyvinylsiloxane material can be used as an interocclusal recording material because of its greater resistance to compression and can be subjected to immersion technique of disinfection.

Introduction:-

An interocclusal record is a precise recording of a maxillomandibular position.[1]The forces exerted on these records during removal from mouth or articulation depends on the thickness, properties of the material, the storage, the time interval between making the records, and articulation time affects these changes. Hence, the selection of interocclusal recording material is critical, depending on the situation.[1] Interocclusal recording materials are partly responsible for accurate precision and occlusal quality of final prosthetic restorations when used for mounting casts on the articulators. Accurate mountings can lead to restorations that require minimal occlusal

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CASE REPORT ARTICLE

ORTHODONTIC EXTRUSION: AN AESTHETIC AND PROPRIOCEPTIVE ALTERNATIVE TO IMPLANT– AN INTERDISCIPLINARY CASE REPORT.

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Keywords:-
Forced eruption, mini-implant, post and core.

Abstract

Case report describes a multidisciplinary approach using orthodontic forced eruption to facilitate prosthetic restoration of a maxillary permanent lateral incisor with poor restorability. On examination, patient had a root stump in the region of 12. We decided to treat the patient by orthodontic extrusion followed by endodontic post and crown as patient was not wiling for extraction of 12 followed by prosthetic implant. The case was treated in a much easier way without the help of brackets and wire components. At 2 weeks, there was a clear radiolucent area filled with immature bone, osteoid and a normal periodontal ligament. Temporary anchorage device allowed the clinician to rehabilitate the smile easily and conveniently without extensive prosthodontic restorative work.

Introduction:-

Replacing the maxillary incisor remains the most challenging procedure in implant dentistry. Factors impacting success include the amount of available bone, the type of soft tissue, correct positioning of the implant, the provisional restoration, the design and material of the implant abutment, and the final restoration.[1,2,3]

Treatment approaches with mini-implants can be considered standard today in modern orthodontic practices because they treat conditions that are difficult to correct with conventional mechanics.[4,5] The purpose of this case report was to analyze the changes when forced eruption is used for endodontic post and crown development. Restoration after orthodontic eruption may present a more conservative treatment choice in all patients compared with the prosthetic restoration after extraction.

Case Report

A 50 year old female patient reported to the department of orthodontics with a chief complaint of spacing in the upper right front tooth region. On examination, patient had a root stump in the region of 12 (Figure 1). It was decided to treat the patient by orthodontic extrusion followed by endodontic post and crown as patient was not willing for extraction of 12 followed by prosthetic implant. The case was treated in a much easier way without the help of brackets and wire components.

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Comparative Evaluation of Impacted Maxillary Canine Position Using Panoramic Radiograph and Cbct

March 2019

Comparative Evaluation of Impacted Maxillary Canine Position Using Panoramic Radiograph and Cbct

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Abstract

Aim: To correlate labiopalatal position of impacted maxillary canines and evidence of root resorption of permanent incisors in Cone Beam Computed Tomography [CBCT] relative to its position in panoramic radiographs [PAN].

Materials and Methods: Archived panoramic radiographs and CBCT of 10 patients with 15 impacted maxillary canines were assessed. Labiopalatal position in panoramic radiographs was assessed using sector location and angular measurements and compared to position and evidence of root resorption of adjacent incisors in CBCT. Data was analysed using Kendall's tau-b, Kendall's tau-c and Kappa statistics.

Results: Labially impacted maxillary canines were frequent in sector 1,2,&3 and palatally impacted canines were frequent in sector 5 in Panoramic Radiograph. Moderate agreement was obtained between panoramic Sectors and angulation of Impacted Maxillary Canine and Labio-palatal position in CBCT. Root resorption were frequently observed in panoramic sector 5. Only a slight agreement was observed between root resorption in panoramic radiograph and CBCT.

Conclusion: Labio-palatal position of impacted maxillary Canines can be predicted using sector location and Katnelson's angulation in panoramic radiograph. Root resorption can be more accurately predicted using CBCT.

Keywords: Localization, Impacted maxillary canine, sector location, panoramic radiograph, CBCT

Keychain Attachment

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SAGE

Venkateswara Rao Ambekar[1], Anirudh K. Mathur[2], and Balan K. Thushar[2]

Abstract

Iatrogenic discomfort becomes a part of practice with limitation of armamentarium and technology. With the usage of temporary anchorage devices, it became a bliss to the orthodontist and patients in terms of ease and less anchorage loss but the continuous lingering irritation caused by the attaching ligature used to engage the spring to the implant head is harmful to patient. In this clinical pearl we have devised a small modification to the way the spring gets attached to implant head which eases the process and eliminates the iatrogenic problems.

Keywords

Both sides for retraction, closed coil spring, key chain attachment, mini implant head

Introduction

The placement of springs /elastics to temporary anchorage devices using ligature wires,cause iatrogenic discomfort to patients. This results in impingement and ulceration, which can be easily avoided by using an attachment that will be seated on to the head of the TADS (temporary anchorage devices) with minimal discomfort and easy chairside management while loading TADS with specified forces. The keychain attachment provides an easy-type, lasso-like anchorage to the mini-implant, which can secure the placement of nickel titanium spring for improving clinical efficiency.

Technique

The implant angultions sometimes make it tricky to place the ligature wire and cause discomfort to the patient. To overcome this, we have made a keychain attachment (Figure 1), which can be easily made using a 0.018" A.J. Wilcock® Australian Wire in conjunction with the third serration of a bird-beak plier. This keychain attachment is given a circular dimension and can engage the implant like a lasso, thus preventing the discomfort and providing a snug fit to the implant. This will be an easy chairside management while loading TADS with specific forces as required.

Discussion

No breakage or disengagement of the keychain attachment has been observed to date. It should be noted that the placement of the ligature into TADS is tricky at times and may cause unwanted tissue growth to cover the ligature wire or ulcer formation, resulting in discomfort to the patient, which can be avoided by using a simple keychain attachment. An added advantage is that in case of any slippage of the loaded spring or solder failure, patients can remove the lasso kind of attachment easily without any discomfort till they come for the next appointment.

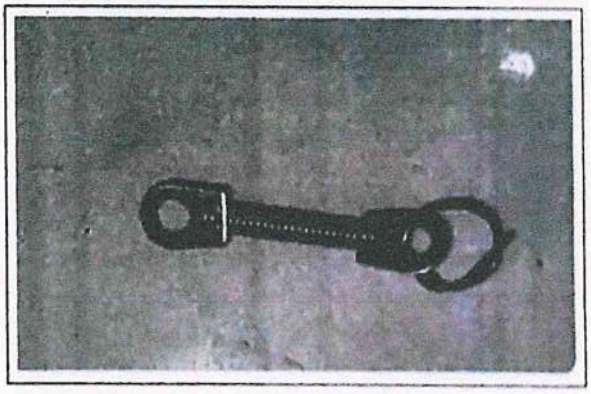

Figure 1. Keychain Attachment With Closed Coil Spring

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CLINICAL PEARL: TEMPORARY PHANTOM TOOTH

Posted by Alison Werner | Mar 11, 2019 | Brackets and Wires, Treatment Planning | ★☆☆☆☆

By Venkat Ambekar, MDS; Anirudh K. Mathur, MDS; Balan K. Thushar, orthodontic resident

We often come across a missing anterior tooth or have a space emerge during orthodontic treatment. To avoid the resulting poor social smile during treatment, we can provide the patient with a temporary phantom tooth made of regular non flowable composite used in the office. The main advantage of using a temporary phantom tooth is a boost to the patient's confidence.

Figure 1

The fact is: Poor self-confidence may lead to discontinuation of orthodontic treatment and/or the patient seeking treatment alternatives. A phantom tooth has the advantage of satisfying an aesthetic need and providing a temporary space maintainer (Figure 1)—a win-win situation for the patient and the orthodontist.

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CASE REPORT ARTICLE

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Prevalence and Impact of Dental Pain on Oral Health Related Quality Of Life among 8-12 Year Old School Children in Bangalore City

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Objectives

To determine the prevalence, intensity, characteristics and impact of dental pain on oral health related quality of life (OHRQoL) among 8-12 year-old school children in Bangalore city.

Methods

A cross-sectional study using a multi-stage random sampling technique was carried out to determine the prevalence and impact of dental pain among 782, 8-12 year old schoolchildren in Bangalore city. An OHRQoL measure, Child-Oral Impacts on Daily Performances index (Child-OIDP) was used to assess oral impacts.

Results

The life-time prevalence of dental pain was 52.9% and the last three months prevalence was 31.8%. Three month prevalence of dental pain was significantly higher in 8-10 year age group (p= 0.002) in comparison with 11-12 year age group and in public schools (p<0.001) in comparison with private schools. About 88.3% of children had one or more oral impacts. The severity of impacts was highest for eating (74.4%) followed by speaking and low for smiling and social contact performances. Females had 3.01 times odds of having an impact when compared to males (p=0.006). Adjusted odds ratio for dmf(t) was 1.95 (95% CI 1.24;3.05) (p=0.003) and for DMF(T) Was 1.94 (95% CI 1.21;3.11) (P=0.006).

Conclusion

The study revealed that the prevalence of dental pain was high among 8-12 year old children and had considerable impacts on quality of life. The impacts mainly related to difficulty eating and cleaning oral cavity.

Key word: Dental pain; School children; Oral Impact on Daily Performance (OIDP)

Introduction

Health is pivotal for having a productive and sustainable life. Oral health is congruent with general health and an integral component (1). A normal physical, psychological and social functioning is essential for good oral health. Oral pain can cause considerable disruption in normal functioning and social wellbeing (2). Quality of life incorporates the equilibrium of the individual in terms of

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Research Article

Association of dental anxiety with personality traits among Al Azhar arts students in Thodupuzha, Kerala

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ABSTRACT

Introduction: Dental anxiety remains a barrier to dental care for a considerable proportion of the population. The psychological profile of patients dentally anxious but not highly anxious is quite similar to normal (non-anxious) patients' profile.

Aims and Objectives: The aim of the study is to assess personality traits and prevalence of dental anxiety and to find an association between dental anxiety and personality traits in arts students.

Materials and Methods: A cross-sectional study was conducted among 130 arts students out of which 86 were males and 44 were females. Modified dental anxiety scale was used to measure dental anxiety using a five-point Likert scale. Personality trait was assessed using the short-form revised Eysenck personality questionnaire scale which consisted of 48 questions. Statistical analysis was done using independent *t*-test with statistical significance at 5%.

Results: Overall prevalence of dental anxiety was 56.93% (males 53.38% and females 63.63%). The mean score of dental anxiety for males was 9.6 ± 3.7 and for females 11.3 ± 4.2, and difference was statistically significant ($P < 0.05$). A total of 30 (23.07%) were classified as extraversion, 24 (18.46%) as neuroticism, 32 (24.61%) as lie scale, and 20 (15.38%) as psychoticism according to the scale used. In the present study, there was no association between dental anxiety and personality trait.

Conclusion: In general, dental anxiety is not gender related, but in the present study, females had higher dental anxiety (63.63%) compared to males (53.38%).

Keywords: Dental anxiety, Personality traits, Prevalence.

INTRODUCTION

Over the last decade, the demand for dental services has increased, mostly due to increased awareness among the public about the consequences of poor dental health. As the demand for dental services increases, there has been a proportional increase in the number of people who experience symptoms ranging from dislike to phobia regarding dental treatment.[1]

Anxiety is defined as "a state of apprehension resulting from the anticipation of a threatening event or situation."[2] Dental anxiety is historically deeply rooted in people. Many individuals experience anxiety at the thought of visiting a dentist for routine checkup. In fact, epidemiological surveys indicate that approximately 50–70% of individuals experience feelings of apprehension before and during visits to the dentist.[3]

Effect of Sugar-free Chewing Gum on Plaque and Gingivitis among 14–15-year-old School Children: A Randomized Controlled Trial

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Abstract

Aim: The aim of the study was to find out the effect of sugar-free chewing gums (xylitol and sorbitol) on plaque and gingivitis among 14–15-year-old school children. **Materials and Methods:** A single center, double-blind, randomized controlled trial was conducted on 14–15-year-old children. Sample size was determined to be 48. Participants were randomly allocated to test group (xylitol [n = 12], sorbitol [n = 12]) and control group (no gum, n = 24). Duration of the study was 14 days. Baseline assessment of plaque, gingival, and bleeding score, followed by oral prophylaxis. Selected children received daily two chewing gum (1 g each) to chew for 20 min postbreakfast and postlunch. Follow-up was done on 15th day. Analysis was done using independent t-test, ANOVA, and *post hoc* test. Significance level was kept at P = 0.05. **Results:** There was a significant reduction in plaque, gingival, and bleeding score in test group (P < 0.05) compared to control group. **Conclusion:** Sugar-free gum (xylitol and sorbitol) significantly reduced the plaque, gingival, and bleeding score.

Keywords: *Chewing gum, children, dental plaque, gingivitis, sorbitol, xylitol*

Introduction

Chewing gum is a well-accepted, enjoyable, and frequent activity for adults and children, most consumers of chewing gum are teenagers.[1-3]

Chewing a sugar-free gum can increase the initial salivary flow rate by a factor of 10. In addition to the more effective clearance of carbohydrate from the mouth, stimulated saliva contains higher concentrations of remineralizing ions and bicarbonate to buffer the acids formed from plaque.[3]

Today, most chewing gums sold in developed countries are sweetened with sugar substitutes. The predominant sugar substitutes are polyols, which are low-caloric substances sometimes called "sugar alcohols" because their chemical structure is similar to that of both sugar and alcohol. The most common polyols in sugar-free chewing gum are sorbitol, which is a hexanol derived from glucose, and xylitol, which is a pentatol that occurs widely in nature.[4]

Imfeld[5] suggested that sugar-free chewing gum has no relevant mechanical tooth-cleaning effects although the saliva stimulated by mastication will effectively dissolve and remove soluble fermentable substrates from the oral cavity, increase the pH of plaque, and promote the remineralization of early carious lesions.

Various investigators using different forms of chewing gums available in the market have reported increases in salivary pH as well as reductions in dental plaque and gingivitis.[6-8]

The most common dietary polyols used in sugar-free chewing gum are xylitol and sorbitol. Xylitol is a sugar alcohol derived from pentose sugar xylose, and sorbitol is a sugar alcohol derived from glucose.[4]

It has been postulated that presence of plaque, bleeding gums, and gingival inflammation is the main outcome measurements of the oral health. There is little information in the literature regarding the effect of different sugar-free chewing gum on three outcome variables simultaneously. Hence, we felt that there is a need to study the effect of chewing gum on oral health and also to understand the therapeutic effect on plaque, gingivitis, and bleeding gums.

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Oral Squamous Papilloma Management with Diode Laser: A Case Report

Rose Maria Jose[1], Ramnarayan B.K.[2], Namitha Jayapal[3], Chaya M David[4], Pallavi Nanaiah[5], Vidya Anne Gowda[6]

ABSTRACT

Introduction: Oral Squamous Papilloma (OSP) is a benign, hyperplastic wart-like localized proliferation, representing an exaggerated growth of normal squamous epithelium caused by Human Papillomavirus (HPV) types 6 and 11. It can occur at any age and is commonly found on the tongue, lips, buccal mucosa and palate.

Case report: We present a case of oral squamous papilloma in a 40-year-old male patient in the hard palate which was managed by laser excision.

Conclusion: Oral Squamous Papilloma is an exophytic non-contagious growth which is caused by papilloma virus. Surgical excision is the treatment of choice and laser excision has shown to be a promising treatment modality with high patient compliance.

Keywords: Oral Squamous Papilloma, Human Papilloma Virus, Laser Excision

INTRODUCTION

Squamous cell papilloma or Oral Squamous Papilloma (OSP) is a benign epithelial HPV induced growth. It is the fourth most common oral mucosal mass and is found in four of every 1000 and accounts for 3-4% of all biopsied oral soft tissue lesions.[1] The HPV types 6 and 11 have been identified in up to 50% of oral papillomas.[2] It can arise at any age, but more commonly seen in third to fifth decade. It is commonly seen in tongue, lips, gingiva, palate, although it can affect any part of oral mucosa.[2] It is often seen as a pinkish-white soft painless usually pedunculated exophytic mass less than 1 cm with numerous finger-like projections. Conservative surgical excision is considered the treatment for oral squamous papilloma and laser excision has shown to provide adequate treatment outcomes. This article aims to present a case of oral squamous papilloma of hard palate treated with diode laser and the post-surgical follow up.

CASE REPORT

A 40-year-old male patient reported with chief complaint of growth in his palate since 2 months. Patient revealed that he was informed about the growth by a private dentist when he visited for filling his teeth. Patient was advised regarding removal of the growth by excision but was reluctant to do so. The patient noticed that the growth gradually increased in size and attained its present size. He had no associated pain, paresthesia or discomfort in speech or deglutition. No similar lesions were present elsewhere in the body. There were no contributory Medical, Dental, Family and Personal history. The patient had a habit of smoking 2-3 cigarettes per day since 2 years.

Intra oral examination revealed a solitary well defined, exophytic sessile growth with an irregular finger-like projection was seen on the junction of hard palate and soft palate along the midline. The growth was pale pink in color, roughly oval, 1.2 x 0.8 cm in size (Figure 1). The surrounding mucosa appeared normal. On palpation, inspectory findings were confirmed. The growth was non-tender, soft in consistency with no discharge.

Based on the history, clinical features and the nature of the growth a provisional diagnosis of squamous papilloma was given. Differential diagnosis considered were verruciform xanthoma, papillary hyperplasia and condyloma acuminatum. The patient was assured and educated before obtaining consent for biopsy. The patient was subjected to complete hematological examination and all the parameters were within normal limits. Surgical excision of the growth was done using diode laser (K Laser 970 nm) with a 1 mm margin to the depth of submucosa under local anesthesia (Figure 2). There were no post-operative complications. After excisional biopsy, specimen was fixed and stained with hematoxylin and eosin for histological analysis.

Histological examination under 5X magnification revealed hyperplastic orthokeratinized stratified squamous epithelium with thin and elongated rete ridges with finger like projections. The finger like projections consist of central thin connective tissue carrying blood vessels. The deeper connective tissue stroma consist of minor salivary glands (Figure 3).

Based on clinical and histopathological report, the final

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PROBIOTICS: A NOVEL APPROACH IN DENTISTRY

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Abstract: Dental caries is one of the most common diseases worldwide, although a decline of the prevalence has been recorded in western countries. The World Health Organization has defined probiotics as "Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host". These microorganisms belong to the natural human flora in order to survive in the acid environment during transit to the intestines. This paper aims to provide a systematic review of the caries-prevention effect of probiotics in human. The effect of probiotics on the development of caries lesion seems encouraging, but to date, Randomized Clinical Trials (RCT) on this topic are insufficient to provide scientific clinical evidence.

Keywords: Dental Caries, Probiotics, Microorganism, RCT

Dental caries is a multifactorial disease requiring the presence of a susceptible host, cariogenic microflora and a diet conducive to enamel demineralization.

The term probiotics, the antonym of the term antibiotics, was introduced in 1965 by **Lilly & Stillwell** as Substances produced by microorganisms which promote the growth of other microorganisms.[1] The term 'probiotics' has undergone several definitions arriving at the final one, officially adopted by the International Scientific Association for Probiotics and Prebiotics term, outlining the breadth and scope of probiotics as they are known today: **'Live microorganisms, which when administered in adequate amounts, confer a health benefit on the host'.**[2] The idea of probiotics dates back to the first decade of 1900 when the Ukrainian bacteriologist and Nobel Laureate **Ilya Metchnikof** studying the flora of the human intestine developed a theory that senility is caused by poisoning of the body by the products of some of these bacteria. To prevent the multiplication of these organisms he proposed a diet containing milk fermented by *lactobacilli* which produces a large amount of lactic acid and for a while this diet became widely popular. The most commonly used probiotic bacterial strains belong to the genera **Lactobacillus and Bifidobacteria.**

In the oral cavity, lactobacilli usually comprise 1% of the total cultivable bacteria, commonly isolated species include *L.paracaseie, L.plantarum, L.rhamnosus, L.salivarius.*[3] Bifidobacterial species isolated from oral samples include *B.bifidum, B.dentium and B.longum.*[4,5] Species of Lactobacillus and Bifidobacteria may exert beneficial activity in the oral cavity by inhibiting cariogenic Streptococci and Candida spp.[6]

PROBIOTICS AND DENTAL CARIES

The impact of oral administration of probiotics on dental caries has been studied in several experiments utilizing different test strains. ***Lactobacillus rhamnosus* GG and *L. casei***[7] have proved their potential to hamper growth of these oral *streptococci*. Caglar et al registered definite *S. mutans* count reduction after a 2-week consumption of yoghurt containing ***L. reuteri***.[8] A temporary

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PRF –FOUNTAIN OF YOUTH IN OUR BODY

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ABSTRACT

One of the promising innovations in the field of surgical dentistry is the use of platelet-rich fibrin (PRF), alone or as an additive with other biomaterials. It accelerates the healing mechanism of the tissue and reduces the inflammation.Platelet-rich fibrin (PRF) was first described by Choukroun et al. (2001). It has been referred to as a second-generation platelet concentrate, which has been shown to have several advantages over traditionally prepared platelet-rich plasma. PRF has a physiologic architecture that is very favourable to the healing process, obtained due to the slow polymerization process. This article describes the evolution of this novel platelet concentrate and various clinical application in dentistry

Keywords: Growth factors, platelets, platelet-rich plasma, wound healing, tissue engineering.

INTRODUCTION

In Greek mythology, Prometheus stole fire from Zeus and gave it to mankind. As punishment, Zeus had him chained to a rock where a great vulture tore at his liver every day. During the night, the liver grew whole again, only to have the vulture devour it again the next day.

Today, the regrowth of Prometheus' liver has become a symbol to medical researchers for the possible renewal of damaged human organs through the use of human stem cells. Developments in the field of tissue engineering have made the generation of artificial substitutes in several areas of medicine.

The term tissue engineering was originally coined to denote the construction in the laboratory of a device containing viable cells and biologic mediators (e.g., growth factors and adhesins) in a synthetic or biologic matrix, which could be implanted in patients to facilitate regeneration of particular tissues. In general, tissue engineering combines three key elements, namely scaffolds (collagen,bone mineral), signalling molecules (growth factors), and cells(osteoblasts and fibroblasts).Tissue engineering has been redefined presently as the relatively new highly promising ûeld of reconstructive biology.These principles of tissue engineering have found widespread application in severalbranches of dentistry such as periodontics, oral and maxillofacial surgery and oral implantology.[1]

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CONCENTRATED PLATELET-RICH PLASMA:BIOLOGICALADHESIVE OR CELLULAR THERAPY?

Because of the risk of transmission of hepatitis, many marketed ûbrin adhesives have been prohibited in the USA since 1978. Consequently, attempts at the development of autologous ûbrin adhesives increased, but with mitigated success. The use of platelet concentrates, based on the concept of cell therapy by growth factors, reopens technologic researchon the autologous ûbrin ad-

'SLIME STORY'- EXPLORING THE POTENTIAL OF EARTHWORM COELOMIC FLUID: A REVIEW

Dr. Jayesh J Unnithan[1], Dr. Rema J[2], Dr. Anjana Mohan Kumar[3], Dr. Shanila Abdul Majeed[3]
Dept of Oral Medicine & Radiology, Al Azhar Dental College, Thodupuzha.
1. Associate Professor. 2. Professor & HOD, 3. Assistant Professor.

Abstract: It's a well known fact that earthworms are considered as farmers best friends. However, a lesser known truth is that earthworms were employed in traditional medicinal cures since centuries. The earliest account of such use dates back to 1340 AD. Extracts derived from earthworms were used to treat post partum weakness in women, to enhance hair growth, as toothpowder against gingivitis and to reduce pain in rheumatism. Earthworms even served as a powerful cure for small pox. Scientific research has uncovered the hidden potential of earthworm coelomic fluid and its extracts and shed light on their remarkable properties, which include, antiproliferative, antibacterial, fibrinolytic, wound healing, anticoagulative and antioxidative, to name a few.[1] This article intends to highlight the properties of earthworm coelomic fluid and emphasize on its importance in future research.

Keywords : Anticancer, anticoagulative, Earthworm coelomic fluid(ECF), *Eisenia fetida*, G-90

INTRODUCTION

Nature has endowed us with plenty of unique natural resources, many of which have not yet been completely explored. Although history has ample evidence, lack of proper scientific research has discouraged their utilization. Of late, earthworms and their extracts which contain biologically active molecules have drawn much attention from many scientists and researchers all over the world. The coelomic cavity of earthworms is filled with a specialized kind of fluid, derived from its mesenchymal layer known as Earthworm coelomic fluid (ECF). It is rich in wandering coelomocytes, which includes namely 4 types of cells; the mucocytes, amoebocytes, circular cells and chloragogan cells. In addition, it also contains certain immunologically active compounds like lysenin, lumbricin, fetidin, eiseniapore, coelomic cytolytic factor and several growth factors. The ECF helps to maintain moisture and to aid in normal physiologic processes like cutaneous respiration, dessication, regeneration, circulation of nutrients and protection from pathogens.[2,3,4]

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Research Article

Association of dental anxiety with personality traits among Al Azhar arts students in Thodupuzha, Kerala

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ABSTRACT

Introduction: Dental anxiety remains a barrier to dental care for a considerable proportion of the population. The psychological profile of patients dentally anxious but not highly anxious is quite similar to normal (non-anxious) patients' profile.

Aims and Objectives: The aim of the study is to assess personality traits and prevalence of dental anxiety and to find an association between dental anxiety and personality traits in arts students.

Materials and Methods: A cross-sectional study was conducted among 130 arts students out of which 86 were males and 44 were females. Modified dental anxiety scale was used to measure dental anxiety using a five-point Likert scale. Personality trait was assessed using the short-form revised Eysenck personality questionnaire scale which consisted of 48 questions. Statistical analysis was done using independent *t*-test with statistical significance at 5%.

Results: Overall prevalence of dental anxiety was 56.93% (males 53.38% and females 63.63%). The mean score of dental anxiety for males was 9.6 ± 3.7 and for females 11.3 ± 4.2, and difference was statistically significant ($P < 0.05$). A total of 30 (23.07%) were classified as extraversion, 24 (18.46%) as neuroticism, 32 (24.61%) as lie scale, and 20 (15.38%) as psychoticism according to the scale used. In the present study, there was no association between dental anxiety and personality trait.

Conclusion: In general, dental anxiety is not gender related, but in the present study, females had higher dental anxiety (63.63%) compared to males (53.38%).

Keywords: Dental anxiety, Personality traits, Prevalence.

INTRODUCTION

Over the last decade, the demand for dental services has increased, mostly due to increased awareness among the public about the consequences of poor dental health. As the demand for dental services increases, there has been a proportional increase in the number of people who experience symptoms ranging from dislike to phobia regarding dental treatment.[1]

Anxiety is defined as "a state of apprehension resulting from the anticipation of a threatening event or situation."[2] Dental anxiety is historically deeply rooted in people. Many individuals experience anxiety at the thought of visiting a dentist for routine checkup. In fact, epidemiological surveys indicate that approximately 50–70% of individuals experience feelings of apprehension before and during visits to the dentist.[3]

Effect of Sugar-free Chewing Gum on Plaque and Gingivitis among 14–15-year-old School Children: A Randomized Controlled Trial

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Abstract

Aim: The aim of the study was to find out the effect of sugar-free chewing gums (xylitol and sorbitol) on plaque and gingivitis among 14–15-year-old school children. **Materials and Methods:** A single center, double-blind, randomized controlled trial was conducted on 14–15-year-old children. Sample size was determined to be 48. Participants were randomly allocated to test group (xylitol [n = 12], sorbitol [n = 12]) and control group (no gum, n = 24). Duration of the study was 14 days. Baseline assessment of plaque, gingival, and bleeding score, followed by oral prophylaxis. Selected children received daily two chewing gum (1.1 g each) to chew for 20 min postbreakfast and postlunch. Follow-up was done on 15th day. Analysis was done using independent t-test, ANOVA, and *post hoc* test. Significance level was kept at P < 0.05. **Results:** There was a significant reduction in plaque, gingival, and bleeding score in test group (P < 0.05) compared to control group. **Conclusion:** Sugar-free gum (xylitol and sorbitol) significantly reduced the plaque, gingival, and bleeding score.

Keywords: *Chewing gum, children, dental plaque, gingivitis, sorbitol, xylitol*

Introduction

Chewing gum is a well-accepted, enjoyable, and frequent activity for adults and children, most consumers of chewing gum are teenagers.[1-3]

Chewing a sugar-free gum can increase the initial salivary flow rate by a factor of 10. In addition to the more effective clearance of carbohydrate from the mouth, stimulated saliva contains higher concentrations of remineralizing ions and bicarbonate to buffer the acids formed from plaque.[3]

Today, most chewing gums sold in developed countries are sweetened with sugar substitutes. The predominant sugar substitutes are polyols, which are low-caloric substances sometimes called "sugar alcohols" because their chemical structure is similar to that of both sugar and alcohol. The most common polyols in sugar-free chewing gum are sorbitol, which is a hexanol derived from glucose, and xylitol, which is a pentatol that occurs widely in nature.[4]

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INTRODUCTION

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Association of dental anxiety with personality traits among Al Azhar arts students in Thodupuzha, Kerala

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ABSTRACT

Introduction: Dental anxiety remains a barrier to dental care for a considerable proportion of the population. The psychological profile of patients dentally anxious but not highly anxious is quite similar to normal (non-anxious) patients' profile.

Aims and Objectives: The aim of the study is to assess personality traits and prevalence of dental anxiety and to find an association between dental anxiety and personality traits in arts students.

Materials and Methods: A cross-sectional study was conducted among 130 arts students out of which 86 were males and 44 were females. Modified dental anxiety scale was used to measure dental anxiety using a five-point Likert scale. Personality trait was assessed using the short-form revised Eysenck personality questionnaire scale which consisted of 48 questions. Statistical analysis was done using independent *t*-test with statistical significance at 5%.

Results: Overall prevalence of dental anxiety was 56.93% (males 53.38% and females 63.63%). The mean score of dental anxiety for males was 9.6 ± 3.7 and for females 11.3 ± 4.2, and difference was statistically significant ($P < 0.05$). A total of 30 (23.07%) were classified as extraversion, 24 (18.46%) as neuroticism, 32 (24.61%) as lie scale, and 20 (15.38%) as psychoticism according to the scale used. In the present study, there was no association between dental anxiety and personality trait.

Conclusion: In general, dental anxiety is not gender related, but in the present study, females had higher dental anxiety (63.63%) compared to males (53.38%).

Keywords: Dental anxiety, Personality traits, Prevalence.

INTRODUCTION

Over the last decade, the demand for dental services has increased, mostly due to increased awareness among the public about the consequences of poor dental health. As the demand for dental services increases, there has been a proportional increase in the number of people who experience symptoms ranging from dislike to phobia regarding dental treatment.[1]

Anxiety is defined as "a state of apprehension resulting from the anticipation of a threatening event or situation."[2] Dental anxiety is historically deeply rooted in people. Many individuals experience anxiety at the thought of visiting a dentist for routine checkup. In fact, epidemiological surveys indicate that approximately 50–70% of individuals experience feelings of apprehension before and during visits to the dentist.[3]

Effect of Sugar-free Chewing Gum on Plaque and Gingivitis among 14–15-year-old School Children: A Randomized Controlled Trial

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Abstract

Aim: The aim of the study was to find out the effect of sugar-free chewing gums (xylitol and sorbitol) on plaque and gingivitis among 14–15-year-old school children. **Materials and Methods:** A single center, double-blind, randomized controlled trial was conducted on 14–15-year-old children. Sample size was determined to be 48. Participants were randomly allocated to test group (xylitol [n = 12], sorbitol [n = 12]) and control group (no gum, n = 24). Duration of the study was 14 days. Baseline assessment of plaque, gingival, and bleeding score, followed by oral prophylaxis. Selected children received daily two chewing gum (1 g each) to chew for 20 min postbreakfast and postlunch. Follow-up was done on 15th day. Analysis was done using independent t-test, ANOVA, and *post hoc* test. Significance level was kept at P = 0.05. **Results:** There was a significant reduction in plaque, gingival, and bleeding score in test group (P < 0.05) compared to control group. **Conclusion:** Sugar-free gum (xylitol and sorbitol) significantly reduced the plaque, gingival, and bleeding score.

Keywords: *Chewing gum, children, dental plaque, gingivitis, sorbitol, xylitol*

Introduction

Chewing gum is a well-accepted, enjoyable, and frequent activity for adults and children, most consumers of chewing gum are teenagers.[1-3]

Chewing a sugar-free gum can increase the initial salivary flow rate by a factor of 10. In addition to the more effective clearance of carbohydrate from the mouth, stimulated saliva contains higher concentrations of remineralizing ions and bicarbonate to buffer the acids formed from plaque.[3]

Today, most chewing gums sold in developed countries are sweetened with sugar substitutes. The predominant sugar substitutes are polyols, which are low-caloric substances sometimes called "sugar alcohols" because their chemical structure is similar to that of both sugar and alcohol. The most common polyols in sugar-free chewing gum are sorbitol, which is a hexanol derived from glucose, and xylitol, which is a pentatol that occurs widely in nature.[4]

Imfeld[5] suggested that sugar-free chewing gum has no relevant mechanical tooth-cleaning effects although the saliva stimulated by mastication will effectively dissolve and remove soluble fermentable substrates from the oral cavity, increase the pH of plaque, and promote the remineralization of early carious lesions.

Various investigators using different forms of chewing gums available in the market have reported increases in salivary pH as well as reductions in dental plaque and gingivitis.[5-8]

The most common dietary polyols used in sugar-free chewing gum are xylitol and sorbitol. Xylitol is a sugar alcohol derived from pentose sugar xylose, and sorbitol is a sugar alcohol derived from glucose.[4]

It has been postulated that presence of plaque, bleeding gums, and gingival inflammation is the main outcome measurements of the oral health. There is little information in the literature regarding the effect of different sugar-free chewing gum on three outcome variables simultaneously. Hence, we felt that there is a need to study the effect of chewing gum on oral health and also to understand the therapeutic effect on plaque, gingivitis, and bleeding gums.

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AWARENESS AMONG PARENTS AND CAREGIVERS REGARDING THE USE OF PACIFIERS: A DESCRIPTIVE CROSS -SECTIONAL STUDY

Dental Science

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ABSTRACT

The aim of this study was to measure the level of awareness among parents and caregivers regarding the use of pacifiers. The study was conducted in Ludhiana city in July 2017 among 300 parents and caregivers. A self-administered questionnaire containing knowledge, attitude and practice questions were distributed. Data was recorded and statistical analysis was done by descriptive statistics. 45%of the participants used pacifiers for their children. Parents (75 %) were well aware that pacifiers should not be coated with honey or other substances to reduce the risk of dental caries. 75%of parents were unaware that pacifier use reduces SIDS risk. The level of knowledge regarding pacifier use was satisfactory though there was a discrepancy in putting knowledge to practice. The attitude of parents towards acquiring knowledge was positive.

KEYWORDS

pacifier, soothing, SIDS, dental problems

INTRODUCTION

Neonates are born with several vital adaptive reflexes that facilitate their development through their first weeks and months of life. These involuntary reflexes occur either spontaneously or as responses to different stimuli. The development of sucking reflex is an important milestone to ensure survival as it requires coordination with breathing and swallowing, aiding in nourishment of the neonate. This skill develops in utero as early as the eighth week of gestation and continues well after birth. Non-nutritive sucking (NNS), is a precursor to nutritive sucking [1], and holds various physiological benefits including improved digestion, behavioral organization [2], pain management, and prevention of aspiration in the term and preterm infants. A pacifier or dummy is a fairly common method of non-nutritive sucking, usually introduced by parents to calm the child. Consequently, every time the child is irritated, the pacifier is offered as a form of amusement and a panacea, and the child develops a strong attachment to the sucking object. Pacifiers have been implicated in nipple confusion, increased frequency of otitis media and dental problems. Other commonly held beliefs criticize pacifiers for interfering with normal dental and speech development and sleep habits. However, there is a growing body of research on pacifiers and their possible protective effect against Sudden Infant Death Syndrome (SIDS).

The use of pacifiers is an ancient practice, but often becomes a point of debate when parents and professionals aim to protect and promote breastfeeding as the most appropriate method of infant nutrition. Existing literature inadequately documents the rationale behind pacifier use, which now has more of become a cultural norm. The use of pacifiers is firmly entrenched in some cultures and the reasons for pacifier use need to be investigated and better understood in order to design effective interventions to reduce their inadvertent use. Hence, the aim of this study was to investigate the level of awareness among parents and caregivers regarding the use of pacifier.

SUBJECTS AND METHODS:

This descriptive cross-sectional study was conducted in the city of Ludhiana, State of Punjab in July 2017.The study proposal was approved by the Institutional Research Committee. A validated , pre-tested questionnaire comprising of demographic information and specific research questions on

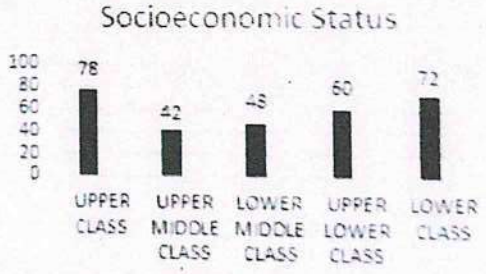
knowledge , attitude and practice was distributed among a representative sample of 300 parents and caregivers in different centres across the city such as kindergartens, schools, hospitals ,stores selling infant supplies. The questionnaire was also distributed among caregivers across different states of the country via emails. These self-administered questions were in English as well as national and local languages. Cronbach's coefficient was found to be 0.80 and the face validity 92 %. Descriptive statistics was used to analyse the data.

RESULTS

In this study 45% of the participants used pacifiers for their children. Demographic data of the study participants is summarized in Graph 1 according to Modified Kuppuswamy scale , 2017. The parents acquired their knowledge about pacifiers primarily from family and friends. However, there was a discrepancy in knowledge and practice as depicted in Table 1.

S.No	Question	Knowledge	Practice
1.	Pacifiers can be introduced at the age of six months	43%	23.4 %
2.	Pacifiers should be weaned off by 2 years of age	50 %	10 %
3.	Pacifier use should be limited to sleep	40 %	15 %

Reasons for pacifier use included comfort/satisfaction, safety, and preference over digit-sucking. The harmful effects of pacifier use were related to potential risk of infections(70%) ,dental problems (44%) and reduced duration of breast feeding (40 %). Also , parents (75 %)were well aware that pacifiers should not be coated with honey or other substances to reduce the risk of dental caries. 75% parents were unaware that pacifier use reduces SIDS risk ; however, most parents did not think that this knowledge about association between pacifier and SIDS risk reduction would have changed their decision.



Graph 1:Socioeconomic data of the population according to Modified Kuppuswamy Scale , 2017

Parents' attitude regarding their existing knowledge is shown in Fig 1. Parents were positive about enhancing their knowledge especially from paediatricians and paediatric dentists.

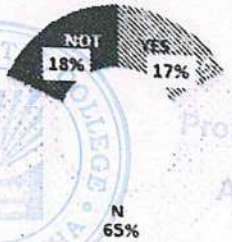


Figure 1 : Attitude about existing knowledge

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Research Article

Fluoride Levels in Saliva and Plaque following the Use of High Fluoride and Conventional Dentifrices- a Triple Blinded Randomised Parallel Group Trial

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Context. The comparison of fluoride levels in saliva and plaque following the use of conventional, 2800 and 5000 ppm dentifrices for different time intervals up to 24 hours has not been explored. *Aim.* The aim of the present study was to assess salivary and plaque fluoride levels at different time intervals following the use of high fluoride dentifrices. *Study Design.* This randomised control trial was conducted on sixty adolescents between the age group of 16 and 18 years divided into three groups A, B, and C. *Intervention.* Subjects were asked to brush the occlusal surfaces of posterior teeth with one of the dentifrices for 2 min. Unstimulated whole saliva and plaque samples were collected at different time intervals. Fluoride levels were determined using SPADNS method. Data was collected and statistically analyzed using SPSS 20 Inc. by mixed repeated measure ANOVA. *Results.* A significant difference in fluoride levels was observed at different time intervals in both saliva ($p=0.048$) and plaque ($p=0.03$). The variance was low with time and concentration of the dentifrice used in saliva, whereas the magnitude of treatment was large for time (>0.25) but small for (<0.09) concentration in plaque. *Conclusion.* A significant difference in fluoride levels was observed at different time intervals in both saliva and plaque among the three groups. There was a positive correlation between fluoride levels in saliva and plaque. Both high fluoride dentifrices were effective in maintaining higher intraoral fluoride levels up to 12 hours and 5000 ppm up to 24 hours compared to conventional dentifrice.

1. Introduction

Since the discovery of its anticariogenic potential, fluorides have been at the forefront of preventive dentistry. This has led to a dramatic decline in the prevalence of dental caries globally. Among the available fluoride delivery systems, dentifrices are most commonly used [1]. The caries protection from fluoride (F) dentifrices is largely dependent on the efficiency of the fluoride delivery and its ability to increase intraoral fluoride levels [2, 3].

The higher the fluoride concentration available is, the greater its impetus to diffusion through the biofilm towards the tooth surface will be. Marinho et al. suggested that an increase of 500 ppm F (within the range of 1100–2500 ppm F) would amplify caries reduction potential by 6% [4]. Fluoride toothpastes with <1450 ppm F content have been reported to be less effective in high-risk children [5].

Dentifrices with higher concentrations of fluoride (2800 and 5000 ppm) have recently been introduced but are available only on prescription. Most of the clinical studies evaluating these toothpastes have focused on caries reduction. However, the comparison of fluoride levels in saliva and plaque has not been explored following use of dentifrices with high fluoride concentrations. The present study aims to assess plaque and salivary F levels at different time intervals up to 24 hours after the use of high fluoride dentifrice in varying concentrations in an optimally fluoridated community. The null hypothesis states that no difference exists in the saliva and plaque F concentration following dentifrice application.

2. Methods

2.1. Study Design. The triple blinded randomized parallel group trial has been reported in accordance with the

PROBIOTICS: A NOVEL APPROACH IN DENTISTRY

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Abstract: Dental caries is one of the most common diseases worldwide, although a decline of the prevalence has been recorded in western countries. The World Health Organization has defined probiotics as "Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host". These microorganisms belong to the natural human flora in order to survive in the acid environment during transit to the intestines. This paper aims to provide a systematic review of the caries-prevention effect of probiotics in human. The effect of probiotics on the development of caries lesion seems encouraging, but to date, Randomized Clinical Trials (RCT) on this topic are insufficient to provide scientific clinical evidence.

Keywords: Dental Caries, Probiotics, Microorganism, RCT

Dental caries is a multifactorial disease requiring the presence of a susceptible host, cariogenic microflora and a diet conducive to enamel demineralization.

The term probiotics, the antonym of the term antibiotics, was introduced in 1965 by **Lilly & Stillwell** as Substances produced by microorganisms which promote the growth of other microorganisms.[1] The term 'probiotics' has undergone several definitions arriving at the final one, officially adopted by the International Scientific Association for Probiotics and Prebiotics term, outlining the breadth and scope of probiotics as they are known today: **'Live microorganisms, which when administered in adequate amounts, confer a health benefit on the host'**.[2] The idea of probiotics dates back to the first decade of 1900 when the Ukrainian bacteriologist and Nobel Laureate **Ilya Metchnikof** studying the flora of the human intestine developed a theory that senility is caused by poisoning of the body by the products of some of these bacteria. To prevent the multiplication of these organisms he proposed a diet containing milk fermented by *lactobacilli* which produces a large amount of lactic acid and for a while this diet became widely popular. The most commonly used probiotic bacterial strains belong to the genera **Lactobacillus and Bifidobacteria.**

In the oral cavity, lactobacilli usually comprise 1% of the total cultivable bacteria, commonly isolated species include *L.paracaseie, L.plantarum, L.rhamnosus, L.salivarius.*[3] Bifidobacterial species isolated from oral samples include *B.bifidum, B.dentium and B.longum.*[4,5] Species of Lactobacillus and Bifidobacteria may exert beneficial activity in the oral cavity by inhibiting cariogenic Streptococci and Candida spp.[6]

PROBIOTICS AND DENTAL CARIES

The impact of oral administration of probiotics on dental caries has been studied in several experiments utilizing different test strains. ***Lactobacillus rhamnosus* GG and *L. casei***[7] have proved their potential to hamper growth of these oral *streptococci*. Caglar et al registered definite *S. mutans* count reduction after a 2-week consumption of yoghurt containing ***L. reuteri***.[8] A temporary

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PRF –FOUNTAIN OF YOUTH IN OUR BODY

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ABSTRACT

One of the promising innovations in the field of surgical dentistry is the use of platelet-rich fibrin (PRF), alone or as an additive with other biomaterials. It accelerates the healing mechanism of the tissue and reduces the inflammation.Platelet-rich fibrin (PRF) was first described by Choukroun et al. (2001). It has been referred to as a second-generation platelet concentrate, which has been shown to have several advantages over traditionally prepared platelet-rich plasma. PRF has a physiologic architecture that is very favourable to the healing process, obtained due to the slow polymerization process. This article describes the evolution of this novel platelet concentrate and various clinical application in dentistry

Keywords: Growth factors, platelets, platelet-rich plasma, wound healing, tissue engineering.

INTRODUCTION

In Greek mythology, Prometheus stole fire from Zeus and gave it to mankind. As punishment, Zeus had him chained to a rock where a great vulture tore at his liver every day. During the night, the liver grew whole again, only to have the vulture devour it again the next day.

Today, the regrowth of Prometheus' liver has become a symbol to medical researchers for the possible renewal of damaged human organs through the use of human stem cells. Developments in the field of tissue engineering have made the generation of artificial substitutes in several areas of medicine.

The term tissue engineering was originally coined to denote the construction in the laboratory of a device containing viable cells and biologic mediators (e.g., growth factors and adhesins) in a synthetic or biologic matrix, which could be implanted in patients to facilitate regeneration of particular tissues. In general, tissue engineering combines three key elements, namely scaffolds (collagen,bone mineral), signalling molecules (growth factors), and cells(osteoblasts and fibroblasts).Tissue engineering has been redefined presently as the relatively new highly promising ûeld of reconstructive biology.These principles of tissue engineering have found widespread application in severalbranches of dentistry such as periodontics, oral and maxillofacial surgery and oral implantology.[1]

CONCENTRATED PLATELET-RICH PLASMA:BIOLOGICALADHESIVE OR CELLULAR THERAPY?

Because of the risk of transmission of hepatitis, many marketed ûbrin adhesives have been prohibited in the USA since 1978. Consequently, attempts at the development of autologous ûbrin adhesives increased, but with mitigated success. The use of platelet concentrates, based on the concept of cell therapy by growth factors, reopens technologic researchon the autologous ûbrin ad-

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Role of Occlusion in Temporomandibular disorders; a literature review

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Abstract :Temporomandibular disorder (TMD) is the main cause of pain of non-dental origin in the oro-facial region. Aetiology is multi factorial. Occlusion is cited as the major etiological factor causing Temporomandibular joint pain. TMD is frequently found in children and adolescents, and show increased prevalence in subjects between 15 and 45 years.

Aesthetic awareness, the development of new aesthetic orthodontic techniques and the possibility of improving prosthetic rehabilitation has increased the number of adults seeking orthodontic treatment. The interest in the relationship between occlusal factors, orthodontic treatment and TMD has grown and many studies have been conducted. Indeed, claims that orthodontic treatment may cause or cure TMD should be supported by good evidence. Hence, the aim of this article is to critically review evidence for a possible association between malocclusion, orthodontic treatment and TMD.

Key words:-Temporomandibular joint, Temporomandibular disorders, Acupuncture, Splint therapy

INTRODUCTION

Temporomandibular disorder (TMD) is the main cause of pain of non-dental origin in the oro-facial region[1]. Aetiology is multi factorial. At present, the role of occlusion in relation to the aetiologyof TMD is widely considered as contributory by initiating, perpetuating or predisposing to the disorders. It is estimated that occlusal factors contribute about 10 to 20 percent to the total spectrum of multifactorial factors, which differentiates between healthy individuals and patients with TMDs.[2-3]

Signs of dysfunction may be the result of how the individual uses the occlusion and not a result of its structural features. Thus the term nonphysiologicocclusion does not imply a cause and effect relationship[4].

DISCUSSION

The temporomandibular joint (TMJ) is the joint between the lower jaw and the base of the skull. TMJ disorders (TMD) refer to a group of disorders with symptoms that include pain, clicking in the jaw joint and/or problems with chewing or opening the jaw. This condition can be known by a variety of conditions including craniomandibular disorders (CMD) and is a frequent cause of facial pain problems.[5-6]

A positive relationship between occlusal factors and TMD has been suggested[7]. Prevalence studies have reported approximately 75% of the population having at least one sign of joint dysfunction (abnormal jaw movement, joint noises, tenderness on palpation, etc) and

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Comparison of load deflection properties and force level of newly introduced M5™ thermal copper NiTi with other orthodontic NiTi wires: an in vitro study

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Abstract

Superelasticity and shape memory of NiTi made it popular in orthodontics for aligning and levelling of teeth. Superelasticity is a temperature induced crystallographic transformation from Austenite to Martensite (thermoelasticity). It is reflected in a load deflection graph characterised by a flat slope upon discharge known as plateau. Shape memory is the plastic deformation of NiTi from Martensite to Austenite. This can be modified by adding copper to NiTi. The clinical plateau of unloading curve represents the deactivation curve. This study is conducted to investigate the difference in the load deflection properties and the force level of M5™ thermal copper NiTi with other orthodontic NiTi wires and to plot the load deflection graph and quantify using suitable parameters. Here we tested 30 archwires, 16 were classed as traditional NiTi and 14 as heat-activated NiTi wires of three different manufacturers, G&H (Franklin, Indiana), Ormco (Orange, California), and 3M Unitek (St Paul, Minnesota). A modified 3 point bending test was performed on each archwire at a constant temperature of 37°C. For each load/ deflection curve the discharge plateau was isolated along with the mean value of average plateau force, the plateau length, and the plateau slope. Thus we compared the force expressed by each wire at specific points of deflection, and also characterised the behaviour of each archwire in the discharge phase. There is no significant difference in plateau force with respect to heat activated and traditional NiTi when using two types of wires (round and rectangular). However when comparing round wires of M5 thermal copper NiTi with other orthodontic NiTi wires of same dimension, M5 thermal copper NiTi delivered light continuous force. Among rectangular wires, 3M HANT delivered lighter force. These Shape Memory Alloys, a class of smart materials has also been widely used in the robotic manufacturing and in various other fields of robotics.

Keywords: NiTi archwire; UTM; 3 point bending test; M5 thermal copper NiTi; light force.

1. Introduction

Super elasticity and shape memory of NiTi made it popular in orthodontics for aligning and levelling of teeth. Superelasticity is a temperature induced crystallographic transformation from Austenite to Martensite (thermoelasticity). It is reflected in a load deflection graph characterised by a flat slope upon discharge known as plateau. This indicates that a constant force is exerted in the range of tooth movement. Shape memory is the plastic deformation of NiTi from Martensite to Austenite. This can be modified by adding copper to NiTi. The clinical plateau of unloading curve represents the deactivation curve and it is the main area of interest in moving teeth.

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"THERAPEUTIC ULTRASOUND- A NEW INNOVATIVE THERAPY IN DENTISTRY"

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Abstract: *The use of ultrasonography when discovered was as a therapeutic aid, but in recent times, it has become one of the most common imaging modality next to conventional radiology. Currently, its use as a therapeutic aid has been rediscovered along with its association with other specialized imaging. The aim of this paper is to highlight such advancements in the field of ultrasonography.*

Key words: *Ultrasonography, Therapeutic USG, Dentistry*

Introduction:

Dentistry in the modern era is emerging with use of advanced imaging modalities among which ultrasound is widely available, affordable and non-invasive requiring minimal training and can be used in the laboratory or in the clinic. It is over 70 years since the interaction between high frequency sound waves and living tissue were initially studied and the use of such energy as a form of therapy was first suggested.[2] Ultrasound has been in use from many years which is known for its diagnostic importance, but nowadays it is also popular for its therapeutic use being effectively used as an adjuvant therapy for pain, soft tissue healing, inflammation and swelling.[3]

The objective of the present paper is to provide insight on the scientific basis for the use of therapeutic ultrasound in dental pathologies and the existing evidence related to its clinical effects are reviewed.

What is ultrasound??

The foundation of ultrasound research was laid in the late 1800s when brothers Jacques and Pierre Curie observed that high-frequency sound waves can be produced by certain crystals when subjected to an alternating current at their resonant frequency.[15] Paul Langevin in 1926 was the first to report the biological effects of ultrasound after observing the violent and fatal reaction of fish to strong ultrasound fields.[10] Publishications in the 1990's confirm the ability of ultrasound therapy to improve healing of mandibular fractures, treat mandibular osteoradionecrosis, and increase human gingival fibroblasts and mandibular osteoblast proliferation.[11]

An investigation in 2012 described the natural impacts of low-frequency ultrasound on dental tissues and reasoned that the observed impacts, especially those on odontoblast-like cell multiplication and differentiation, may give a therapeutic means for repairing dental pulp and dentine.[12] This expanding repository of clinical

POSTERIOR CERAMIC RESTORATIONS

Dr. Binila Surendra Babu MDS

ABSTRACT

Inlays and onlays are indirect restorations that help conserving the tooth structure in compromised posteriorteeth. These restorations are prepared in the dental laboratory and are cemented on to the patient's teeth. An inlay is primarily an intracoronal restoration that restores the occlusal and proximal surfaces of posterior teeth, whereas onlays cover one or more cusps too. Materials such as cast gold, indirect composite resins or ceramics may be used to fabricate inlays and onlays. This article discusses the details of various ceramic inlay/onlay restorations.

Key words: Ceramics, Inlays, Onlays

INTRODUCTION

Many a times patients report to us with a large broken class II filling or a fractured cusp. On clinical examination, the tooth will be too damaged to go for a direct composite / amalgam restoration, but not that severe to go for a crown. We are compelled to try a direct restoration at first, taking a fifty-fifty chance that it might fail. If the informed patient comes back with a fracture again, the clinician normally advises him/her to go for a crown, which sometimes necessitates an intentional root canal therapy.

As we all know, contemporary dentistry focuses on minimum intervention to preserve healthy natural tooth structure. In the above mentioned scenario, the clinicians must be able to provide a treatment option which is more conservative, esthetic as well as having an appreciable success rate. Ceramic inlays and onlays offer an ideal alternative to intentional endodontic treatment/crowns in case of large defects of premolar and molar teeth, where direct restorations are not feasible. Ceramic restorations combine both esthetics and function and are considered as reliable restorations since decades.(Pol 2011)

CASE SELECTION

Case selection is of utmost importance for ceramic restorations. They are ideally indicated in patients who demand excellent esthetics, in posterior teeth with wide facio lingual defects or cuspal involvement and in teeth having a history of multiple broken restorations. They are not preferred in patients having parafunctional habits, poor oral hygiene and periodontal disease, teeth with heavy occlusal load, inability to maintain a dry field and deep subgingival preparations. (Swift E 2013)

CLINICAL PROCEDURE

Preparation and fabrication of inlays and onlays is a multi step procedure which involves the following steps:

(I) Tooth preparation

Inlay preparation kits are available in the market to aid the clinician in tooth preparation.

However certain guidelines should be kept in mind while preparing the teeth:

- Occlusal depth should be 2mm
- The thickness of the existing buccal/lingual walls should be at least 1mm
- Facial and lingual walls should have 6-8 degree of occlusal divergence
- Axial wall reduction in the proximal box should be 1-1.5mm
- The marginal clearance of the proximal box should be 0.5 1mm
- Isthmus width should be 2mm
- When there is a weakened cusp, a reduction of 2mm is required for cusp capping (for the onlay preparation)

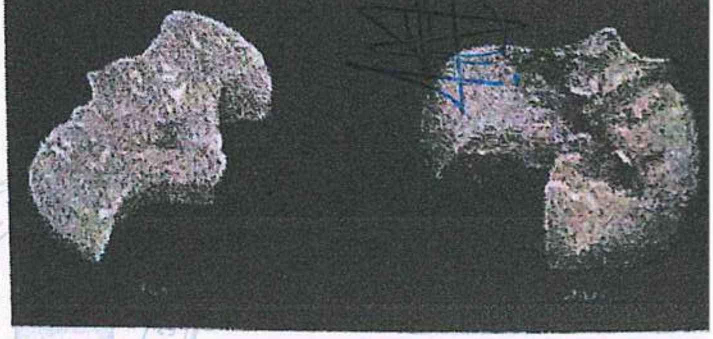

Fig 1

EFFECT OF CALCIUM HYPOCHLORITE ON SHEAR BOND STRENGTH OF DENTIN BONDING SYSTEM

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ABSTRACT

Aim: To determine the effect of dentin deproteinization using 10% calcium hypochlorite on the shear bond strength of total-etch adhesive.

Materials and Methods: The occlusalsurface of twenty extracted human maxillary premolar teeth were sectioned to expose superficial dentin. The samples were etched and randomly divided into two groups consisting of 10 teeth each. In Group 1 (control) dentin bonding agent was applied. In group 2, samples were deproteinized with 10% calcium hypochlorite prior to the application of bonding agent. After completion of the adhesive procedures in accordance with the manufacturer's instructions, resin composite was inserted into a plastic tube placed on the specimen and light-polymerized as per manufacturer's instructions. All specimens were stored at 37°C in water for 24 hours, and the specimens were transferred to the universal testing machine, and shear bond strength analysis was done at a crosshead speed of 1.0mm/min.

Results: Statistical evaluation revealed that there was a significant enhancement in shear bond strength with the application of calcium hypochlorite after acid etching (mean 41.06MPa).

Conclusion: Within the limitations of the present study, it was concluded that the removal of unsupported collagen fiber with calcium hypochlorite after acid etching significantly improved the bond strength.

Keywords: Dentin deproteinization, calcium hypochlorite, shear bond strength

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FACING SHEETS OF PUBLICATIONS

ACADEMIC YEAR 2019-20

Original Article

Crestal bone loss around dental implants after implantation of Tricalcium phosphate and Platelet- Rich Plasma: A comparative study

Sravani Uppala[1], Anuj Singh Parihar[2], Varsha Modipalle[3], Litto Manual[4], Vinni Mary Oommen[4], Pallavi Karadiguddi[5], Parkhi Gupta[6]

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Abstract

Background and Aims: Bone loss around dental implants is generally measured by monitoring changes in marginal bone level using radiographs. After the first year of implantation, an implant should have <0.2 mm annual loss of marginal bone level to satisfy the criteria of success. However, the success rate of dental implants depends on the amount of the crestal bone around the implants. The main aim of this study was to evaluate and compare the crestal bone loss around implants placed with particulate β-Tricalcium Phosphate Bone Graft and platelet concentrates. **Methods:** 50 individuals received hundred dental implants. Each individual received one dental implant in the edentulous site filled with β-Tricalcium Phosphate Bone Graft along (β-TCP) with Platelet- Rich Plasma (PRP) (Group A) and another in edentulous site filled only with β-Tricalcium Phosphate Bone Graft (Group B) in the posterior edentulous region. All the 100 implants were prosthetically loaded after a healing period of three months. Crestal bone loss was measured on mesial, distal, buccal and lingual side of each implant using periapical radiographs 3 months, 6 months and 9 months after implant placement. **Results:** The average crestal bone loss 9 months after the implants placement in Group A and Group B was 2.75 mm and 2.23 mm respectively, the value being statistically significant ($P < 0.05$). In both Group A and Group B, the average crestal bone loss was maximum on the lingual side followed by buccal, distal and mesial sides. **Conclusion:** β-TCP is a promising biomaterial for clinical situations requiring bone augmentation. However, the addition of PRP results in decreased bone loss around the dental implants.

Keywords: Bone loss, dental implants, PRP, TCP

Introduction

Damage to the tooth can be caused by various etiological factors like periodontal disease, abscess formation, trauma, or vertical tooth fracture. Common consequences of tooth loss include progressive resorption of the alveolar bone and decreased masticatory performance. Tooth replacement with dental implants has led to an important revolution in modern clinical dentistry. Branemark first introduced osseointegrated dental implants to allow firm anchorage of titanium implant screws into living bone, a process referred to as osseointegration.[1]

Implant-based treatment is a growing part in the modern dentistry. Loss of alveolar bone around dental implants is

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Original Article

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Dr. Pooja Sam

Dr. Sam Sunny

Dr Devlan Antony Johns

Dr Aby Kuruvilla

MANAGING ANOMALOUS APICAL ROOT CANAL ANATOMY WITH ARTIFICIAL APICAL BARRIER

Abstract:

Dental trauma is always a psychological and physical assault. Above this trauma to the young permanent tooth affects its complete normal development. It results in either open apex or developmental anomalies like short root, inadequate apical barrier formation, dilacerations etc. Incomplete root formation challenges the treatment alternatives. Proper clinical and radiographic examination helps in identifying this bizarre anatomy and aids in treatment planning. Intraoral periapical radiographs does not always provides the exact image of clinical picture as it has its own pitfalls being two dimensional. In modern endodontics, cone beam computed tomography surely provides the accurate three dimensional image. The recent trend in the management of open apex is regenerative endodontic procedures; regeneration is not always possible in every case particularly when there is lateral exit of the canal. In such cases single step apexification using either MTA or biodentine can be a better alternative. This clinical case report presents a case of bizarre apical root anatomy diagnosed using cone

PRF –FOUNTAIN OF YOUTH IN OUR BODY

Dr. Noushin Faizal[1], Dr. Manoj K.V[2], Dr. Bobby Joseph[3], Dr. Nishin K John[4], Dr. Aby Kuruvilla[5]

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ABSTRACT

One of the promising innovations in the field of surgical dentistry is the use of platelet-rich fibrin (PRF), alone or as an additive with other biomaterials. It accelerates the healing mechanism of the tissue and reduces the inflammation.Platelet-rich fibrin (PRF) was first described by Choukroun et al. (2001). It has been referred to as a second-generation platelet concentrate, which has been shown to have several advantages over traditionally prepared platelet-rich plasma. PRF has a physiologic architecture that is very favourable to the healing process, obtained due to the slow polymerization process. This article describes the evolution of this novel platelet concentrate and various clinical application in dentistry

Keywords: Growth factors, platelets, platelet-rich plasma, wound healing, tissue engineering.

INTRODUCTION

In Greek mythology, Prometheus stole fire from Zeus and gave it to mankind. As punishment, Zeus had him chained to a rock where a great vulture tore at his liver every day. During the night, the liver grew whole again, only to have the vulture devour it again the next day.

Today, the regrowth of Prometheus' liver has become a symbol to medical researchers for the possible renewal of damaged human organs through the use of human stem cells. Developments in the field of tissue engineering have made the generation of artificial substitutes in several areas of medicine.

The term tissue engineering was originally coined to denote the construction in the laboratory of a device containing viable cells and biologic mediators (e.g., growth factors and adhesins) in a synthetic or biologic matrix, which could be implanted in patients to facilitate regeneration of particular tissues. In general, tissue engineering combines three key elements, namely scaffolds (collagen,bone mineral), signalling molecules (growth factors), and cells(osteoblasts and fibroblasts).Tissue engineering has been redefined presently as the relatively new highly promising field of reconstructive biology.These principles of tissue engineering have found widespread application in severalbranches of dentistry such as periodontics, oral and maxillofacial surgery and oral implantology.[1]

CONCENTRATED PLATELET-RICH PLASMA:BIOLOGICALADHESIVE OR CELLULARTHERAPY?

Because of the risk of transmission of hepatitis, many marketed fibrin adhesives have been prohibited in the USA since 1978. Consequently, attempts at the development of autologous fibrin adhesives increased, but with mitigated success. The use of platelet concentrates, based on the concept of cell therapy by growth factors, reopens technologic researchon the autologous fibrin ad-

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NARROW BAND IMAGING- A PARADIGM SHIFT IN EARLY DETECTION OF ORAL CANCER

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ABSTRACT:

Oral cancer ranks the sixth most common cancer globally with incidence of 127,000 deaths per year. This highlights the importance of continued surveillance of such population as to diagnose at the earliest stage of development.

A novel optical imaging technique- Narrow Band Imaging (NBI)was introduced as a non invasive imaging modality that answers these clinical challenges. It is a type of endoscopy that helps the clinician to visualize the superficial vasculature and changes in the soft tissue using blue spectrum of the visible light, the wavelength (415nm) of which corresponds to the peak absorption spectrum of hemoglobin. Changes in the microvasculature, thus, made visible will help to identify dysplastic changes in the earliest stage of disease progression. This article provides an insight to NBI that facilitates early detection of malignant and potentially malignant disorders.

Key Wors: Oral Cancer, Narrow Band Imaging, Hemoglobin, Malignant disorders.

INTRODUCTION:

Oral Cancer ranks the sixth most common cancer globally with incidence of 127,000 deaths per year. The most common head and neck malignancy is squamous cell carcinoma. It is well recognized that these tumours may arise in multiple sites, either synchronously or metachronously.

Although the locoregional control of head and neck squamous cell carcinoma (HNSCC) has improved inthe past decades, only minimal improvement in survival has been achieved because of the development of distant metastasis and second primary malignancies. In early-stage cancer, second primary malignancy is still the main cause of treatment failure.[1,2] Therefore, prevention and early diagnosis of second primary malignancy has become essential to improving survival after treatment.

Efforts to achieve the earliest detection of potentially malignant disorders have led to the development of new endoscopic examination methods. Lesions few millimetres in diameter are in most cases impossible to detect using conventional white light endoscopy. This, eventually, led to the introduction of special endoscopic methods that allowed detection of these lesions of fewmillimetre dimensions.

Narrow Band Imaging (NBI) is a novel optical technique that enhances the diagnostic sensitivity of endoscopes for characterizing tissues by using narrow bandwidth filters in a sequential red-green-blue illumination system.This technique has been proven effective in detecting early malignancies in the gastrointestinal (GI) tract.[3-5] It is also useful for identifying early lesions in the oropharynx and hypopharynx.[6-8] However, very little research has been focused on the oral cavity.[9]

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Narrow Band Imaging (NBI) is a novel optical technique that enhances the diagnostic sensitivity of endoscopes for characterizing tissues by using narrow bandwidth filters in a sequential red-green-blue illumination system.This technique has been proven effective in detecting early malignancies in the gastrointestinal (GI) tract.[3-5] It is also useful for identifying early lesions in the oropharynx and hypopharynx.[6-8] However, very little research has been focused on the oral cavity.[9]

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Copper containing fungicide – the actual culprit in the pathogenesis of OSMF?

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Abstract

Introduction: To estimate possible role of copper in etiology of oral sub mucus fibrosis.

Aims and Objectives: To analyse and compare metal constituents of arecanuts sprayed with copper containing fungicide and that not sprayed with fungicide. To evaluate the effects of arecanuts sprayed with copper containing fungicide on the buccal mucosa of rats.

Materials and Methods: Aqueous solutions of arecanuts sprayed and not sprayed with fungicide, were prepared and sent to NITK for metal analyses. Buccal mucosa of 6 adult Wistar albino rats, were treated twice daily, for 6 days a week, with topical application of aqueous areca nut extracts, for one year. A control group (n = 6) was treated with distilled water. Biopsy was conducted at the end of six, nine and twelve months. The influence of areca nut on the oral epithelium and connective tissue of the rats were recorded semi quantitatively by light microscopy.

Results: Metal analysis showed that the difference of copper content of arecanut treated with fungicide when compared to that of those not treated with fungicide was very meagre. The histopathological report of the tissue treated with arecanut solution showed development of fibrosis even at the 6th month. Though not uniformly progressive, fibrosis was noticed in all the tissues at 6, 9 and 12 months.

Conclusion: The copper content of arecanut treated with fungicide and that not treated with fungicide was not very significant. The arecanut treated with copper containing fungicide can induce OSMF like changes in rat mucosa.

Keywords: Arecanut, Copper containing fungicide, OSMF, Rat mucosa.

Introduction

There are an estimated 600 million people who chew betel nuts worldwide making the habit a very popular one. While chewed, various alkaloids and mineral components are released from the areca nut which produces a range of effects on the neurological system, which makes pan chewing addictive.[1]

Despite these general CNS stimulatory effects, arecanut chewing has many adverse effects as well.[2] The most significant adverse effect is oral submucous fibrosis, a potentially malignant disorder of the oral cavity which has been recorded since 1956 from the South East Asian countries, due to high consumption of arecanut in these parts. However, reason for increased prevalence of the disorder during the last two decades is not well explained, as areca nut was in use since many centuries. The increase in prevalence of OSMF in the last two decades is seen to be coinciding with the increased processing and commercialization of areca and its products since early 1980s.[3]

The chemical constituents of the areca have been strongly implicated in the etiopathogenesis of OSMF.[4] Role of elemental copper in the development of OSMF was a recently introduced concept by Trivedi et al in 1997.[5] Copper helps in the up-regulation of lysyl oxidase enzyme, which plays a crucial role in cross linking of collagen and elastin molecules. Copper content of arecanut were significantly higher than in the other chewable nuts.[5] It was viewed by various authors that the copper was incorporated into the arecanut from the copper containing fungicide that is sprayed on the trees to prevent tree rot due to heavy rainfall.[6]

The aim of this study was to analyse and compare metal constituents of arecanuts sprayed with copper containing fungicide and that not sprayed with fungicide and to evaluate the effects of arecanuts sprayed with copper containing fungicide on the buccal mucosa of rats during a period of 6 months, 9 months and 12 months.

Materials and Methods

The current in-vivo rat study was conducted on 12 Wistar albino rats, obtained from the Animal House (CPCSEA approved, Reg No: 347), after obtaining Institutional Animal Ethical Committee Clearance (IAEC) from the concerned University.

Inclusion Criteria

1. Dry exfoliated mature arecanuts sprayed with copper containing fungicide (Bordeaux mixture).

Exclusion Criteria

1. Dry exfoliated mature arecanuts which are not sprayed by any fungicide.
2. Commercially available arecanut products.

Methodology

Aqueous solution of exfoliated mature arecanuts sprayed with copper containing fungicide and those not sprayed with any fungicide was prepared by crushing the dry arecanuts and grinding it to a coarse powder. 12gms of each powder was weighed and dissolved in 100ml of distilled water over night and then filtered using Whatman filter paper number 41 so that a clear filtrate was obtained.

The solutions were sent to Department of Chemical Engineering, National Institute of Technology Karnataka, Suratkal and metal analysis was conducted using Atomic Absorption Spectroscopy (AAS). After analysis, only the

'SLIME STORY'- EXPLORING THE POTENTIAL OF EARTHWORM COELOMIC FLUID: A REVIEW

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Abstract: It's a well known fact that earthworms are considered as farmers best friends. However, a lesser known truth is that earthworms were employed in traditional medicinal cures since centuries. The earliest account of such use dates back to 1340 AD. Extracts derived from earthworms were used to treat post partum weakness in women, to enhance hair growth, as toothpowder against gingivitis and to reduce pain in rheumatism. Earthworms even served as a powerful cure for small pox. Scientific research has uncovered the hidden potential of earthworm coelomic fluid and its extracts and shed light on their remarkable properties, which include, antiproliferative, antibacterial, fibrinolytic, wound healing, anticoagulative and antioxidative, to name a few.[1] This article intends to highlight the properties of earthworm coelomic fluid and emphasize on its importance in future research.

Keywords : Anticancer, anticoagulative, Earthworm coelomic fluid(ECF), *Eisenia fetida*, G-90

INTRODUCTION

Nature has endowed us with plenty of unique natural resources, many of which have not yet been completely explored. Although history has ample evidence, lack of proper scientific research has discouraged their utilization. Of late, earthworms and their extracts which contain biologically active molecules have drawn much attention from many scientists and researchers all over the world. The coelomic cavity of earthworms is filled with a specialized kind of fluid, derived from its mesenchymal layer known as Earthworm coelomic fluid (ECF). It is rich in wandering coelomocytes, which includes namely 4 types of cells; the mucocytes, amoebocytes, circular cells and chloragogan cells. In addition, it also contains certain immunologically active compounds like lysenin, lumbricin, fetidin, eiseniapore, coelomic cytolytic factor and several growth factors. The ECF helps to maintain moisture and to aid in normal physiologic processes like cutaneous respiration, dessication, regeneration, circulation of nutrients and protection from pathogens.[2,3,4]

Scientific studies require collection of ECF from healthy earthworms. Coelomic fluid is extracted from earthworms by using 4 techniques.

1) Cold shock method
2) Warm water method
3) Electric shock method
4) Heat shock method.

The cold shock method is usually preferred as it is

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NARROW BAND IMAGING- A PARADIGM SHIFT IN EARLY DETECTION OF ORAL CANCER

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ABSTRACT:

Oral cancer ranks the sixth most common cancer globally with incidence of 127,000 deaths per year. This highlights the importance of continued surveillance of such population as to diagnose at the earliest stage of development.

A novel optical imaging technique- Narrow Band Imaging (NBI)was introduced as a non invasive imaging modality that answers these clinical challenges. It is a type of endoscopy that helps the clinician to visualize the superficial vasculature and changes in the soft tissue using blue spectrum of the visible light, the wavelength (415nm) of which corresponds to the peak absorption spectrum of hemoglobin. Changes in the microvasculature, thus, made visible will help to identify dysplastic changes in the earliest stage of disease progression. This article provides an insight to NBI that facilitates early detection of malignant and potentially malignant disorders.

Key Wors: Oral Cancer, Narrow Band Imaging, Hemoglobin, Malignant disorders.

INTRODUCTION:

Oral Cancer ranks the sixth most common cancer globally with incidence of 127,000 deaths per year. The most common head and neck malignancy is squamous cell carcinoma. It is well recognized that these tumours may arise in multiple sites, either synchronously or metachronously.

Although the locoregional control of head and neck squamous cell carcinoma (HNSCC) has improved inthe past decades, only minimal improvement in survival has been achieved because of the development of distant metastasis and second primary malignancies. In early-stage cancer, second primary malignancy is still the main cause of treatment failure.[1,2] Therefore, prevention and early diagnosis of second primary malignancy has become essential to improving survival after treatment.

Efforts to achieve the earliest detection of potentially malignant disorders have led to the development of new endoscopic examination methods. Lesions few millimetres in diameter are in most cases impossible to detect using conventional white light endoscopy. This, eventually, led to the introduction of special endoscopic methods that allowed detection of these lesions of fewmillimetre dimensions.

Narrow Band Imaging (NBI) is a novel optical technique that enhances the diagnostic sensitivity of endoscopes for characterizing tissues by using narrow bandwidth filters in a sequential red-green-blue illumination system.This technique has been proven effective in detecting early malignancies in the gastrointestinal (GI) tract.[3-5] It is also useful for identifying early lesions in the oropharynx and hypopharynx.[6-8] However, very little research has been focused on the oral cavity.[9]

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TREATMENT PLANNING DENTAL IMPLANTS IN THE ANTERIOR MAXILLA USING A RESTORATIVE DRIVEN PROTOCOL

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ABSTRACT

The anterior maxilla has always been a pressure point for clinicians for placement of functionally active and esthetically pleasing implant restorations. This is mainly due to the fact that numerous factors influence the final outcome like the bone width, length, defects, soft tissue parameters like thickness, marginal attachment, tissue defects etc. A number of modifications such as using a restorative driven protocol, performance of a risk assessment and addressing factors that could compromise esthetic success, as well as use of bone and soft tissue grafts to ensure adequate tissue volume as well as an understanding of timing with respect to implant placement have all contributed to achieving esthetic success in the region. This article reviews of some those concepts, and how they can contribute to dental implant esthetic success in the anterior maxilla.

Keywords: anterior maxilla, dental implant, restorative protocol.

INTRODUCTION

The esthetic challenges that are faced in the anterior maxilla are numerous to the fact that the end result will have to satiate both the harmonious syncing of the implant restoration to the adjacent natural state of the dentition, be it the soft tissues or the positioning of the implant but also the high expectancy of the patient as it is an anterior tooth which in itself acts as a soul to the entire face.

So this isn't any cakewalk for the dentist ;considering the dental implant positioning in the apicocoronal, mesiodistal and buccolingual dimensions as well as correct angulations of implants, the various soft tissue and hard tissue augmentations, use of provisional restorations to contour soft tissue around implants in preparation for definitive implant restorations ,as all these approaches ensures that the clinician sees the endgame in perspective ,that is the final implant restoration blending with the surroundings seamlessly.

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PARAMETERS IN MAXILLARY ANTERIOR TREATMENT PLANNING

A) Patient selection and smile line

Patient selection is of the utmost importance as there are several limiting factors that may tamper the result of the restoration like the time given to the clinician, the financial position of the patient; as the treatment progresses additional expenses will incur due to augmentation procedures or other iatrogenic factors which cannot be accurately accessed in the beginning.[1]

The patient's esthetic preferences should also be accessed as in an average smile 75-100% of the maxil-

ORIGINAL RESEARCH

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Oral Health Literacy among Caregivers in Bangalore City, India

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INTRODUCTION: Oral health literacy is found to be one of the determinant to individuals health, health behaviour and health outcomes. Individuals with lower literacy have poorer health knowledge, unhealthy behaviour, less use of health services, increased rate of hospital administration, increased health care costs and poor health outcomes.

AIM: To assess caregiver's oral health literacy of children aged 3-6 years in Bangalore city.

MATERIALS AND METHODS: A cross-sectional study was conducted on 635 child/caregiver dyads from a sample of children aged 3-6 years who were selected from anganwadis and preschools in Bangalore city. Demographic details were collected using structured questionnaire. Caregiver literacy was measured using the Rapid Estimate of Adult Literacy in Dentistry (REALD-30).

RESULTS: Among 635 child/caregiver dyads, caregiver's and children's mean ages were 33.45 years(SD = 3.36) and 5.28 years (SD = 0.67) respectively. The mean literacy score was 14.25 (SD= 7.67). The results also indicated that there was an association between socio demographic variables such as age, education, income, occupation, socioeconomic status and caregivers' oral health literacy.

CONCLUSION: Caregiver's oral health literacy is influenced by sociodemographic factors. Oral health literacy is potential determinant and as impact on oral health outcomes in young children.

KEYWORDS: Oral Health Literacy, Caregivers, Health Information, Oral Health

INTRODUCTION

In recent times, literacy has emerged as a prime item on the research syllabus in the field of medicine and public health.[1] Health literacy is increasingly described as a method, non-pharmacological in nature, for management and prevention of diseases and also currency for improving the quality of health and health care. Basic health knowledge is in need in order to have a healthy life.[2]

Health literacy is defined as the "degree to which individuals have the capacity to acquire, exercise, and perceive basic health information and services needed to frame significant health decisions". Health literacy is not only associated with the ability to write or read the English language, but is also affected by education, culture and the context of the situation. The ability to perceive health information and acquire services is vital for management of personal health; therefore, health literacy is acknowledged as a critical element of health.[3]

Health literacy, along with general literacy, is an essential health determinant.[4] Thus, the meaning of health literacy is much more than the mere capability of reading leaflets or brochures and arranging appointments. By enhancing people's access to health related knowledge and services, and their extent to utilize it efficiently, health literacy authorisation is of prime importance. Health literacy is reliant upon basic grades of literacy. Poor literacy can have direct influence on people's health by restricting their personal, social and cultural evolution, as well as impeding the blossoming of health literacy.[5]

Even people with sufficient literacy competence may find interpreting healthcare information a challenging task. They may not be able to comprehend basic terminology and the concepts of health and medical field.[6] The susceptibility to make medication errors is more in people with poor health literacy, and they have worse health status, poor quality of life, more rate of hospital admissions, and much more estimated healthcare expenses than people with adequate knowledge of health related facts. Health literacy expertise is critical for warranting people's capability to develop and upgrade their health status.[7]

Disparity and variation in oral health status and its related quality of life may result from countless hurdles extending from individual, familial, environmental, socio-economic, biological, psychological, cultural and political factors. Restricted access to oral health care utilities and services, complicated oral health care policies and systems, a lack of oral-health education material and poor oral heath literacy are also major

The Role of Faculty Development in Improving the Quality of Multiple-Choice Questions in Dental Education

Saleem Shaikh, S. Karthiga Kannan, Zuber Ahamed Naqvi, Zameer Pasha, Mazood Ahamad

Abstract: Valid and reliable assessment of students' knowledge and skills is integral to dental education. However, most faculty members receive no formal training on student assessment techniques. The aim of this study was to quantify the value of a professional development program designed to improve the test item-writing skills of dental faculty members. A quasi-experimental (pretest, intervention, posttest) study was conducted with faculty members in the dental school of Majmaah University, Saudi Arabia. Data assessed were 450 multiple-choice questions (MCQs) from final exams in 15 courses in 2017 (prior to the intervention; pretest) and the same number in 2018 (after the intervention; posttest). The intervention was a faculty development program implemented in 2018 to improve the writing of MCQs. This training highlighted construct-irrelevant variance—the abnormal increase or decrease in test scores due to factors extraneous to constructs of interest—and provided expert advice to rectify flaws. Item analysis of pre- and post-intervention MCQs determined the difficulty index, discrimination index, and proportion of non-functional distractors for each question. MCQs on 2017 and 2018 exams were compared on each of these parameters. The results showed statistically significant improvements in MCQs from 2017 to 2018 on all parameters. MCQs with low discrimination decreased, those with high discrimination increased, and the proportion of questions with more than two non-functional distractors were reduced. These results provide evidence of improved test item quality following implementation of a long-term faculty development program. Additionally, the findings underscore the need for an active dental education department and demonstrate its value for dental schools.

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Keywords: dental education, dental faculty, faculty development, educational assessment, multiple-choice questions, difficulty index, discrimination index

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Health professions education is evolving from the traditional unidirectional, lecture-oriented, teacher-centered approach to that of a learner-centered approach.[1,2] However, many faculty members may be unaware of advances in educational research and their associated benefits. Therefore, introducing educators to those advances is crucial for both faculty and students.[3] Assessment is a fundamental component of the teaching-for-learning process. Educational experts have emphasized that assessment drives learning and that better evaluations have a positive impact on the quality of student learning.[4,5] As such, investigators have called attention to the need for reliable and valid assessment methods.[6,7]

Multiple-choice questions (MCQs) are select-response items that are used as one method of assessment. Well-constructed MCQs have been found to be highly reliable and objective measures of learning.[8] In health professions education, MCQs are used to assess students' acquisition of foundational knowledge, evaluate their capacity to apply knowledge, and measure their critical thinking skills when the question is posed in a case-based format.[9]

Momentousness of the Mental Loop: A Comparative Study

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Abstract

Background and Purpose: To assess the anterior (aAL) and caudal (cAL) extensions of Anterior loop (AL) of Inferior alveolar nerve (IAN) using Digital Panoramic (DP) and Cone Beam Computed Tomography (CBCT) for its presence and dimensions in various age groups, genders, right and left sides of the mandible and between dentulous and edentulous patients. **Methods:** A 1-year retrospective comparative study between DP and CBCT to assess the extensions of AL of IAN was conducted on individuals referred to a private imaging center located in Bengaluru, South India. 360 mandibular sites were examined using DP and CBCT to assess the presence and dimensions of AL. **Results:** Results showed higher frequency of AL in CBCT compared to DP. Also there was a decreasing frequency of AL with increasing age and an insignificant difference in frequency between males and females. Bilateral looping was most common, aAL was more frequent on the left side and cAL on the right of the mandible. Statistically higher frequency in dentate group compared to edentulous. A decreasing mean value with increasing age and higher mean values in CBCT than DP. No significant difference in mean values among males and females or between the dentulous and edentulous groups. Higher mean values in CBCT compared to DP on the left side of the mandible compared to the right. **Conclusion:** Choosing mental foramen as reference for termination of IAN could result in injury to AL; low sensitivity and specificity of DP compared to CBCT in assessing frequency and extent of AL underlines its inadequacy, while CBCT can be performed with comparable resolution, to accurately analyze AL.

Keywords: *Anterior loop, cone-beam computed tomography, digital panoramic, implants, inferior alveolar nerve*

Introduction

Anterior loop (AL) of the inferior alveolar nerve (IAN) is where the mental neurovascular bundle crosses anterior to the mental foramen (MF), then doubles back to exit the MF.[1] Consideration of this anatomic variation is important before planning surgical procedures of the anterior mandible.[2,3] Placement of dental implants, osteotomy, bone harvesting, although considered safe elective procedures, sensory disturbances have been reported as a complication in up to 31% of patients in the first 2 weeks following surgery, with 10%–15% of patients continuing to complain of sensory disturbances after 15 months.[3,4] A direct surgical trauma to the AL can result in paresthesia, anesthesia, or even disabling dysesthesia most often affecting the lip and the chin region.[5,6] With studies showing a wide range in both the frequency and mean of the AL, there exists a risk of violation of the loop. In view of these potential complications, preoperative radiographic examination is essential before surgical procedures involving the mandible.[7,8] Digital panoramic (DP) remains the most commonly used method of radiologic diagnosis for planning mandibular surgeries. In recent years, cone-beam computed tomography (CBCT) has gained an increasingly important role in dental diagnosis, primarily because of its effectiveness in any type of bone, higher resolution images, at lower radiation doses.[9,10] The present study is an attempt to assess the presence and dimensions of anterior (aAL) and caudal (cAL) extensions of the AL of IAN in various age groups, genders, right and left sides of mandible and between dentulous and edentulous patients in DP and CBCT.

Methods

This 1-year retrospective comparative study between DP and CBCT to assess the AL of IAN was conducted on individuals referred to a private imaging center located in

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RESEARCH ARTICLE

AN INVITRO STUDY TO COMPARE THE PULL OUT BOND STRENGTH OF A FIBER POST SYSTEM WITH TWO DIFFERENT POST SPACE DIAMETERS LUTED WITH TWO COMMERCIALLY AVAILABLE RESIN CEMENTS

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Key words:-
Fiber Post, Resin Cement, Root Canal Dentine, Pullout Test

Abstract

Objective: To compare and evaluate the bond strength of a fiber post cemented to different post space diameters using two commercially available resin cement.

Methodology: 60 freshly extracted maxillary central incisor teeth with similar dimensions were selected and sectioned horizontally from CEJ. Endodontic treatment was done on all specimens and divided into two groups Group 1 and 2 (n=30) based on the post space diameter (0.9mm and 1.1mm). Each group was subdivided into two 1A, 1B, 2A, 2B (n=15) according to the cement used. Following the post space preparations, the canals were rinsed and dried. The adhesive resin cement was applied and posts were seated to full depth and excess cement was removed. After 24 hours specimens underwent 10,000 thermal cycles and preserved in saline solution. Specimens were mounted into universal testing machine and tensile force at a crosshead speed of 1 mm/ min was applied to the posts until they debond from the root canals. Data was analyzed using ANOVA test, Independent t test and Tukey HSD test.

Result: The result shows increased bond strength in snug fit than passive fit. ie; more bond strength was observed in Group 1A (mean =26.75 KgF) and Group 1B (mean =15.72 KgF) where post size and peeso reamer drill size were same. When comparing two cements RELYX shows more bond strength (1A=26.75, 2A=14.82) than PANAVIA cement (1B=15.72, 2B=10.51).

Conclusion: A post with snug fit post space preparation shows better resistance to pull out test than over prepared post space preparation. Cement RELYX U-200 shows higher tensile bond strength than PANAVIA-F cement.

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RESEARCH ARTICLE

COMPARATIVE EVALUATION OF SURFACE DETAIL REPRODUCTION AND EFFECT OF DISINFECTANT AND LONG-TERM STORAGE ON DIMENSIONAL STABILITY OF VINYLPOLYETHERSILICONE WITH POLYVINYLSILOXANE AND POLYETHER IMPRESSION MATERIALS- IN-VITRO STUDY

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Key words:-
Vinyl Polyether Silicone, Polyvinyl Siloxane, Polyether, Surface Detail Reproduction, Dimensional Stability

Abstract

Objectives: To compare and evaluate the surface detail reproduction and effect of disinfectant and long-term storage for 2 weeks on the dimensional stability of hybrid material Vinyl polyether silicone (VPES) with its parent Polyvinyl siloxane (PVS) and Polyether (PE) impression materials.

Methods: All the samples were divided into three groups: Group A- VPES-D, VPES-N; Group B- PVS-D, PVS-N; Group C- PE-D, PE-N. 40 impressions of each material were made according to ADA/ANSI specification no.19 and twenty impressions of each material were disinfected using 2.45% glutaraldehyde solution. Surface quality measurements were made soon after disinfection using stereo-microscope. Dimensional stability measurements were made using measuring microscope immediately after disinfection and were repeated on the same samples after 7 and 14 days of storage. Data were analysed using chi-square test, One-way Anova test followed by Post hoc Tukey's test.

Results: The non-disinfected groups showed greater mean dimensional change values compared to disinfected groups. VPES-D showed the least dimensional changes and the dimensional stability of all the materials were within 0.5% range after prolonged storage for 14 days except for the PE-N which showed greater dimensional change percentage on 14th day of storage.VPES-D and PE-D produced better impressions with surface quality score 1 compared to PVS-D. Also, 18 samples of VPES-N and PE-N scored 1 and only 17 samples of PVS-N scored 1.

Conclusion: The newer material VPES was observed to be both dimensionally stable and capable of producing good surface detail reproduction.

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RESEARCH ARTICLE

TO COMPARE AND EVALUATE THE FRACTURE TOUGHNESS AND FLEXURAL STRENGTH OF PROVISIONAL RESTORATIVE MATERIALS WITH AND WITHOUT REINFORCEMENT OF KEVLAR FIBRES - AN INVITRO STUDY

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Key words:-
Pmma Provisional Restorative Material, Bisacryl Composite, Fracture Toughness, Flexural Strength

Abstract

Objective: To compare and evaluate the fracture toughness and flexural strength of PMMA and bisacryl composite provisional restorative materials with and without reinforcement of Kevlar fibre.

Methodology: 40 test specimens of PMMA and bisacryl composite for fracture toughness testing and 40 rectangular specimens of PMMA and bisacryl composite for flexural strength testing were fabricated respectively. Each main group was again divided into 2 sub groups A & B; where A is control group and B is the test group with Kevlar fibre reinforcement. The fibre reinforced specimens were prepared by precutting the fibres into 12mm and 23mm length and wetted using the polymer monomer mix for the PMMA and a bonding agent for the bis-acryl resin and then placed in the mold cavity. In both tests, unreinforced resins were used as control group. Specimens were stored in water at 37°C for 24 hours before testing. The specimens were loaded in universal testing machine. The mean fracture toughness and mean flexural strength were compared by one way analysis of variance followed by the Tukeys standardized range test.

Results: The mean fracture toughness and flexural strength values obtained were significantly higher for bisacryl composite when compared to PMMA. Similarly after Kevlar reinforcement bisacryl composite proved to be better.

Introduction:-

A provisional restoration is an important phase in fixed prosthodontics therapy.[1]It should provide both pulpal and periodontal protection, have good marginal integrity & esthetics and should have sufficient durability to withstand the forces of mastication. Presently there is no single material that meets the optimal requirement for all the situations[2] The commonly used provisional restorative resins are polymethyl methacrylate(PMMA), polyethyl methacrylate(PEMA), composite resin (bis-acryl composite) and poly urethane dimethacrylate.[3]Historically ethyl

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ORIGINAL RESEARCH PAPER

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COMPARATIVE EVALUATION OF COMPRESSIVE RESISTANCE OF AN ELASTOMERIC INTEROCCLUSAL RECORD MATERIAL AFTER IMMERSION IN A DISINFECTANT SOLUTION AT DIFFERENT TIME INTERVALS- AN INVITRO STUDY

Dental Science

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ABSTRACT

AIM: The aim of this study was to compare the compressive resistance of PVS interocclusal record material after disinfection at different time intervals

MATERIAL &METHOD: 24 specimens of the VPS interocclusal recording material(IMPRINT BITE) were prepared using a cylindrical stainless steel mould according to ADA no.19 .The manipulation of VPS was done by an auto-mixing gun, which was injected into the mould. Then specimens were divided into 4 groups according to disinfection time: Group A-control(no immersion) (n=6),Group B-immersion for 10 min (n=6), Group C-immersion for 30 min (n=6), Group D-immersion for 60 min (n=6) .The disinfectant used was 2% Glutaraldehyde. Then the specimens were stored in tightly sealed containers and kept for 24 hours. Compression resistance of the specimens were determined using a Universal Testing Machine with a compressive force of 25N for 1 min.The specimens were loaded to breakage or failure and value was expressed in Megapascals.

RESULT: Statistical analysis was done using chi square and anova test. The mean compressive resistance of Group A is found to be 9.47±0.64, Group B 10.25±0.95, ,Group C is 10.47±0.58,Group D is 11.04±0.68 and was found to be statistically significant(0.017).

CONCLUSION: The compressive resistance of VPS (IMPRINT BITE) interocclusal record material imprint Bite increases with increase in disinfection time

KEYWORDS

Imprint Bite, Compressive Resistance, Gluteraldehyde

INTRODUCTION

Interocclusal bite registration, on the whole is an essential record used to transfer interarch relationships from the mouth to an articulator. Interocclusal recording materials are fairly responsible for the accuracy and occlusal quality of final prosthetic restorations since it is used for mounting cast on an articulator. An accurate interocclusal record will minimal occlusal modifications intraorally and thereby reduces the chair side time. The selection of interocclusal registration material plays a critical role for precise reproduction of details apart from the operators clinical ability and the technique.

Polyvinyl siloxane material and polyether material is widely used nowadays due to its excellent dimensional stability, superior recovery and precise detail reproduction. Polyvinyl siloxane material have also shown to have better resistance to compression[2]. One of the most desirable characteristics of the interocclusal registration material is , it should be rigid enough to withstand the weight from cast, components of articulator or other means that is used to stabilize the cast during mounting.

Interocclusal materials are one of the common source for cross contamination. So disinfection of these bite records is inevitable. The agent that are used to disinfect should not change the property of the interocclusal record material. American dental association in 1996 and council on dental materials and equipment in 1988 issued guideline on disinfecting impression by immersion technique [3-5]. So, this study was done to analyse the compressive resistance of vinyl polysiloxane interocclusal record materials after disinfection at varying time interval.

MATERIAL AND METHOD

A total of 24 specimens of the vinyl polysiloxane interocclusal recording material (Imprint Bite) were prepared using a cylindrical stainless steel mould of appropriate dimension (20mm height and 20mm diameter) (fig.1) according to American Dental Association no. 19.[1] The manipulation of VPS were done by attaching a mixing tip to the cartridge with an auto-mixing gun(fig.2) The material was injected into the cylindrical mould which was resting on a glass plate. A second glass plate was placed on top of it, and hand pressure was applied for 5 seconds to initially express material followed by application of a 0.5 kg weight to further eliminate excess material. The specimens were divided into 4 groups according to disinfection time. The disinfectant used in this study was 2% glutaraldehyde(Endox)(figure 3).

Group A-control(no immersion)(n=6)
Group B-immersion for 10 min(n=6)(figure 4)
Group C-immersion for 30 min(n=6)(figure 4)
Group D-immersion for 60 min(n=6) (figure 4)

After disinfection the specimens were stored in tightly sealed containers and kept for 24 hours before testing for standardization to simulate the time between clinical and laboratory phases[6]. Compression resistance of the specimens were determined using a Universal Testing Machine. Each of test specimens were loaded on a Universal Testing Machine and subjected to a compressive force of 25N for a duration of 1min (fig.5)[7]. The specimens were loaded until breakage or failure . The compression resistance was calculated as follows:

Compression resistance = compressive load (Newton) / cross-sectional area of the specimen(in mm^2)

Compression resistance were expressed in Megapascals

STATISTICAL ANALYSIS:

For analyzing the data, statistical test used was chi square test and anova followed by tukey post hoc test

RESULT

Table 1: Comparison Of Compressive Resistance Of Vps Interocclusal Record Material After Disinfection At Different Time Intervals Using Chi Square Test

	Mean	Standard deviation	Median	Mean rank	Chi square value	Significance
GROUP A	9.4733	0.64782	9.6400	5.58	10.182	0.017 (S)

Original Article

Finite element analysis evaluation of forces generated with Damon Q and MBT Conventional Appliances

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Finite element analysis evaluation of forces generated with Damon Q and MBT Conventional Appliances

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ABSTRACT

Aim and Objective: The purpose of this study was to investigate magnitude and direction of forces generated in the maxillary anterior region with engagement of arch wires into slots of conventional and self-ligating brackets during initial leveling and alignment stage of orthodontic treatment.

Materials and Method: Three-dimensional models of Damon Q (Ormco, Glendora, Calif) and Mini 2000 (Ormco, Glendora, Calif) brackets (upper 3 to 3) were modeled using micro computed tomography. A 3D orthodontic model was designed to replicate moderate crowding in the dental arch with all supporting structures. The simulated malocclusion represented a maxillary lateral incisor displaced 3.8 mm lingually and 3.16 mm gingivally. 0.014" Copper-Nickel-titanium (CuNiTi) wire was engaged in Damon Q and Mini 2000 brackets for alignment on the same model and force magnitude and stresses generated were measured with ANSYS Mechanical R19.0 software.

Results: Damon Q brackets delivered light continuous forces when compared to Mini 2000 brackets. Stresses generated on teeth and periodontal ligament (PDL) are lesser with Damon Q as compared to Mini 2000 brackets. Tooth deformation was more with Damon Q brackets as compared to Mini 2000 brackets.

Conclusion: Adult orthodontic cases, especially with compromised periodontal health, can be treated more efficiently with minimum patient discomfort and complications such as root resorption with Damon Q brackets and 0.014" CuNiTi wires.

Keywords: Self-ligation, MBT brackets, Damon Q, Finite element analysis, Copper-Nickel-titanium.

INTRODUCTION

Fixed appliances have come a long way since their introduction in the 1900's by EH Angle to treat malocclusions. Advancement in design, materials and technology, has permitted development of newer brackets and techniques including passive self- ligation and clear aligners. This in turn, has led to improved clinical efficiency with better outcomes and improved comfort for patients. However, newer techniques and brackets require robust scientific evidence for their incorporation into routine clinical practice.

Self-ligation is not a new concept. It was first described by Stolzenberg in 1935 as the Russell Lock edgewise attachment. Since then, many innovations and improvements have been made which has led to many of them being commercially available. Core advantages of self-ligating brackets include lower friction with reduced forces, less chair side assistance and faster archwire removal and ligation. Each advantage has potential clinical benefit individually and in combination [1].

Damon brackets are passive self-ligating brackets which are used in conjunction with copper NiTi wires. NiTi alloys are preferred during alignment because of their wider working range and higher spring back properties. According to Sachdeva, addition of copper in NiTi archwires reduces hysteresis which brings the deactivated force closer to the activated force and stabilizes the super elasticity characteristic. Copper-Nickel-titanium (CuNiTi) wires exert more homogeneous force thereby providing faster and more efficient tooth movement [2,3]. Studies, [3,5] conducted on copper NiTi wires have found better mechanical properties with lower

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Knowledge about management of avulsed tooth among primary school teachers of Thodupuzha

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Abstract
Background: Traumatic injuries are common among the school children during physical activity. As teachers being the first persons to come in contact, it is essential that they know to manage such situations. Hence, the aim of this study was to evaluate the knowledge level of a group of Thodupuzha primary school teachers in the management of avulsed tooth.
Methodology: The study was conducted among 25 primary school teachers in a Al- Azhar public school, Thodupuzha. Lower primary consisted 17 teachers and remaining were Upper primary. Validated questionnaire was used for data collection.
Result: The results showed that only 32 had first aid training of dental trauma. Nearly, 36% knew about replant re-implantation of the avulsed tooth and regarding the storage media only 25% had chosen children's mouth/saliva as a suitable media.
Conclusion: This study shows a lack of knowledge regarding tooth avulsion and its emergency management among teachers in Al-Azhar public school Thodupuzha. Therefore, educational programmes are necessary to improve their level of knowledge.

Keywords: avulsed tooth, Primary, Thodupuzha, Traumatic

Introduction

Traumatic dental injuries are considered one of the most common dental injuries in children [1]. Dental trauma may vary from minor tooth fracture to extensive dento-alveolar damage that involves the supporting structure and tooth displacement or avulsion [2]. Tooth avulsion is the complete displacement of a tooth from its socket due to accident injury [3]. Dental avulsion comprises of 0.5%-16% of all traumatic dental injuries [4]. The peak age for dental traumatic injuries is between 7 and 12 years, an age group when school fills their time [5]. Dental trauma in boys is three times more than girls because of their active involvement in sport and game [6]. Moreover, maxillary central incisors are the most frequently avulsed teeth [4]. The treatment for avulsed teeth is the immediate dental replantation in an attempt to reinstate it to its original anatomic position, maintaining the function and integrity [7]. The replantation of a tooth within 15 to 20 minutes after the accident leads to lesser damage and loss of periodontal cells [8]. Extra-alveolar period, storage medium and contamination and protection of the periodontal ligament are important parameters for maintaining vitality of periodontal ligament which in turn determines prognosis of traumatized teeth [9, 10]. The time from trauma to the tooth repositioning predisposes the development of complications, directly influencing the prognosis, making it unfavourable [11]. As the peak age for traumatic dental injuries is between 7 to 12 years and school children are more prone for such injuries, it is essential that all children supervisors like school teachers, school nurses and other school personnel should Be well prepared to intervene when such dental emergencies arise [5]. Hence, the purpose of this study was to assess the awareness and knowledge among the teachers in Al-Azhar Public School, Thodupuzha regarding tooth avulsion and its emergency management

Materials and Methods

A descriptive, questionnaire study was designed to assess the knowledge about the management of avulsed tooth among the primary schoolteachers of Thodupuzha. Prior permission was taken from the principal of Al Azhar public school and ethical approval was obtained from the Institutional Review board. The objectives of the study were explained to all the school teachers who participated in the study and also informed consent was obtained from all teachers. The questionnaire consisted of two parts. Part I comprised of questions on demographic information including age, gender, subject of teaching and teaching experience. Part II included multiple choice questions about management of avulsed teeth. The questionnaire was given to the teachers and then asked to tick the most appropriate answer from the given list of answers, in order to assess their knowledge about the management of avulsed tooth. Filled questionnaire were collected on the next day. All statistical analysis was performed using SPSS version 20(IBM SPSS INC, USA) and $P \leq 0.05$ was considered as statistically significant. Chi square test was performed.

medicina

MDPI

Article

Prevalence of Periodontal Disease among Obese Young Adult Population in Saudi Arabia—A Cross-Sectional Study

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Abstract: *Background and objectives:* We aimed to assess the prevalence of periodontal disease among obese young adults in Saudi Arabia and to analyze the association between different body mass indexes and the severity of periodontal disease. *Materials and methods*: This descriptive cross-sectional study consisted of 307 obese patients aged 18–39 years, with body mass index (BMI) ≥30. Demographic variables for periodontal disease, anthropometric parameters such as BMI along with clinical parameters such as oral hygiene index-simplified, community periodontal index (CPI) score and loss of attachment (LOA), were assessed. Multivariate binary logistic regression analysis was used to identify the predictors for chronic periodontitis in obese young adults between 18-40 years of age. *Results:* The majority of the participants (71.3%) had periodontal disease. Obese and extremely obese patients together showed a statistically significant difference in the age group of 21-30 years in terms of CPI score for inflammation ($p < 0.05$) and LOA ($p < 0.001$). Logistic regression analysis showed age (OR: 3.180; 95%CL: 1.337–7.561; p <.001), occasional dental visit (OR: 5.965; 95%CL: 3.130–11.368; $p < 0.001$), smoking >10 cigarettes (OR: 11.868; 95%CL: 3.588–39.254; $p < 0.001$) and poor oral hygiene status (OR: 17.250; 95%CL: 6.958–42.764; $p < 0.001$) were associated with a significantly higher risk of having periodontal disease. *Conclusions:* This study showed a high prevalence of periodontal disease in obese patients among the Saudi Arabian population.

Keywords: prevalence; periodontal disease; obese; CPI; Saudi Arabia

1. Introduction

Obesity is now becoming an alarming global concern in developing countries, especially in Saudi Arabia. According to World Health Organization (WHO), obesity is defined an excess amount of body fat in proportion to body mass, resulting impairment of a patient's overall health with BMI ≥30.0 kg/sq.m [1]. Prevalence of obesity among the younger adult population has been increasing in

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Artificial Intelligence-Finding New Frontiers in Oral and Maxillofacial Radiology

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Abstract

Artificial intelligence (AI), particularly deep learning algorithms, is gaining extensive attention for its exceptional performance in image-recognition tasks. Artificial intelligence (AI) is rapidly moving from an experimental phase to an implementation phase in many fields, including medical and dental imaging. Major performance breakthroughs in its development have been possible due to the proportionate amalgamation of augmented computing capacity, better availability of vast datasets and advanced learning algorithms. They can automatically formulate a quantitative assessment of complex medical image characteristics and achieve an increased accuracy for diagnosis, with higher efficiency. AI is extensively used and gaining worldwide popularity in the medical imaging of the liver, ultrasonography, and nuclear medicine. AI can reduce physicians' workload by assisting to make more accurate and reproducible imaging diagnosis. AI is slowly but steadily permeating in the field of Oral & Maxillofacial Radiology too. This article reviews a general understanding of AI methods, particularly those pertaining to image-based tasks in Oral & Maxillofacial Radiology. We explore how these methods could impact multiple facets of imaging and the impact of AI on oral radiologists.

Keywords: Artificial Intelligence, Machine Learning, Deep Learning, Oral Radiologist.

1. Introduction

The scientific arena has witnessed innumerable innovations with the advent of technology for creating a near perfect model that can successfully simulate the functioning of the human brain. This constant search has given rise to what is known as artificial intelligence (AI), which is a highly evolved system capable of mimicking the functioning of the human brain. The term 'artificial intelligence was first coined by Allan Turner in the year 1955[1]. AI refers to that branch of computer science devoted to the development of computer algorithms, to achieve tasks conventionally associated with human intelligence, such as the capacity to learn and resolve problems[2]. Computer-based diagnosis is gaining momentum due to its ability to detect and diagnose lesions which may go unnoticed to the human eye, thereby paving way for a holistic practice.

Over the past 2 decades, advances in medical imaging technology and related research have revolutionized the storage of medical imaging data to digital format. This data must be processed such that it can be used with AI to ascertain appropriateness, optimize patient outcomes and improve the accessibility and efficiency of the existing health care system. Being experts who employ imaging for the identification and management of disease conditions, it is crucial that radiologists not only provide guidance, but also actively contribute to the implementation of data-driven systems that interface with clinical workflows, thereby enhancing patient care. Oral and maxillofacial radiology is a specialty that has always been at the forefront of adapting new technology and has led dentistry into capturing newer "fields of view." Whether it is for looking between teeth or around lesions, we can use deep learning algorithms to detect what the human gray scale cannot discern. In head-and-neck imaging

Artificial Intelligence-Finding New Frontiers in Oral and Maxillofacial Radiology

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REVIEW ARTICLE

PLATELET RICH FIBRIN AND IMPLANTS - A REVIEW

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ABSTRACT

Platelet rich fibrin (PRF) is a fibrin matrix in which platelet cytokines, growth factors and cells are trapped and may be released after a certain time and that can serve as a resorbable membrane. Choukroun and his associates were amongst the pioneers for using PRF protocol to improve bone healing in implant dentistry. Autologous PRF is considered to be a healing biomaterial, and presently, studies have shown its application in various disciplines of dentistry.

Keywords: Platelet rich fibrin, implant, fibrin, growth factors.

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To Compare and Evaluate the Colour Stability of Provisional Restorative Materials Exposed to Different Beverages at Varying Time Intervals - An in vitro Study

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Abstract: *Objectives: The purpose of this study was to evaluate the colour stability of provisional restorative materials exposed to different beverages at varying time intervals. Methodology: Forty samples of each materials (Protemp 4 and Revotek LC) were prepared with a diameter of 10mm and 3mm thickness. After immersion in staining solution of synthetic saliva (control), synthetic saliva and green tea,synthetic saliva and red wine, synthetic saliva and cold beverage; on 7th and 30th day color measurement was done using Spectrophotometer. Statistical analysis: Statistical analysis was done using Independent-t test and one way ANOVA. Result: Statistically significant color change was noticed in Red wine on comparing between Protemp 4 and Revotek LC provisional materials at the end of 7th and 30th day. Conclusion: Maximum discoloration was seen in synthetic saliva &red wine solution for all the two materials. Protemp 4 is the best material out of both, if provisional restoration has to given for longer duration in the esthetic region.*

Keywords: Provisional materials, Beverages, Colour stability

1. Introduction

Provisional restorations are used in fixed prosthodontics during period between tooth preparation and final prosthesis placement.[1] During this time span of fabrication of definitive prosthesis, which on an average takes about 7-30 days, prepared tooth need to be protected from the oral environment and also its relationship with the adjacent and opposite teeth need to be maintained. Thus, in order to protect these prepared abutment teeth, provisional restorations are fabricated and the process is called as Temporization.[2] The commonly used provisional restorative resins are polymethylmethacrylate (PMMA), poly ethyl methacrylate(PEMA),composite resin (bis-acryl composite) and poly urethane dimethacrylate. Regardless to composition and polymerization method, these materials tend to undergo colour changes and roughness over time due to the use of various staining beverages. This clinical situation can cause discomfort to the patient and result in dissatisfaction and distrust regarding the final treatment result. The oxidation of the polymer matrix and/or unreacted double bonds in the residual monomers causes this material to absorb pigments, thus resulting in different degrees of staining.[7]

There is a lack of information in few studies on the effect of different staining agents that can stain resin composite provisional restorative materials.[9] Hence, this study has been designed to evaluate the colour stability of two different commercially available provisional restorative materials when exposed to different beverages at varying time intervals.

2. Materials and Methodology

Two different provisional restorative materials (Protemp 4, Revotek LC) and test solutions (green tea, red wine and cold beverage) were used. 80 specimens were prepared in the form of discs of size 10 mm diameter and 3 mm thickness. A Teflon ring of 10 mm diameter and 3 mm depth were used for the preparation of samples. 40 samples, each of Protemp 4 belonging to group I and Revotek LC belonging to group II were then divided into four categories (A: synthetic saliva, B: synthetic saliva+ green tea, C: synthetic saliva+red wine, D: synthetic saliva +cold beverage). The 40 samples of each group were now separated into these four categories of 10 samples each as

- I^A: protemp -synthetic saliva (n=10)
- I^B: protemp- synthetic saliva+ green tea
- I^C: protemp-synthetic saliva +red wine
- I^D: protemp- synthetic saliva+ cold beverage
- II^A: revotec-synthetic saliva
- II^B: revotec - synthetic saliva+ green tea
- II^C: revotec -synthetic saliva +red wine
- II^D: revotec - synthetic saliva+ cold beverage

Test solutions were prepared by using synthetic saliva mixed with green tea, red wine and cold beverage. The 250 ml test solution of green tea and synthetic saliva were prepared in the ratio of 2:1. Green tea was prepared by using 150ml of

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Radicular Cyst Associated with Primary Mandibular Second Molar - Surgical Intervention and Space Management: A Case Report

IJPPR
HUMAN

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Keywords: Radicular Cyst, Marsupialization, CBCT, Glycerin laced Iodoform gauze pack

ABSTRACT

Odontogenic cyst are a group of jaw cysts that are, formed from tissues involved in odontogenesis (tooth development). Correct diagnosis and prompt treatment at the appropriate time will avoid future complications. Various treatment options like curettage, enucleation, radical treatment and marsupialization are available to manage the odontogenic cyst. This paper presents a case report of an 8-year-old male patient with radicular cyst associated with a primary mandibular second molar. Considering the age of the child, conservative attempt of marsupialization with glycerin laced iodoform gauze pack which saved the developing premolar and managing the space is discussed.

Original Article

The prevalence of molar incisor hypomineralization of school children in and around Muvattupuzha, Kerala

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ABSTRACT

Background: Molar incisor hypomineralization (MIH) is a developmental dental defect and has a significant impact on the quality of life of affected individuals. Most of the prevalence studies of MIH have been carried out in the European countries; very little data are available from India. **Aim:** The aim and objective of this study was to determine the prevalence of MIH in 8–15-year-old Malayalee school children in and around Muvattupuzha, Kerala. **Settings and Design:** A cross-sectional epidemiological study was conducted in 5318 healthy Malayalee school children aged between 8 and 15 years in and around Muvattupuzha. **Materials and Methods:** The first permanent molars (FPMs) and all permanent incisors were examined for MIH using the European Academy of Paediatric Dentistry 2003 diagnostic criteria. The severity of hypomineralization was recorded according to the Wetzel and Reckel scale. **Statistical Analysis:** The data were analyzed using the Statistical Package for the Social Sciences software version 20.0, and a comparison between groups was carried out using the Chi-square test. $P \leq 0.05$ was considered for statistical significance. **Results:** A total of 216 children were diagnosed with MIH. The maximum MIH-affected tooth was found to be mandibular right FPM (186), followed by mandibular left FPM (172), maxillary left FPM (160), and maxillary right FPM (156). **Conclusion:** The prevalence of MIH in permanent dentition of Malayalee school children in and around Muvattupuzha was 4.1%. Among the MIH-affected children, very few have undertaken dental treatment for the same. Hence, proper awareness and planned preventive and restorative programs are required to minimize the problem.

KEYWORDS: Molar incisor hypomineralization, posteruptive enamel breakdown, prevalence, severity

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Introduction

Tooth development may be influenced by various genetic and environmental factors during, before, or after birth.[1] Enamel is a unique hard tissue which does not undergo remodeling like bone, and as a result, the structure of enamel is affected during its formation permanently. During the various stages of enamel formation, there can be interruptions.[2]

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JSPIK

An Interdisciplinary Approach in Management of Complicated Crown Root Fracture

Reesa Babu[1], Jincymol K I[1], Tharian B Emmatty[2], Bijimole Jose[3], Jose Paul[4], George Jose[5]

ABSTRACT

An eleven and a half year old boy reported with anterior tooth trauma to the Department of Pedodontics and Preventive dentistry in Annoor dental college. The case was diagnosed as a complicated crown root fracture in tooth number 11. A comprehensive treatment plan was formulated to do an interdisciplinary treatment consisting of orthodontic extrusion, fibre reinforced post and core and crown. Following orthodontic extrusion, since the crown was short, a crown lengthening with apically displaced flap and osteotomy was also done. After complete wound healing, an acrylic jacket crown was fabricated.

Keywords: trauma, complicated crown root fracture, orthodontic extrusion, crown lengthening, fibre post

Introduction

Traumatic injuries to dentition are common in children and young adults. They are often referred to as Traumatic Dental Injuries (TDI). TDI's comprise 5% of all injuries.[1] In primary dentition; luxation injuries are more common whereas crown fractures are more frequent in permanent dentition. According to dental trauma guidelines 2012, International Association of Dental Traumatology (IADT) 25% of all school children and 33% of adult before the age of 19 experience dental trauma. The three golden rules in management of such cases are proper diagnosis, treatment planning and follow up. IADT has published a set of guidelines for the proper management of such cases. Following these guidelines can maximize the chances for a favorable outcome.[2] The present case reports the management of such a traumatic injury to the dentition.

Case Report

An eleven and a half year old boy reported to the department of Pedodontics with a trauma of upper front tooth. The patient gave a history of dental trauma one week prior to reporting due to fall from bicycle and he had taken medication for pain relief at the time of trauma. The case was diagnosed as a complicated crown root fracture of 11. The medical history of the patient indicated that he was in good health and had no systemic diseases.

Clinical Findings

A complicated crown root fracture involving fracture of enamel, dentin and cementum with exposure of pulp was noticed (figure 1).The tooth was tender on percussion. The coronal fragment was mobile.

Radiographic Findings

Intra oral peri apical (IOPA) radiograph of 11 showed radiolucency involving enamel, dentin and cementum involving pulp chamber space indicative of complicated crown root fracture with a closed apex (figure 2).

Treatment Plan

Usually, the majority of TDIs occur in children and teenagers where loss of a tooth has lifetime consequences. The immature permanent tooth has considerable capacity for healing after traumatic pulp exposure.

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Unilateral supplemental primary lateral incisor A report of 2 cases

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Reader

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Abstract

Supplemental tooth is a rare entity in primary dentition. Supernumerary tooth of normal shape and size are termed as supplemental tooth. They are of great concern to both the dentist and parents because of the eruption, occlusal and aesthetic problem they can cause. Early recognition and diagnosis of supernumerary tooth is highly important to prevent further complications in the permanent dentition.

Keywords

Supernumerary tooth, supplemental tooth, primary dentition

Introduction

Supplemental tooth is type of supernumerary tooth that resembles tooth shape and also supplementary for occlusion1. Supernumerary teeth are rarely seen in primary dentition with a prevalence of 0.3-0.6%. In both primary and permanent dentition supplemental teeth are most commonly located in maxillary anterior region2.

This article describes two cases of supplemental primary maxillary lateral incisor and its management.

Case -1

A 7 year old girl reported to the department of Pedodontics, Annoor Dental College; with a chief complaint of malaligned upper anterior teeth. Intra oral examination showed presence of a supplemental tooth resembling primary lateral incisor in the upper right quadrant mesial to the lateral incisor(Fig 1). There was no other supernumerary tooth in primary and permanent dentition.Medical and family history was not conclusive. No history of trauma was reported. She didn't have any other dental problem. Supplemental tooth was placed out of the arch labially resulting in crowding and unaesthethic appearance (Fig 2). So it was extracted under local anaesthesia (Fig 3).

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FACING SHEETS OF PUBLICATIONS

ACADEMIC YEAR 2020-21

Original Article

Reliability of Cone Beam Computed Tomography in Comparison with Panoramic Radiography to Predict the Anatomical Relationship of Inferior Alveolar Nerve with Mandibular Third Molar: A Radiological and Clinical Study

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ABSTRACT

Objectives: The purpose of the study was to assess the precision of cone beam computed tomography (CBCT) in comparison with panoramic radiography in determining the anatomical relationship of inferior alveolar nerve (IAN) with the impacted mandibular third molar. Materials and Methods: Twenty patients diagnosed with the following panoramic radiographic markers: darkening of the root, interruption of white line of mandibular canal, diversion of mandibular canal, and narrowing of the roots suggesting a close relationship of roots with the mandibular canal were selected and underwent an additional CBCT to assess the proximity of IAN to mandibular third molar roots. All patients were assessed for loss of sensation or neurosensory deficit in the chin and lower lip during postoperative period by objective and subjective methods. Results: Twenty patients with an average age of 25.4 years (21–39 years) with 21 impacted mandibular third molars were included in this sample. It was found that after the removal of impacted third molars, IAN was not visible in any of the cases and postoperative objective and subjective neurosensory tests showed no signs of neurosensory disturbances. Conclusion: The study found that CBCT had limited usefulness in neurovascular bundle exposure prediction, prior to surgical removal of impacted mandibular third molars. The accuracy of radiographic markers in conventional panoramic radiography to predict neurovascular exposure was also limited.

KEYWORDS: *Cone beam computed tomography, inferior alveolar nerve, mandibular third molar*

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INTRODUCTION

Removal of third molar by surgical method forms the mainstay of day-to-day maxillofacial surgical practice. The most common risk factor following removal of third molar includes injury to inferior alveolar nerve (IAN) with an overall risk of temporary IAN injury ranging from 0.4% to 8.4%[1-3] and that of permanent injury approximately 0.2%–1%.[4] However, it was found that only 1% of the patients had permanent sensory impairment that lasted longer than 6 months.[5] The number of patients affected was high as the number of third molar's removal was more. Moreover, the incidence of IAN damage has been found to increase up to 30% when the proximity between the mandibular third molar and the mandibular canal is

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Original Article

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INTERNAL FIXATION OF MANDIBULAR FRACTURES USING MICROPLATES - A STUDY

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Abstract: Introduction: The use of microplates in mandible fractures is not widely accepted, although microplate systems are commonly used for treatment of maxillofacial fractures. Aims: This study evaluated the use of microplates for internal fixation of mandibular fractures with no comminution or bony defects. Materials and Methods: 20 patients with simple, isolated mandibular fractures from were treated with 0.5 mm titanium microplates & 1.5 mm microscrews of 8/10 mm in length. Followed by IMF for one week. All the patients were followed up for 2 months post-operatively. Results: All fractures showed intact occlusion indicating no occlusal disharmony. Only 2 cases (10%) had screw fracture which occurred intraoperatively. In one case (5%) infection of the plate was seen 15 days post operatively. Conclusion: These results indicate that 0.5mm titanium microplates are appropriate for the internal fixation of simple isolated mandibular fractures.

KEY WORDS

Mandibular fracture; titanium; fracture fixation; internal fixation

INTRODUCTION

Mandibular fractures are amongst the most common facial injuries treated by maxillofacial surgeons.[1,2] Microplate fixation systems are commonly used for internal fixation of mid-face fractures because they require less manipulation & there is less likelihood of iatrogenic damage. Studies demonstrate that microplates system is sufficiently rigid to withstand the forces generated during mastication and thus sufficient stabilization can be achieved for single, isolated, non-comminuted mandibular fracture. Microplates have shown high holding power and have proved to be efficacious for internal fixation of mandibular fractures.[3,4] This study was designed to evaluate efficacy of microplates for internal fixation of mandibular fractures and to assess complications such as occlusion, infection, hardware loosening, fracture, postoperative discomfort and palpability.

MATERIALS & METHODS

This study was carried out in the Department of Oral and Maxillofacial Surgery, Darshan Dental College & Hospital Udaipur Rajasthan. 20 patients with simple, isolated mandibular fractures were treated with open reduction & internal fixation. The fractures with a small triangular bony segment on the fracture site were included in this series, but grossly comminuted fractures were not included. Fractures showing signs of infection and patients with debilitating systemic diseases were excluded from the study. Fracture displacement ranged from minimal to severe. Patients who volunteered for our study were informed about the advantages and complications of the plating system and their consent was obtained for the same. Patients were evaluated pre operatively by recording the history, thorough clinical examination, radiological examination including Orthopantomogram (OPG), Computed tomography (CT) scan (whenever required), routine blood investigation. Neurological evaluation was carried out to rule out head injury and cervical spine injury. General physical examination was conducted to rule out associated injuries. A standard proforma was used to collect necessary information. Besides routine blood investigations and urine examination, echocardiogram was done in all cases. All standard investigations required for general anesthesia were carried out.

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A SEQUENTIAL APPROACH IN THE TREATMENT OF ENDO-PERIO LESIONS WITH DIFFERENT ETIOLOGIES: A CASE SERIES

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ABSTRACT

This article presents meticulous management of three different cases involving the endo-perio lesions with different etiological factors. Identifying the correct etiology and treating the cause is the at utmost importance for the successful management complex endo-perio lesions. This case series emphasis on accurate diagnosis, sequential treatment plan and multidisciplinary approach for successful clinical outcome.

INTRODUCTION

The endo-perio lesions are conditions characterized by the association of periodontal and pulpal disease in the same dental element. There are various etiologic factors such as bacterial, fungal, and viral; as well as other various contributing factors such as trauma, root resorption, perforations, and dental malformations which play an important role in the development and progression of such

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Head and Neck Cancer

Evaluation of Salivary Lactate Dehydrogenase as a Prognostic Biomarker in Tobacco Users with and without Potentially Malignant Disorders of the Oral Cavity

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Abstract

Background Oral squamous cell carcinoma (OSCC) is a deadly disease that develops in a multistage process and is often preceded by oral potentially malignant disorders (PMDs), of which many are caused by tobacco usage. It is associated with a shift from an aerobic to anaerobic glycolytic pathway, and hence an increase in lactate dehydrogenase (LDH) levels is seen. The objective of this study was to estimate and correlate the level of salivary LDH in healthy individuals with tobacco users (with or without PMDs).

Methods A total of 78 patients were selected from the Department of Oral Medicine and Radiology, Dayananda Sagar College of Dental Sciences, Bengaluru, Karnataka, India, and were divided into three groups of 26 patients each, namely controls, tobacco users without PMD, and tobacco users with PMD. A total of 1 mL of unstimulated saliva was collected from each patient using the spit method. Sample was subjected to centrifugation at 2,500 rpm, and salivary LDH was quantified by a standard kit (LDH-P kit, DIALAB, Neudorf, Austria) using an autoanalyzer.

Results There was a statistically significant ($p < 0.001$) gradual increase in the level of LDH in controls (267 ± 27.64 U/L), tobacco users without PMD (391 ± 80.53 U/L), and tobacco users with PMD (706.1 ± 199 U/L). Increase in the LDH level was also noted with increased duration and frequency of the habit.

Conclusion LDH can potentially be used as a promising biomarker in the very early stages of progression toward oral cancer caused by tobacco use.

Keywords
- lactate dehydrogenase
- oral cancer
- prognosis
- saliva
- tobacco

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Original Research

Knowledge, Attitude and Awareness on Covid-19 among the Interns in Dental Colleges in India: A Questionnaire-Based Survey

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ABSTRACT:

Aim: The purpose of the study is to evaluate the awareness and attitude of interns as well as basic precautionary measures they undertake while handling patients, in various dental colleges regarding Coronavirus pandemic in India. **Methodology:** An online questionnaire was distributed among dentists across the interns in 5 dental colleges. 200 students participated in the study. The questionnaire was based on knowledge (3 questions), attitudes (3 questions) and practices (3 questions) of the dentists. **Results:** In the present survey study, it was observed that most of the respondents (143/200) were aware about the preliminary diagnostic methods of COVID-19. Around 156 respondents were also aware the basic signs as well as symptoms which COVID-19 patients generally presented which also made them more confident and precautious in taking preventive measures in handling such patients, if they arrived. **Conclusion:** Our study showed that the undergraduate dental students in different colleges in India are mindful, informed and well aware of the different clinical aspects of the COVID-19 disease and have good knowledge regarding the COVID-19 disease.

Key words Coronavirus, SARS-CoV-2, COVID-19, Awareness, Undergraduate students.

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INTRODUCTION

Coronavirus or SARS-CoV-2 is one of the major pathogens that primarily targets the human respiratory system. There have been previous outbreaks of coronaviruses (CoVs) which include; the severe acute respiratory syndrome (SARS)-CoV and the Middle East respiratory syndrome (MERS)-CoV which have also been characterized as great public health threat.[1]

In late December 2019, a cluster of patients were admitted to hospitals in Wuhan with a primary diagnosis of pneumonia of an unknown aetiology. These patients were linked to a seafood and wet animal wholesale market in Wuhan, Hubei Province, China.[2] Coronavirus disease caused by SARS- CoV-2 represents the causative agent of a potentially fatal disease which is of global public health concern. Based on the large number of infected people that

Review Article

ALOE VERA AND THE DENTIST

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Abstract

Aloe vera is a succulent medicinal plant of revered historical significance. Its popularity has made it the quintessential component of most beauty products including soaps, creams, lotions and balms. Also known as the 'potted physician' this miracle plant has numerous applications in dentistry. It is a treasure cove packed with vitamins, minerals, sugars, amino acids, enzymes and phenolic compounds. The aloe vera is known for its wound healing, antibacterial, antifungal, antiviral and anti-inflammatory properties. This article intends to throw light on the dental applications of aloe vera.

Keywords: Aloe Vera, Acemannan, Dentistry, Antifungal, SaliCept patches, Antiviral, Vitamins, Natural

Introduction

Aloe vera is a cactus-like plant that belongs to the lily family. Among the 250 different species, only 2 are grown commercially; Aloe Barbadensis Miller and Aloe Aborescens. It is native to northern Africa and grows readily in hot and dry climates.[1] The Aloe vera is a plant of many surprises and is rightly remarked as the 'Miracle Plant' or 'The natural healer'. It has been used since time immemorial for its unique properties that influence health, beauty and skincare. It's also called First Aid Plant, Silent Healer, Potted Physician & the Plant of Life. Other names include Wonder Plant, Dietary Plant, Burn Plant, Single Bible, and Heaven's Blessing.[2-5]

Historical significance

From the Bible's mention of removing Christ from the cross and wrapping his body in aloes and myrrh, we find Aloe Vera mysteriously appearing in every phase of history. History reveals that the ancient Egyptians were considered as the pioneers in using aloe vera. Alexander the Great is said to have captured the Isle of Socotra, where Aloe grew abundantly so that he had plentiful supplies of the plant to help heal his men's battle-wounds. Legend has it that Cleopatra and Nefertiti bathed in Aloe as part of their beauty routine. The father of modern medicine, Galen, used it too in his treatments. A papyrus dating from Pharoah Amen-Hotep's reign in 1552 BC gave no less than twelve different formulae for Aloe Vera preparations used during the preceding two thousand years. It wouldn't be wrong if it's said that Aloe vera had played a very significant role in the Indian freedom struggle. The Great Gandhiji himself has quoted that the Aloe vera was the secret of his sustenance during long lasting fasts. Its use has also been recorded by diverse civilizations including that of Aztec, Greece, Egypt, India, Mexico, Japan, & China.[3] Early users of Aloe Vera discovered that when the jelly contained in the leaf was applied to a wound, it would heal faster – a remarkable feat in a time, way before antibiotic ointments were employed, when the infection of a minor wound would often turn fatal.[4]

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Quick Response Code

DESIGN AND FABRICATION OF AN INTERIM PROSTHESIS FOR REPLACEMENT OF AVULSED PERMANENT MANDIBULAR INCISORS

Modified lingual arch prosthesis

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Abstract

The avulsion of anterior teeth in children creates a psychological impact on both the parents and the child especially if the injury affects the permanent dentition. Replantation of teeth lost due to avulsion is recommended, though it is not always possible due to failures in retrieving the tooth from the site of accident . More economically acceptable treatments should be investigated for the replacement of missing teeth ,taking growth related changes into consideration before a definitive prosthesis is planned .This article describes the design and fabrication of an interim prosthesis for replacement of missing permanent mandibular incisors using a modified lingual arch space maintainer.

Key words: :fixed interim prosthesis, lingual arch.

Introduction

Avulsion of anterior teeth may jeopardize the aesthetic appearance and psychological development of children especially during adolescence. Dental trauma is relatively more common in the first and second decades with a prevalence of 6.4% to 37.9%[1]. Avulsion of permanent teeth occurs in approximately 0.5-16% of the cases[2]. Majority of the dental injuries involve the maxillary anterior region, especially the incisors. The mandibular teeth, however, are protected by the non- rigid connection between the cranial base and the mandible , and also by the overlapping maxillary teeth except in Class III malocclusions[3]. Tooth fractures are more common in mandibular teeth with avulsions being a rarity. In cases of exarticulation, replantation of tooth is usually recommended, though not always possible. Rehabilitation of such cases is an enigma to the dentist due to growth considerations and disadvantages of removable prostheses. Following the traumatic loss of an anterior tooth in children and adolescents, it is important that an immediate replacement is provided in order to avoid aesthetic, masticatory and phonetic difficulties and avoiding arch length discrepancies to maintain the edentulous space. More economically acceptable treatments should, therefore, be investigated for the replacement of a missing tooth as a long-term

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Autorotation of the Mandible as Sequelae to Maxillary Intrusion: A Systematic Review

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ABSTRACT

Background: Autorotation of the mandible is a normally anticipated phenomenon following a surgical superior repositioning of the maxilla in clinical situations where patients have an excessive gummy smile. Prediction of the surgical treatment outcome following a presurgical orthodontic treatment is a critical element in the surgical treatment planning. **Materials and Methods:** The relevant articles were selected by hand search and electronic media (Google Scholar, PubMed, Science Direct, Medline, Embase, and Cochrane) from 1982 to 2020. All the relevant articles were properly screened, and findings were extracted from the articles. **Results:** It was observed that, following maxillary intrusion, mandible would eventually autorotate to take a new occlusion. Mandibular autorotation as a result of maxillary intrusion would lead to minimal shortening of the lower lip in the vertical plane. It was observed that the amount of mandibular autorotation correlates with the extent of maxillary impaction. Studies have shown that there is a passive soft-tissue response which may be attributed to the fact that no muscular detachment had been affected in the lower lip and soft-tissue chin region during the maxillary surgery. **Conclusion:** It is observed that there is a definite influence on the mandibular and chin positions as a result of maxillary intrusion and autorotation of the mandible. Every 1 mm of maxillary superior impaction, the chin moved 0.6 mm vertically and 0.2 mm horizontally. There is an appreciable shortening of the lower lip length.

KEYWORDS: *Autorotation, gummy smile, maxillary intrusion, vertical maxillary excess*

INTRODUCTION

Facial esthetics is considered to be a critical factor in human interactions.[1] Vertical maxillary excess (VME) is a clinical scenario that results due to overgrowth of the maxilla. It manifests clinically with excess exposure of the upper incisors even at rest coupled with a gummy smile.[2] The vertical excess growth of the maxilla results in a consequent rotation of the mandible in a clockwise manner. This subsequently results in the mandible being positioned retrognathically.[2] The surgical correction of the VME is usually done by the superior repositioning of the maxilla

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Evaluation of Different Steroid Nasal Spray in Chronic Rhinosinusitis: A Comparative Study

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ABSTRACT:

Aim: In this study, we compared the efficacy of fluticasone propionate (FP) and mometasonefuroate (MF) nasal sprays in the treatment of allergic rhinitis based on total nasal symptom score (TNSS) questionnaire.

Methodology: For this study, 60 chronic rhinitis patients based on inclusion criteria were randomly assigned to two groups: FP and MF groups. FP group received 200 µg dose of FP nasal spray (2 sprays/nostril) daily and the MF group received 100 mg dose of MF nasal spray (2 sprays/nostril) daily for 8 weeks. The effects of the two agents were compared based on TNSS questionnaire in 0, 4 and 8 weeks after the beginning of the treatment.

Results: Patients in both groups exhibited significant improvement in their TNSS (P Value<0.001). A detailed TNSS analysis showed MF to be more effective for relieving all symptoms than FP. The most difference is in decreasing postnasal discharge (PND) symptom. However, the difference for relieving all symptoms is not significant (P value>0.05).

Conclusion: In conclusion, FP and MF are significantly effective in relieving of chronic rhinitis symptoms. Even though, the difference between the two is not significant for 8 weeks therapy.

Keywords Fluticasone Propionate, MometaseoneFuroate, Chronic Rhinitis, Total Nasal Symptom Score (TNSS) questionnaire

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5

Predisposing Factors, Clinical Features, Culture Sensitivity Findings in Dentoalvealar Abscess versus Ludwigs Angina: An Original Research

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ABSTRACT

Aim: Purpose of our research was to compare predisposing factors, clinical manifestations as well as culture sensitivity between cases of dentoalveolar abscess and ludwig's angina.

Methodology: A retrospective study was conducted of all cases of Ludwig's Angina (LA) and Dentoalveolar abscess that was seen in our institution for a period of 5 years (2015-2020). 31 cases of dentoalveolar cases and 13 cases of Ludwig's angina were considered in the present study. Information retrieved from the patients' case files included the demographics, aetiology, signs and symptoms at presentation and possible predisposing factors. Laboratory investigations that were done including culture and sensitivity of all aspirates obtained. Descriptive statistical analysis was conducted to initiate the comparison between both the diseases.

Results: Dentoalveolar abscess was common in mandibular molar region with the predominant isolates like Streptococcus species 14.2% of all isolates other than Streptococcus pneumoniae and Enterococcus species. On culture, in case of Ludwig's angina, it was found that streptococcus species, in 83.5% specimens especially streptococcus viridans along with actinomyces species were present in 11% cases of Ludwig's angina.

Conclusion: It is imperative to be equipped with the knowledge related to these two spreading odontogenic infections which spreads to fascial spaces, so that proper and early management can be carried out by dental surgeons.

Keywords Dentoalveolar abscess, Ludwig's angina, polymicrobial.

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EVALUATION OF EFFICACY OF MTAD AND EDTA BASED ROOT BIOMODIFIER ON PERIODONTALLY INVOLVED TEETH – A SEM STUDY

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Abstract

Background: Tooth surface modification by root conditioning results in improved connective tissue attachment and advancement in the the goal of reconstructive periodontal treatment.

Aim: Evaluation and comparison of novel root canal irrigant- MTAD and QMix on periodontally involved teeth.

Settings and design: 30 teeth were collected and stored in saline. By making two parallel grooves with a cylindrical bur under copious saline irrigation, samples were taken from the cervical third of the root. First groove is prepared at cemento-enamel junction and another 7 mm apical to it. Root surfaces of the teeth were scaled with an ultrasonic scaler and thoroughly planed with #1-2, 3-4 Gracey curettes for the elimination of all the diseased cementum. The dentin sample of dimension 4 mm x 6 mm were prepared and stored in normal saline before use.

Materials and method: Samples were randomly divided into three groups: BioPure MTAD ™, QMix ™ 2 in 1 and saline. Specimens were actively burnished for 3 min and following

KDJ – Kerala Dental Journal

CASE REPORT

Challenge of feeding a New Born Infant With Cleft Palate - A Case Report

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Abstract

Survival of a newborn is based upon the feeding and basic reflexes present. Restoring back the normal feeding is the most imminent issue to be addressed in a child born with cleft lip and/or palate. Surgical management of cleft is very crucial but may need to wait until 6-12 months of age and definite weight is attained in an infant. This clinical report throws light on how we met the challenge of feeding a 4-day old infant with cleft palate which helped him to feed milk without regurgitation.

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➤ Introduction

Giving birth to a baby is one of the most joyful moments of a couple, but the news of their little angel having a hole in the mouth is a devastating scenario. Among the congenital orofacial defects, Cleft of lip and palate (CLP) is one of the most commonly encountered entity[1]. The incidence of CLP shows a range from one in 800 to 1 in 1200 live births[2]. The least common form of oral clefting has been identified as isolated cleft palate which accounts for approximately 33% of all oral clefts and affecting 1 to 25 per 10,000 newborns worldwide[3]. The pathogenesis occurs early during embryonic development and is presumed to be the outcome from the non-fusion of the various facial processes[4]. It is believed to occur out of a complex interaction of genetic and environmental factors[5]. Examining into the genetic basis, it has been found that the defects are male sex-linked recessive, while the environmental factors that have been reviewed in literature include those influencing in the first trimester of pregnancy. These include viral infections, exposure to radiations and drugs influences like steroids,excessive consumption of antibiotics, insulin, and antiepileptic drug. Others include deficiency of vitamin A and B, anemia, and anorexia[6].

The usual problems associated with cleft lip and congenital abnormality (CLP) involves difficulty in feeding, pathologies of auditory tube, tympanum effusions, infections of tympanum, deafness, speech difficulties, dental related issues.[7] These also pose social and psychological problems which have an impact on the child and parents.[8] Among these, the most pertinent aspect in the holistic growth and development of a newborn is the nutritional sufficiency. These infants are unable to generate the normal level of suction and compression required for bottle and/or breastfeeding[9]. The combined effort from the various specialties is mandatory in the successful management. The pediatric medical practitioner has a key role in imparting knowledgeable information and providing motivational counselling to the mother as well as regarding the adequate nutrition for the infant[10]. Feeding prosthesis or Obturator is an appliance to overcome this challenge and aid in feeding. It restores the defect between nasal and oral cavities, which is necessary to generate a negative pressure for sucking and thereby, aid in feeding by reducing nasal regurgitation, facilitating swallowing, reducing the length of time required for feeding[11].In short, fulfilling the normal dietary requirements of an infant, and shortening the time to surgery[12]. Further, it also prevents the entry of tongue into the defect thereby, stimulating the normal growth of the maxillary segments toward each other[13].

➤ Case report

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Effect of Enamel Pre-etching with Sodium Hypochlorite Deproteinisation and Bonding Agent on Retention and Microleakage of Pit and Fissure Sealants: An In-vitro Study

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ABSTRACT

Introduction: Sealants have proved to be one of the easiest methods of caries prevention in young permanent teeth, the placement of which is very technique sensitive. The non-invasive method of pretreating the enamel surface by deproteinising it with 5.25% sodium hypochlorite (NaOCl) for 60 seconds prior to etching has proven to be a promising method for improving retention and reducing microleakage of sealant.

Aim: To evaluate the effect of enamel pre-etching with sodium hypochlorite deproteinisation and bonding agent on retention and microleakage of pit and fissure sealants.

Materials and Methods: This in-vitro experimental study was conducted in Department of Paediatric and Preventive Dentistry at Annoor Dental College, Muvattupuzha, Kerala and Nanotechnology Lab at Amrita Institute of Medical Science. Freshly extracted intact permanent maxillary and mandibular 20 third molars and 20 premolars mounted on acrylic blocks were divided into 4 groups containing 5 teeth in each group. Molars and premolar were taken for assessing the rate of retention and microleakage, respectively. Teeth in Group 1 were subjected to acid etching only, Group 2 were deproteinised prior to acid etching, Group 3 were subjected to acid etching followed by bonding and Group 4 were subjected to deproteinisation, etching and bonding. Then, all teeth were sealed with pit and fissure sealant and underwent thermocycling in artificial saliva bath for evaluation of sealant retention and microleakage. After thermocycling, retention was assessed on molar by one pre-calibrated blinded examiner by passing a 0.5 mm diameter probe along the margins of the sealant placed to verify integrity, failure, or loss of continuity based on Simonsen's criteria (1983). To assess microleakage, premolar samples were immersed in rhodamine B, sectioned longitudinally, and examined under a stereomicroscope for assessment of microleakage. Collected data were statistically analysed using Chi-square and Mann-Whitney u test.

Results: The results showed 100% retention for teeth in Group 2a, Group 3a, Group 4a, while partial sealant loss was present in 3 teeth from Group 1a. The differences between the groups for retention was statistically significant (p=0.014). In the case of microleakage, Group 3b showed more microleakage and group 4b showed least microleakage and the difference between them was statistically significant (p=0.008).

Conclusion: Deproteinisation and use of bonding agent increases retention of the pit and fissure sealants. However, deproteinisation is a more effective method to control microleakage when compared to bonding agent. Thus, it can be considered as an effective method for pretreating enamel surface before sealant placement.

Keywords: Microleakage, Rhodamine, Sealant, Thermocycling

INTRODUCTION

Sealants have proved to be one of the easiest methods of caries prevention in young permanent teeth, the placement of which is very technique sensitive. The preventive function of pit and fissure sealant is accomplished mainly by the adhesion of the material to the enamel surface. In an attempt to improve and increase adhesion, acid etching has been introduced by Buonocore MG [1]. However, Hobson RS et al., found that the surface quality of enamel etching with phosphoric acid (H_3PO_4) was not encountered over the total adhesion surface [2]. Also, phosphoric acid works on the mineralised portion of the enamel only and does not remove the organic content that is less than 1%, but can affect the etching pattern of the enamel. For this reason, various invasive and non-invasive techniques as sodium hypochlorite deproteinisation and application of intermediate bonding agent have been suggested.

Sodium hypochlorite solution has been used in endodontics for its antimicrobial properties and ability to dissolve the organic material from the root canal space without damaging intact dentinal tissues [3]. Rishika et al., reported that the non-invasive method of treatment of the enamel surface by deproteinising with 5.25% sodium hypochlorite for 60 seconds prior to etching has proved to be a promising method for improving the retention [4]. The use of the bonding agent may change the viscosity of the material making it to flow better into the fissures and acid etched surface [5]. According to Askarizadeh N et al., the use of dentin bonding agents between the tooth and fissure sealant can be beneficial for reducing microleakage when there is contamination of the enamel [6]. Thus, this study was aimed to assess the retention and microleakage in pit and fissure sealants following enamel pre-etching with sodium hypochlorite deproteinisation and bonding agent.

MATERIALS AND METHODS

This in vitro experimental study, approved by Institutional Review Board (IRC Ref no: IRC/18/19), was conducted in Department of Paediatric and Preventive Dentistry at Annoor Dental College, Muvattupuzha, Kerala and Nanotechnology lab at Amrita Institute of Medical Science from 8th November 2019 to 2nd March 2020.

Inclusion criteria: Freshly extracted (orthodontic purpose), intact, caries free permanent maxillary and mandibular 20 premolars and 20 third molars were collected.

JSPIK

An Interdisciplinary Approach in Management of Complicated Crown Root Fracture

Reesa Babu[1], Jincymol K P[2], Tharian B Emmatty[3], Bijimole Jose[3], Jose Paul[4], George Jose[5]

ABSTRACT

An eleven and a half year old boy reported with anterior tooth trauma to the Department of Pedodontics and Preventive dentistry in Annoor dental college. The case was diagnosed as a complicated crown root fracture in tooth number 11. A comprehensive treatment plan was formulated to do an interdisciplinary treatment consisting of orthodontic extrusion, fibre reinforced post and core and crown. Following orthodontic extrusion, since the crown was short, a crown lengthening with apically displaced flap and osteotomy was also done. After complete wound healing, an acrylic jacket crown was fabricated.

Keywords: trauma, complicated crown root fracture, orthodontic extrusion, crown lengthening, fibre post

Introduction

Traumatic injuries to dentition are common in children and young adults. They are often referred to as Traumatic Dental Injuries (TDI). TDI's comprise 5% of all injuries.[1] In primary dentition; luxation injuries are more common whereas crown fractures are more frequent in permanent dentition. According to dental trauma guidelines 2012, International Association of Dental Traumatology (IADT) 25% of all school children and 33% of adult before the age of 19 experience dental trauma. The three golden rules in management of such cases are proper diagnosis, treatment planning and follow up. IADT has published a set of guidelines for the proper management of such cases. Following these guidelines can maximize the chances for a favorable outcome.[2] The present case reports the management of such a traumatic injury to the dentition.

Case Report

An eleven and a half year old boy reported to the department of Pedodontics with a trauma of upper front tooth. The patient gave a history of dental trauma one week prior to reporting due to fall from bicycle and he had taken medication for pain relief at the time of trauma. The case was diagnosed as a complicated crown root fracture of 11. The medical history of the patient indicated that he was in good health and had no systemic diseases.

Clinical Findings

A complicated crown root fracture involving fracture of enamel, dentin and cementum with exposure of pulp was noticed (figure 1).The tooth was tender on percussion. The coronal fragment was mobile.

Radiographic Findings

Intra oral peri apical (IOPA) radiograph of 11 showed radiolucency involving enamel, dentin and cementum involving pulp chamber space indicative of complicated crown root fracture with a closed apex (figure 2).

Treatment Plan

Usually, the majority of TDIs occur in children and teenagers where loss of a tooth has lifetime consequences. The immature permanent tooth has considerable capacity for healing after traumatic pulp exposure,

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Case Report

Benign fibrous histocytoma of the maxilla: A rare case report

ABSTRACT

Fibrous histiocytoma can present as malignant or benign and may involve either the soft or hard tissues. The treatment of choice to oral BFH is generally en-block resection. The prognosis is good and the oral BFH recurs only if not completely excised. Hereby presenting a case of a 29 year old male with a chief complaint of pain and swelling in the left side of the face since 2 months. Treatment plan of Subtotal maxillectomy was performed under general anesthesia through a Weber Ferguson incision with infraorbital extension after histopathological and radiological confirmation.

Keywords: Benign fibrous histiocytoma, mandible, maxilla

INTRODUCTION

The term "fibrous histiocytoma" is an infrequently heard one when discussing about the lesions and pathologies of the oral cavity. Fibrous histiocytoma can present as malignant or benign and may involve either the soft or hard tissues. The term "malignant fibrous histiocytoma" is a soft-tissue sarcoma that arises as a tumor of histiocytes and fibroblasts and has a significant malignant potential. With the advancements in latest immunohistochemical techniques, malignant and benign forms can be differentiated easily. This has resulted in the establishment of benign fibrous histiocytoma (BFH) as a separate clinical entity.[1-3] BFH is reported to be present at any age with predominance in male adults (2.5:1). The oral BFH clinically presents as a slow-growing painless solitary swelling. The size of the swelling is highly variable, ranging from <2 cm to more than 10 cm.[4,5] Other clinical features include dysphagia, dyspnea and when the mass is located in the tongue, difficulty in speech may be also present. Computed tomography (CT) scan is beneficial if the involvement of the bone is suspected. The treatment of choice to oral BFH is generally *en bloc* resection. The prognosis is good and the oral BFH recurs only if not completely excised. Malignant transformation of oral BFH has not been proved. However, a regular clinical follow-up is recommended.[6]

CASE REPORT

A 29-year-old male patient reported to the department of oral and maxillofacial surgery with a chief complaint of pain and swelling in the left side of the face for 2 months. The patient gave a history of pain which is of dull aching type, continuous in nature, and gradual in onset. Pain aggravates on mastication and during night time and

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Case Report

Odontogenic Myxoma of Posterior Maxilla: A Case Report with Mini Literature Review

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Abstract

Odontogenic myxoma is an uncommon, benign, locally invasive neoplasm with a high chance of recurrence. It is exclusively present in tooth-bearing areas of the jaws. Odontogenic myxoma commonly occurs in age groups ranging from 20 to 40 years with a female predilection, and the common site of occurrence is the posterior mandible. The purpose of this case report was to describe the unusual rare presentation of odontogenic myxoma of the posterior maxilla in a 16-year-old male patient, which was managed by surgical excision, peripheral ostectomy, and chemical cauterization

Keywords: Maxilla, odontogenic myxoma, odontogenic tumor

Introduction

Odontogenic myxoma (OM) of the bones of the jaw was first described by Goldman and Thoma in 1947. Myxomas of the soft tissue are frequent but intraosseous myxomas are rare and if seen its almost always found in jaws. OMs are tumors derived from embryonic mesenchymal elements of dental anlage such as dental papilla, follicle, or periodontal ligament.[1]

According to the World Health Organization, OM is classified as a benign tumor of ectomesenchymal origin with or without odontogenic epithelium. It is a locally invasive benign neoplasm, which does not show metastasis. It comprises 3%–6% of all tumors of odontogenic origin. OM usually occurs during the second and third decades of life. Females have a slight predilection over males (with a male-to-female ratio of 1:1.5). The mandibular sites are most often affected than maxilla and in mandible molar and ramus region are commonly involved, whereas in the case of maxilla, the most affected areas are premolar and first molar region.[2]

Depending on the pattern of differentiation of mesenchymal cells, the histological nature of the tumor varies. If myxomatous element predominates, then it is called odontogenic fibromyxoma, and if fibrous tissue predominates then odontogenic myxofibroma.[3]

Case Report

A 16-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with a mass on the right upper back tooth region and mild pain during chewing food since 3–4 months. Swelling increased gradually for 3 months. Patient gave history of mild pain, which was intermittent in nature, aggravated during mastication. He had a history of occasional bleeding from the site of interest during brushing. The patient's medical and dental history was noncontributory. The patient was moderately built and well nourished. Solitary right submandibular lymph node of 3 cm × 2 cm in size was palpable and was slightly tender.

On clinical examination, a well-defined growth was noted in the right maxillary alveolar region, extending from distal aspect of 14–16 region with buccopalatal expansion

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FACING SHEETS OF PUBLICATIONS

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INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

"EVALUATE THE LINEAR RELATION BETWEEN ANTEROSUPERIOR MOST POINT ON THE LINGUAL FRENUM AND MANDIBULAR INTERCANINE LINE – AN EX-VIVO STUDY"

Prosthodontics

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Dr. Naveen B.H	Professor and head, Department of Prosthodontics, Sri Siddhartha Dental college, Agalakote, Tumkur- 572107, Karnataka, India.
Dr. Sridharan	Senior lecturer, Department of Prosthodontics, CSI college of dental science and research, 129 eastveli st, Madurai 62500.
Dr. Kashinath K.R	Professor, Department of Prosthodontics, Sri Siddhartha Dental college, Agalakote, Tumkur- 572107, Karnataka, India.
Dr. Litto manual	Professor and head, Department of Prosthodontics, Al Azhar dental college, Thodupuzha, Idukki – 685605, Kerala, India.
Dr. Raghavendra prasad	Reader, Department of Prosthodontics, Sri Siddhartha Dental college, Agalakote, Tumkur- 572107, Karnataka, India.

ABSTRACT

AIM: To evaluate the linear relationship between lingual frenum to the cusp tip of mandibular intercanine line.

METHODOLOGY:

A total of 188 subjects of age between 18 to 25 years were selected randomly from the outpatient department as well as dental and medical undergraduates including 83 males and 105 females. One mandibular cast was prepared for each subject. Subjects were selected based on the inclusion and exclusion criteria. The linear distance between center point of the intercanine line and anterosuperior point on the lingual frenum was measured using travelling microscope

RESULT: On statistical analysis, it was found that there is a negative linear relation with Pearson correlation value as -0.049 that means the strength of association was medium.

CONCLUSION: Within the limits of this study, the fallowing conclusion was drawn:

The distance between the most anterosuperior point on the lingual frenum and the antero-posterior positioning of the mandibular canines can be used as a reliable landmark when the frenum was recorded during function. But, as this study had its own limitations further studies are recommended.

KEYWORDS

Linear Relation, Lingual Frenum, Mandibular Intercanine Line, Anterior Teeth Arrangement

INTRODUCTION:

Esthetics is a primary concern for patients seeking prosthodontic treatment. The restoration of natural and pleasing lip support is one of the prime requisites of an aesthetic denture. Researches states that to achieve a natural look, nature should be imitated by placing the artificial teeth in same position as occupied by the natural teeth.[1,2]

Knowledge of natural tooth position is a valuable starting point in establishing anterior tooth position for most of the complete denture patients.[3] Proper positioning of the anterior teeth is essential in determining the vertical dimension, aesthetics and phonetics and last but not least incisal guidance.[4] Some studies have shown that mandibular anterior teeth are displayed to a greater extent than the maxillary teeth in various facial expressions as person ages. But most literature related to positioning of artificial anterior teeth, emphasizes more on the position of maxillary teeth and little information is only available regarding positioning of mandibular anterior teeth.[4,5]

The incisive papilla is often used as an anatomic landmark in positioning of maxillary anterior central incisors, although shape of the papilla shows wide range of variation, the putative Centre of the papilla is commonly used as a point of reference. The horizontal relationship between the maxillary central incisors and position of incisive papilla is relatively constant.[6,7,8,9]

The anatomic landmark can be used for proper positioning of mandibular anterior teeth in their original position and to establish the level of lower occlusal plane in complete denture patients. The value aided in establishing the vertical dimension easier by making a pre-determined height of mandibular occlusal rim.[10]

In mandibular arch, lingual frenum seems to be a stable landmark which can be accurately recorded in function as proposed by Masjid Bissasu.[3,4]It is showed that mandibular anterior teeth are displayed to a greater extent than the maxillary anterior teeth in various facial expressions as a person ages.[5]

There are various studies conducted for evaluating the relation of lingual frenum and mandibular central incisor,[2,4,10,11] but none of the studies have been carried out to evaluate the relationship between lingual frenum and Positioning of the mandibular canine.

Hence, the purpose of this study is to evaluating the relationship between lingual frenum to the cusp tip of mandibular intercanine line.

METHODOLOGY:

An Ex-vivo descriptive study was carried out in the Department of Prosthodontics including Crown and Bridge, Sri Siddhartha Dental College, Tumkur, "To evaluate the linear relationship between anterosuperior most point on the lingual frenum to the cusp tip of mandibular intercanine line".

Prior to starting of the study the research proposal was put forward to ethical committee of the institution and approval was obtained.

A total of 188 subjects of age between 18 to 25 years were selected randomly from the outpatient department as well as dental and medical undergraduates including 83 males and 105 females. One mandibular cast was prepared for each subject. Subjects were selected based on the following inclusion and exclusion criteria.

INCLUSION CRITERIA:

1) Class I dental relationship
2) Minimum or no incisal wear of the teeth
3) 18-25 years of age
4) Good oral hygiene
5) Completely erupted dentition, excluding 3rd molars
6) Canine should be upright in position
7) All anterior teeth should have contact point and orderly erupted
8) All six teeth, canine to canine must be present

EXCLUSION CRITERIA:

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8) All six teeth, canine to canine must be present

EXCLUSION CRITERIA:

Original Article

A Comparative Evaluation of Abrasion Resistance of Three Commercially Available Type IV Dental Stone, Dried using Three Different Drying Techniques - An *In vitro* Study

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ABSTRACT

Background: The microwave technique of drying dental stone to achieve improved hardness and strength has been suggested in recent years. However, its effect on the wear properties of dental stone has not been thoroughly examined. **Aim:** The present study was conducted *in vitro* to determine the abrasion resistance of three commercially available Type IV dental stones using three different drying techniques. **Materials and Methods:** A total of 180 samples were prepared from 3 Type IV dental stones; namely Eliterock, Zhermack (Italy), Kalrock, Kalabhai industries (India), and Gyprock (Rajkot, India). Samples were subjected to drying in open air for 2 h, hot air oven at a temp of 230°C for 1 h and microwave oven for 5 min at 900Watts. Abrasion resistance was determined using a customized metallic abrasion resistance tester. **Results:** Microwave oven drying produced samples with increased abrasion resistance values when compared to samples dried in hot air oven and air-dried specimens. Eliterock showed significantly higher mean abrasion resistance values followed by Kalrock and Gyprock. **Conclusion:** Drying type IV dental stone in a microwave oven at 900W for 5 min increased the abrasion resistance within short time.

KEYWORDS: *Abrasion resistance, drying dental stone, microwave drying, type IV dental stone*

INTRODUCTION

Gypsum materials are commonly used as die material as they are easier to use, cost-effective, have the appropriate setting expansion, compatible with the majority of impression materials and familiarity.[1] Type IV and Type V dental stones are used routinely for the fabrication of definitive casts that are used in the fabrication of inlays, crowns, and bridges.[2] During the carving of the wax pattern, there are chances of accidental wearing of the gypsum die. A die material is considered ideal if they possess properties of superior abrasion resistance and high strength.[3]

When Type IV dental stone is mixed according to manufacturer's instructions, a certain amount of un-reacted water is obtained at the end of the chemical reaction, which tends to weaken the stone product and

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Torque Comparison Between Two Passive Self-Ligating Brackets with Respect to Interbracket Wire Dimensions and Types: A Finite Element Analysis

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Balan K Thushar[1], Anirudh K Mathur[1], Rajasri Diddige[1], Shubhnita Verma[1] and Prasad Chitra[1]

Abstract

Objective: This study aimed to analyze the expression of torque between 2 passive self-ligating brackets by simulating different clinical situations using finite element analysis.

Material and Methods: Two passive self-ligating brackets, that is, Damon Q (Ormco, Glendora, California) and Smart Clip (3M Unitek, Monrovia, California), were 3D modeled using micro-computed tomography. ANSYS V14.5 software was used for analysis. Archwire and bracket interactions were simulated to measure torque expression by changing wire alloys (stainless steel [SS] and titanium molybdenum [TMA]) and interbracket dimensions.

Results: Damon Q brackets generated higher torque values compared to Smart Clip brackets with both SS and TMA wires. Damon Q brackets generated the highest torquing moment of 25.72 Nmm and 7.45 Nmm, while Smart Clip brackets generated 22.25 Nmm and 7.31 Nmm with 0.019 × 0.025″ SS and TMA wires, respectively, at an interbracket distance of 12 mm. Torquing moments decreased for Damon Q and Smart Clip brackets when wire length increased from 12 mm to 16 mm.

Conclusion: Damon Q with 0.019 × 0.025″wires exhibited superior torquing characteristics as compared to Smart Clip brackets with similar archwires.

Keywords

Finite element analysis (FEM), self-ligation, Damon Q, Smart Clip, torque expression

Introduction

Tooth movement and torque are the basic foundation of orthodontic-induced treatment.[1] Rauch defined torque as a moment generated by rectangular wire torsion in a bracket slot.[2] Correct maxillary anterior teeth labiolingual inclination is required for optimal orthodontic treatment outcomes, good smile esthetics, proper anterior guidance, and Class I anterior and posterior occlusion. Under-torqued maxillary incisors can result in arch length and space discrepancies.[3] The amount of torque expression depends upon the play between bracket slots and archwire, tooth morphology, archwire dimensions, ligation modes, stiffness of archwire alloys, bracket deformation, magnitude of wire torsion, and bracket design.[4-6]

Clinically, an additional factor that affects the torquing moment is interbracket distance which depends on both crown and bracket widths.[6] In 1987, Meyer and Nelson et al[7] mentioned that torquing moments also depended on vertical positioning of brackets on teeth wherein a 3 mm shift could result in a torque angle change up to 15 degrees. However, in 1997, Miethke et al found torque variation of 10 to 15 degrees with vertical discrepancy of 1 mm during placement of

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Original Article

Analysis of Geometric Proportions on Maxillary Anterior Teeth for Esthetic Smile Design: An *In vivo* Study

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ABSTRACT

Background and Objectives: The maxillary central incisor is the dominant element of anterior dental composition and hence should be restored or replaced with proper proportion of width and length for better aesthetic results. However, the literature is not clear regarding verifiable guidelines for the determination of proportions of the teeth. The aim of this study was to investigate the existence and suitability of Golden Rectangle, Recurring Aesthetic Dental Proportion, and Golden percentage between the widths of maxillary anterior teeth in individuals with natural dentition, with the aid of digital photographs and computer analysis. **Material and Methods:** Frontal full-face digital photographs of the subjects (in smile) were made under standardized conditions using a digital camera and a tripod stand was used to place and orient the camera in the standardized position (camera was positioned 1 meter away from the patient; and the lens of the camera was adjusted at the patients' lip level). Imaging software (Adobe Photoshop CS5; Adobe Systems, Inc, San Jose, Calif.) was used to mark the anatomic landmarks and to digitally analyze the photograph. The entire process of proportion analysis was done by a single observer. **Results:** The RED proportion was not found to exist between the six maxillary anterior teeth. The values suggested in the golden percentage were not applicable on the subjects of this study. However, a slight modification of these percentages can be adopted taking into consideration the ethnicity differences of the subjects in this study. The values obtained were 24%, 15%, 11% in males and 23%, 15%, and 11% in females. Golden rectangle concept can be used for choosing dimensions of maxillary central incisors which are esthetically pleasing. **Conclusion:** RED proportion is an unsuitable methods to relate the successive widths of the maxillary anterior teeth. The golden percentage theory seems to be applicable to relate the successive widths of the maxillary anterior teeth if percentages are adjusted taking into consideration the ethnicity of the population. Golden rectangle concept is suitable for choosing dimensions of maxillary central incisors which are esthetically pleasing.

KEYWORDS: *Analysis, esthetic smile, geometric proportions, maxillary anterior teeth*

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INTRODUCTION

Smile, which shows a range of emotions with the structure and movement of the teeth and lips, is used to determine how well a person performs in society.[1] Creating geometric or mathematical proportion to relate the successive width of anterior teeth has become one of the important aspects of esthetic dentistry. Golden proportion, golden percentage and recurring esthetic dental (RED)

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ORIGINAL ARTICLE

The Psychological Impact of COVID-19 Epidemic on Faculty Members, Postgraduate Students, Interns and Undergraduates of a Dental College in Kerala, India

Albert Baby[1], Josey Mathew[2], Liza George[3], Swetha Riya Oommen[4], Aleesha Joy[5], Saumya G Nair[6]

Abstract

Introduction: The novel coronavirus disease-2019 (COVID-19) has spread rapidly all over the world. This large-scale infectious public health event has imposed enormous pressure on Governments, medical and healthcare providers, and the general public. There have been reports on the psychological impact of the COVID-19 pandemic on the general public, patients, medical staff, children, and older adults. However, no detailed study on the mental health status of Dental College teaching faculty, postgraduate students, interns, and undergraduates in Kerala, India, has been undertaken.

Aim: This study assessed the anxiety level of faculty members, postgraduates, interns, and undergraduates during an epidemic and explored factors influencing their anxiety, and also compared the anxiety level between faculty members, postgraduates, interns, and undergraduates.

Materials and methods: Assessment of the mental health of the participants during the COVID-19 outbreak was done by using structured questionnaire, and the participants also responded to a 7-item Generalized Anxiety Disorder Scale (GAD-7). Data analysis was done with SPSS Version 21.0, and the Statistical test used was the Chi-square test.

Results: We found that faculty members experienced a high level of moderate anxiety compared with other participants, which was statistically significant ($p < 0.05$). Participants who had children had moderate anxiety which was statistically significant compared to participants with no children. Most (64.1%) of the participants are worried about the current COVID situation. More than 90% of the participants feel that the dental training will be compromised.

Conclusion: The COVID-19 scenario has caused mental and emotional stress among the dental professionals as is with any other field of health. The mental health of dental professionals in colleges is significantly affected when faced with public health emergencies, and they require the attention, help, and support of the society, families, and colleges. It is suggested that the government and colleges should collaborate to resolve this problem in order to provide high-quality, timely crisis-oriented psychological services to the vulnerable candidates.

Keywords: Anxiety, Coronavirus disease, Dental professionals, Generalized anxiety disorder scale.

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Introduction

The novel COVID-19 has disseminated rapidly all over the world. World Health Organization official estimates around 185,291,530 confirmed cases of COVID-19, and a death toll of 4,010,834 as of 5:29 pm CEST, 9 July 2021. In India, there are 30,752,950 confirmed cases with 405,939 deaths as of 5:29 pm CEST, 9 July 2021.

This scenario has led to the situation where enormous pressure is being imposed on governments, medical and healthcare providers, and the general public. As this epidemic bought the risk of death from viral infections among common people as well as healthcare providers, people around the world are exposed to unbearable psychological pressure also. The continuous spread of the epidemic, strict and severe isolation measures, and college closure are expected to influence the mental health of college students.[1]

As far as COVID-19 infection possibility is considered, the profession that has been rated the most dangerous is dentistry.[2] In addition to this, many Dental College faculty members, as well as postgraduate students, are young parents who often have young children and aged parents, increasing their stress. Suspension of regular classes, the pressure of online classes, stressful work environment, and uncertainties regarding examinations and course schedule, absence of social gathering opportunities, etc., intensifies their stress manifold.[3]

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Various reports have been made on the psychological impact of COVID-19 epidemic on the general public, patients, medical staff, children as well as older adults. However, no detailed study on the mental health status of Dental College teaching faculty, postgraduate students, interns, and undergraduates in Kerala, India, has been undertaken.[4]

In the present study, the psychological impact of the COVID-19 pandemic was assessed using the GAD-7.[5]

Methods of guiding students as well as faculty members to effectively regulate their emotions during public health

Original Article

Differentiation Between Benign and Metastatic Cervical Lymph Nodes Using Ultrasound

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ABSTRACT

Purpose: The oral cavity is the most common site for squamous cell carcinoma, which has a distinct predilection for lymphatic spread before distant systemic metastasis. The cervical lymph node status is a very important consideration in the assessment of squamous cell carcinoma. Ultrasound is a noninvasive and inexpensive technique that can be used to differentiate between the benign and metastatic nodes. So the aim of this study was to evaluate reliability of ultrasound for such differentiation and to correlate them with histopathological finding. **Materials and Methods:** A total of 200 lymph nodes from 38 patients histopathologically proven for oral squamous cell carcinoma who underwent surgical neck dissection were considered. The patients underwent ultrasound examination of cervical lymph nodes prior to surgical neck dissection. The lymph nodes were differentiated into benign and metastatic based on the assessment of size, shape, shortest diameter/longest diameter (S/L ratio), margin, and internal architecture, and also the internal echo structure of the lymph nodes and histopathological findings were analyzed. **Results:** On correlation of ultrasonographic diagnosis with histopathological evaluation for metastatic lymph nodes, the overall accuracy of ultrasonographic analyses was 77.83%, and the sonographic criterion of irregular margin showed the highest predictability followed by the size. The correlation of internal echo structure with histopathological findings was highly variable. **Conclusion:** The ultrasound parameters such as size, shape, margin, S/L ratio, and internal echo structure might assist in differentiation between benign and metastatic lymph nodes. Combining these findings should raise the accuracy, as each sonographic parameter has some limitation as a sole criterion.

KEYWORDS: *Histopathology, lymph nodes, oral cancer, ultrasonography*

INTRODUCTION

Oral cancer has a great potential for metastasis to cervical lymph nodes. The status of cervical lymph nodes is the single most important prognostic factor in head and neck cancer. The number of metastatic lymph nodes was found to be an important factor in determining the disease-free interval and overall survival rates. The preoperative assessment of the cervical lymph node status helps in planning suitable surgical management of the neck, wherein the justification to operate the neck is being questioned more often than not, owing to the fact that only about 30% of clinically negative necks are histopathologically positive once operated.

Several radiologic investigative techniques have proven their role in detecting lymph node spread in oral cancer. Modern radiologic imaging has provided the means to maximize the information available to clinicians during treatment planning process.

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Original Article

Clinico-Histological Evaluation of Dentino-Pulpal Complex of Direct Pulp Capping Agents: A Clinical Study

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ABSTRACT

Introduction: Direct pulp capping treatment (DPC) maintains pulp vitality by promoting healing or repair in dentistry, which can be attributed to the advent of bioceramic materials. **Aim:** This examination looked to evaluate the clinical and histological effectuality of Biodentine with Dycal for DPC. **Materials and Methodology:** In this study, 30 intact human orthodontic teeth undergoing therapeutic extraction were chosen to perform DPC. They were arbitrarily divided into two groups (n = 15) and DPC with Biodentine and Dycal was performed. Composite resin was used as permanent restoration. After a period of 1 and 6 weeks, clinical as well as electric pulp tests were carried out. Asymptomatic patients were re-called after 6 weeks; follow-up radiograph was taken. Electric pulp testing and thermal testing was done to check the pulpal status of the teeth. This was followed by atraumatic extraction, and the teeth were sent for histological examination. SPSS Version 21.0. Armonk, NY: IBM Corp.was used for data analysis. **Results:** There was no pain and sensitivity in using Biodentine. Whereas, sensitivity and pain was noted when Dycal was used. The dentinal bridge was better with Biodentine when compared with Dycal. **Conclusion:** In accordance with the obtained results, it was concluded that on clinical and histological evaluation, Biodentine performed better as DPC agent. Subsequently, Biodentine is more dependable for the long-haul protection of dental pulp than Dycal.

KEYWORDS: *Biodentine, direct pulp capping agent, dycal*

INTRODUCTION

Direct pulp capping (DPC) is that management modality that retains pulp vitality by facilitating healing which may be credited to bioceramic materials. In DPC Ca(OH)$_2$ are well-known materials as they have the capability to liberate calcium and hydroxyl ions on disintegration. Lamentably, there is the formation of a necrotic layer at the interface of material and the pulp as these products are soluble and raise the pH.[1,2] Dycal

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Hima Raj[1]
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Langerhans Cells –The Antigen Presenting Dendritic Cells

ABSTRACT

Dendritic cells are a heterogeneous population of antigen-presenting cells that are widely distributed in lymphoid and non-lymphoid tissues. Langerhans cells were first discovered by Paul Langerhans. Langerhans Cells are "sentinels" of the mucosa, they alert the immune system to the entry of foreign pathogens and subsequent induction of T-cell mediated immune response.

KEYWORDS: Dendritic cells, Langerhans cells

Introduction

Dendritic cells (DCs) were first described by Ralph Steinman and Zanvil Cohn in 1973 as a population of striking dendritic-shaped cells in the spleen.[1] DCs are a heterogeneous population of antigen-presenting cells (APCs) that are widely distributed in lymphoid and non-lymphoid tissues in the steady state.[1,2] They are powerful arbitrators of immunity, in response to antigens of microbial or tumor origin, & tolerance to self-antigens and commensal microbes. DCs subsets are developmentally autonomous or share a common ancestry and then differentiate in response to different environmental stimuli.[3]

Classification of DCs [4,5]

On the basis of anatomical localization:

- DCs and DC precursor cells (1% of peripheral blood mononuclear cells)
- In the non-lymphoid tissues
  - Skin epidermal LCs
  - Dermal dendritic cells
  - Interstitial dendritic cells
- Mucosal surface associated DCs (In mucosa of the oral cavity, intestinal tract, and respiratory tract)
- In lymphoid tissues
  - Germinal centre dendritic cells
  - Follicular dendritic cells
- Afferent lymphatic DC (Veiled cells)
- Thymic dendritic cells

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Comparative analysis of bone remodelling markers In anterior and posterior segment after micro-osteoperforation- A GCF study

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ABSTRACT

OBJECTIVES– The objectives of this study is to evaluate the difference in level of bone remodeling markers in GCF of anterior and posterior segments after micro-osteoperforations.

MATERIALSANDMETHOD- GCF samples of 15 patients undergoing micro-osteoperforations as a part of ongoing orthodontic treatment was used, samples were collected from the buccal crevices of canine and second premolar on 14th day after micro-osteoperforation, Samples for baseline was collected before micro-osteoperforation from the contra lateral side, Micro osteoperforation was performed using a mini implant of length 6mm on one side of the arch. For collection of gingival crevicular fluid, Perio paper was held within the gingival sulcus 1 mm below the gingival margin for 30 seconds. The strips with the collected sample were transferred to the phosphate buffer saline and the samples were stored at -70^{0}C

RESULTS- There is statistically significant relation between the levels of alkaline phosphatase in both anterior and posterior segments after micro-osteoperforation (p value <0.002) whereas there was significant co-relation only on the anterior segment when acid phosphatase was evaluated(p <0.001) and in the posterior segment there was no statistically significant value was obtained.

CONCLUSION- After micro-osteoperforation, there was significant increase in the level of acid phosphatase noticed in the anterior segment whereas there was significant increase in the level of alkaline phosphatase noticed in both the anterior and posterior segment. The results obtained showed that there is increased remodeling occurring in the anterior segment than the posterior segment

KEYWORDS: GCF, MOP, ACP, ALP

Introduction

)rthodontic treatment is usually considered boon to the patient, however one of the drawback erceived by many is the prolonged treatment time, leading patients especially adults to seek out ther less than optimal treatment options like veneers, crowns and bridges[1].Therefore, methods at decrease the treatment duration without compromising the outcome is the need of the hour. o accelerate the tooth movement local and systemic pharmaceutical administration, physical and echanical stimulation have been utilised.[2]The practicality of these methods on daily clinical actice,their side effects and validation of results are awaited.[3]

ıe osteoclast activity controls the bone resorption rate which in turn controls the rate of tooth ovement[4-5].So factors affecting osteolclastic activity would in turn affect the rate of tooth ovement. However, a simple non-invasive method is required for achieving these possibilities. recent times,a few components of gingival crevicular fluid (GCF) have been shown to be gnostic biomarkers of active tissue destruction in periodontal disease which might also serve diagnostic markers of biologic responses in orthodontic tooth movement[6]. rious studies suggested that the mechanical stimulants like orthodontic tooth movement may uce some subsequent inflammatory responses in periodontal tissue.[7] The cells can release ugh amounts of chemical mediators into GCF, therefore the amount of these substances may ease during orthodontic tooth movement in GCF [8]

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Comparative evaluation of the skeletal effects of Advansync2 and Advansync2 used with Miniscrew anchorage

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ABSTRACT

Objectives: To assess and compare the skeletal effects of the fixedfunctional appliance AdvanSync2, when used alone & when used along with miniscrews.
Methods: Pre-treatment and Post-functional treatment lateral cephalograms of 30 patients with skeletal Class II division 1 malocclusion, who had undergone treatment using AdvanSync2 appliance were assigned into 2groups. Group I was with advansync2 without miniscrew and Group II was with advansync2 with miniscrew placed between mandibular premolar & canine 1 week before Advansync2 activation in both groups lateral cephalograms taken at the beginning and at the end of post functional treatment were analyzed by using few parameters from modified Pancherz analysis.
Result: Mandibular growth and improvement in the sagittal skeletal relationship werestatistically significant in both groups. An increase in lower anterior facial height was there in both groups.
Conclusion: The present study concluded that both groups were effective in correcting the Class II malocclusion due to mandibular retrognathism. AdvanSync2 is the best option for correcting Class II malocclusion in patients at the extreme end of growing period.

Keywords: AdvanSync2, miniscrew, Fixed functional appliance, Skeletal changes

Introduction

Class II malocclusion occurs in about one third of the population, thus one of the most common malocclusion[1,2,3] The malocclusion can have familial tendency or due to environmental factors or the combination of both and in order to treat them a clinician must recognize them at an early age.
Class II malocclusions can be treated by growth modification, camouflage treatment or surgical correction. Treatment strategy are classified mainly based on whether the patient is growing or non growing. There are many studies in literature proving that mandibular retrognathia[4] is the main cause of Class II malocclusion. A treatment that would enhance mandibular growth like functional appliances are indicated in such patients[5,6].
The ideal timing for fixed orthopaedic treatment for mandibular deficiency is after onset of pubertal growth spurt[7]. The orthopaedic phase and orthodontic treatment phase should be combined in one single treatment, as studies have demonstrated that very early treatment involving two separate phases of therapy does not provide any benefits[8,9,10,11] other than an improvement in self-esteem. During the period of active growth, myofunctionalappliances can be used as Class II correctors[12]. While during the deceleration stages of growth, fixed functional appliances are commonly being advised to the patient.[13]
The fixed functional appliances has been gaining immense popularity as "noncompliant class II correctors" Hence, the orthodontist would have a better control. Fixed Functional Appliance was first initiated into dentistry by Dr. Emil Herbstwith the Herbst appliance; which was later rediscovered by Parcherz.[14] Some of the fixed functional appliance shown in literature are Japer Jumper, MARS (Mandibular Advancing Repositioning Splint), Ritto appliance, Mandibular protraction appliance, Functional orthopedic magnetic appliance (FOMA), Rick-A-Nator Appliance, Churro Jumper, Eureka spring, developed Forsus Fatigue Resistant Device, PowerScope, etc.

Annals of African Medicine

ORIGINAL ARTICLE

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An *in vitro* evaluation of tensile bond strength of soft liners bonded to different denture base resins

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Abstract

Background: Clinically, adhesion failure is the most critical problem because of the failure of the optimal bond between denture base and the

In this article

Original Article

STRESS RELATED TO TRAUMATIC SCAR POST FACIAL INJURIES: AN ORIGINAL RESEARCH

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Abstract

Aim: Purpose of the present research was to assess the amount of stress and anxiety related to post facial injuries scarring in patients.

Methodology: PTSD was assessed one month postoperatively by the diagnostic instrument, IES-R, to arrive at a provisional diagnosis. A structured clinician-administered PTSD Scale then assessed the patients for the Diagnostic and Statistical Manual of Mental Disorders-5th edition (CAPS-5) to establish a final diagnosis. The assessment of the severity of PTSD was done based on various types of oral and maxillofacial injuries

Results: The IES-R scale provisionally diagnosed 54 subjects with PTSD, out of which 42 were diagnosed to have PTSD by the CAPS-5 scale. Subjects with injuries involving the 'orbital complex,' those presenting with a perceptible scar in the maxillofacial region and with multiple avulsed/ luxated anterior teeth, showed a higher affinity to develop PTSD, and this was statistically significant.

Conclusion: Higher levels of PTSD in patients with injuries to the maxillofacial region warrants correct diagnosis and detection, and hence the maxillofacial surgeon plays a vital role in this regard.

Keywords: Maxillofacial Injuries; Stress Disorders, Post-Traumatic.

INTRODUCTION

The face is often the seat of recognition for a human being and living with a change in the appearance of one's face as a result of injury, disease, burns or trauma is always a challenging task. Various medical, personal, social and psychological variables influence the process of adaptation and it is often difficult predict the course of

(15)

Original Article

Effect of Dental Anxiety on Oral Health among the First-Time Dental Visitors: A Hospital-based Study

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ABSTRACT

Objective: The objective was to assess dental anxiety and to find its association with oral health status and oral health-related quality of life (OHRQoL) among 20–40-year-old patients visiting Vokkaligara Sangha Dental College and Hospital. **Materials and Methods:** A single-center, hospital-based cross-sectional study was done among first-time dental visitors in the Department of Oral Medicine and Radiology, Vokkaligara Sangha Dental College and Hospital over a period of 8 months (July 14–February 18). The sample size was determined to be 700. Participants in the age group of 20–40 years were selected based on inclusion and exclusion criteria. Data were collected using Corah's Modified Dental Anxiety Scale, Oral Health Impact Profile-14 (OHIP-14), and clinical examination was done using the WHO oral health assessment form and OHI-S. Data were analyzed using Chi-square test and *t*-test. The associations found through bivariate analysis were entered as predictor variables into linear and binomial logistic regression models with high dental anxiety as the outcome variable. **Results:** The results of the study suggested that 56% of the study participants were having dental anxiety. Local anesthetic injection (80%) and fear of tooth drilling (60%) were the most anxiety-provoking stimulus. Analysis of OHIP-14 suggested that respondents perceiving oral health as affecting their life quality (very often/fairly often) in the past year were observed for items such as tension, difficulty to relax, irritability, difficulty in doing usual jobs, and totally unable to function because of oral problems. Dental anxiety was significantly associated with gender (odds ratio [OR] = 1.32), education (OR = 1.43), occupation (OR = 2.07), poor oral hygiene status (OR = 3.15), presence of dental caries (OR = 2.67), bleeding on probing (OR = 1.57), presence of periodontal pockets (OR = 2.64), clinical attachment loss (OR = 1.63), and OHRQoL (OR = 1.76). Stepwise linear regression model of independent variables (<0.05 variables included) explained dental caries as highest predictor (39%), followed by debris (22%), calculus (38%), mean OHIS (27%), mean OHIP-14 (29%), deep pocket (14%), and the least predictor was shallow pocket (9%). **Conclusion:** Dental anxiety was associated with poor oral health status seeking further attention to modify patients' behavior regarding improvement in oral health status.

KEYWORDS: *Dental anxiety, hospital, oral health*

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INTRODUCTION

Anxiety is defined as an aversive emotional state anticipating a feared stimulus in future[1] with or without the presence of an immediate physical threat. Dental anxiety relates to the psychological

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Epidemiology of COVID-19 scenario in India

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Abstract

There was an outbreak of a new Coronavirus infection in Wuhan, Hubei Province, China in late December 2019, which caused acute respiratory syndrome of unknown etiology. The World Health Organization (WHO) named the viral causal agent as Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV2) or COVID-19, and declared this infection as a pandemic on the 11th of March, 2020. The first case of COVID-19 infection in India was reported on late January, 2020, and since then the numbers of confirmed cases have been increasing; thus the government had announced total lockdown of all activities. Most people infected with the COVID-19 virus experience mild to moderate respiratory illness, and recover without the need for special treatments. The elderly people and those with medical problems such as; cardiovascular disease, diabetes, chronic respiratory disease and cancer; are more likely to develop severe illness. Globally, corona virus cases rose to more than 500,000 for the first time on the 27th of October, 2020. Within two weeks and since 30th of October, 2020, COVID-19 cases had risen by almost 25 %, and about 400,000 daily cases were reported worldwide. The United States (US) was leading the global corona virus crisis with 8.9 million recorded infections and nearly 228,000 deaths worldwide. Asia had surpassed 10 million infections of the new corona virus on the 31 of October, 2020, and India reported an average of 48,000 cases daily with a total of 8 million cases. The aim of this review was to explore the epidemiological prevalence of COVID-19 in India along with age and gender stratified prevalence of this viral infection.

Keywords: COVID-19, Epidemiology, Prevalence, World, India

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Biosensors in the Field of Dentistry

PALLAVI [illegible] KUMAR, REKHA P SHENOY, PRAVEEN JODALLI, IMRAN PASHA, JUNAID BANTWAL

ABSTRACT

Biosensors are small, integrated, self-contained and self-analysing scientific devices that are used to identify and measure topics of interest. Biological detection components (e.g., enzymes, antibodies and nucleic acids) are closely related to transducers (e.g., optical, electrochemical, piezoelectric) that makes the concept of biodegradation more complex and quantitative. As a general rule, the strength of the output signal corresponds to a group of analysers. Finally, the results are created using applied gadgets and the programming framework that are involved. These provide an easier and advanced visualisation that can be handled even by a non expert. In simpler words biosensor can be termed as an 'easy-to-use' tool for diagnostic purposes, that are developed to help in the early diagnosis and treatment of disease. Early diagnosis is the key to successful treatment of many diseases. Biosensors utilise the unique properties of biological and physical materials to recognise a target molecule and effect transduction of an electronic signal. The key advantages of biosensors are fast responsiveness and high sensitivity. Also, the basic advantage for 'Point of Care' (POC) devices such as biosensors would include integration of nano materials, microfluidics, automatic samplers and transduction devices on a single chip. Biosensors are also being used as new analytical tools to study medicine related diagnostic aspects. This paper reviews the significance of biosensors for clinical diagnosis and therapeutic applications in the field of dentistry and its application during the COVID-19 pandemic era. It provides a comprehensive account of progress in biosensors for dental applications.

Keywords: Application, Biorecognition, Diagnostics, Microfluidics

INTRODUCTION

Scientists have developed new approaches in the field of chemical analysis that often involves a large selection of biological recognition systems using bioreceptors. Biosensors are now being used by research scientists and medical societies to test food and water toxins, manage human biologic processes, determine precise health diagnosis and in several other fields. Researchers and medical practitioners require safe and cost effective methods for conducting research, guaranteeing public safety and providing patients with personalised health options. Biosensors can be used to quickly implement one such approach. Biomedical diagnostic researches are becoming increasingly important in the modern medical professional field. Screening of infectious illness, early detection of pathologies, chronic disease therapy, health management and well-being tracking are some major applications of the sophisticated technology by biosensors. Advanced biosensor technology allows for the detection of disease and the monitoring of the body's reaction to treatment and medicines. In addition to various transduction methods, these bio recognition factors have aided in the rapidly evolving fields of bioanalysis and related technologies with the application of biosensors and biochips [1].

Definition of Biosensors

According to the IUPAC, a biosensor is a device that uses specific isolated enzymes mediated biochemical reactions to detect chemical compounds either by thermal, electrical or optical signals" [2].

History of Biosensors

Clark LC (1918-2005) who is also known as the father of the biosensor developed a large number of early biosensors in the mid 1960s using "enzyme electrodes" to estimate glucose concentration with an enzyme called Glucose Oxidase (GOD). The integrated multi-analyser sensor has progressed after achieving a single analytical sensor capable of conducting more comprehensive research, such as a device that detects glucose, lactate and potassium. Technological improvements were conducted in the manufacture of more powerful and small integrated biosensors to determine glucose, lactate and urea in microscopic samples of whole blood or plasma. Minimisation also allowed additional diagnostic tools in the form of biosensors such as detectors used in the process of chromatography or the detection of capillary form of electrophoresis. The rise of new generation of biosensors included a high-throughput capable small mustimeter analysis immunosensor gadget and 1000 uniquely speaking electrodes per square centimeter. These tools can detect analyses even within the ato mol range [3].

Components of the Biosensor

Biosensor consists of three basic components:

(i) A detector to detect the biomolecule and generate stimulus;

(ii) A transducer to convert the stimulus to output signal; and

(iii) A signal processing system to process the output and present it in an appropriate form [4].

WORKING PRINCIPLE OF BIOSENSORS

Biosensor is a bioanalytical device that consists of a biosensitive layer which is attached to the device framework that helps in the process of signal detection. The biosensitive layer works by stabilising the biological receptor component (catalyst, neutraliser, oligonucleotide, receptor protein, microorganism or whole cell) on the biosensor membrane. The desired biological material is usually in the form of an enzyme. By a process known as an electro-enzymatic approach which is a chemical process of converting the enzymes into corresponding electrical signals (usually current) with the help of a transducer. One of the commonly used biological responses is the oxidation of the enzyme. Oxidation acts as a catalyst and alters the pH of the biological material. The change in pH will directly affect the current carrying capacity of the enzyme, which is once again in direct relation to the enzyme being measured. Output of the transducer i.e., the current is a direct representation of the enzyme being measured [Table/Fig-1]. The current is generally converted into voltage so that it can be properly analysed and represented [5].

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Evidence based decision-making

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Abstract

Medical practitioners pioneered evidence-based decision-making in the early 1990s. Discipline comes from making decisions concerning individual patients care based on the most recent and best evidence available. Data-based medicine necessitates methodical study and the integration of individual clinical skills with the best available external clinical evidence based on the patient's unique values and circumstances. Depending on the data collection method, the evidence supplied a variety of strengths in this scenario. Evidence-based decision-making was then extended to the allied health industry. Three key data gathering tools now dominate public health and especially the crisis-affected population. It includes a) Assessment of Rapid Health b) Population based survey and c) Surveillance of Disease. Furthermore, the strength of the evidence supplied through these methods cannot be easily assessed using evidence-based medicine's grading criteria. Because of the various advantages of evidence in public health, such as strategic decision making, programme implementation, monitoring, and evaluation, this is not

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TREATMENT OF GRADE 2 FURCATION DEFECTS USING HEALIGUIDE GTR MEMBRANE AND OSSEOGRAFT DENTAL BONE GRAFT: A CLINICAL STUDY

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ABSTRACT

Successful management of periodontitis is considered to be dependent on early diagnosis, targeted antimicrobial therapy and modifying the tissue architecture that is conducive to long-term maintenance. Osseous defects present a challenge in periodontal practice and successful treatment depends primarily on selection of the correct technique and materials. This clinical study presents the cases treated with different techniques and with same materials. The periodontal furcation defect was filled up with Osseograft bone graft substitute and covered with a restorable collagen GTR membrane. The results in all the cases discussed here are satisfactory and have shown long-term stability emphasizing the importance of selection of technique and material. Use of Osseograft Dental Bone graft with bioresorbable collagen membrane showed significant improved outcomes in regeneration of Grade 2 furcation defects while treating a periodontitis patient.

KEYWORDS: Periodontal Osseous Defects, Guided Tissue Regeneration (GTR), Osseograft bone grafts, Healiguide Membrane.

INTRODUCTION

Periodontitis is an infectious disease of the gingival tissue, changes that occur in the bone are crucial because the destruction of the bone is responsible for tooth loss.[1] The purpose of periodontal therapy is to eliminate the inflammation of the periodontal tissues, to arrest the destruction of soft tissue and bone caused by periodontal disease, and regenerate the lost tissue, if possible.[2] Bone grafting is the most common form of regenerative therapy and has been used for almost 100 years in attempts to stimulate healing of bony defects.[3] The predictable complete periodontal regeneration remains a major goal in the planned therapy. Anton Sculean, in 2017 put forth clinical protocols, that have shown to enhance periodontal regeneration and clinical outcomes in periodontal intrabony and class II furcation defects, which includes: (a) Use of Enamel Matrix Proteins (b) Guided Tissue Regeneration (c) Use of bone grafts enriched with growth factors (Or) Combination therapy. Despite several procedures such as usage of guided tissue regeneration (GTR), grafting materials, growth factors and/or host modulating agents have been attempted, the outcomes are not always predictable.[4-10] However, to our knowledge, there are no available studies comparing the efficacy of using a Healiguide Type 1 collagen barrier alone or combined with Osseograft Bone bone graft in treating Grade 2 furcation defects of chronic periodontitis.

MATERIALS AND METHODS

Forty patients (with sixty defects) diagnosed with generalized chronic periodontitis having one or more Grade 2 furcation defects, were selected for this study from the OPD of private dental clinics in Ghaziabad, Trichy, Tirunelveli and Chennai – Uttar Pradesh and Tamilnadu (India). Inclusion criteria are Patients diagnosed as with a probing depth of ≥5 mm with a horizontal furcation component probing of more than 3mm, vertical furcation component probing of 3 to 6 mm and radiographic evidence of furcation bone loss, age group of 35-55 years.

Study design: After initial Phase I therapy baseline measurements included Plaque Index, Gingival index, Probing pocket depth, and Clinical attachment level (using a UNC-15 probe, Nabers probe with an occlusal

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Apert Syndrome: An Insight Into Dentofacial Features

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Abstract

Apert syndrome is a developmental malformation characterised by craniosynostosis (premature fusion of cranial sutures), midface hypoplasia, and syndactyly of hands and feet. Early synostosis of the coronal suture, cranial base, as well as agenesis of the sagittal suture, result in characteristic appearance and dental features like maxillary transverse and sagittal hypoplasia with concomitant dental crowding, a pseudo-cleft palate, and skeletal and dental anterior open bite. In this report, we discuss a case of Apert syndrome, with special emphasis on craniofacial characteristics, a multidisciplinary approach to its treatment, and the dentist's role in management.

Categories: Medical Education, Quality Improvement, Other
Keywords: aperts syndrome, craniosynostosis, syndactyly, dentofacial features, midface hypoplasia, pseudo cleft palate

Introduction

Apert syndrome is a rare congenital type I acrocephalosyndactyly syndrome affecting the first branchial arch. It is characterised by craniosynostosis, severe syndactyly of the hands and feet, symphalangism, and dysmorphic facial features [1]. The incidence of Apert syndrome is about 15 per 1,000,000 live births [2]. Although it was first reported by Wheaton [3] in 1894, French pediatrician Eugene Apert published a series of nine cases that exhibited a triad of craniosynostosis, syndactyly, and maxillary hypoplasia in 1906, and ever since then, his name has been associated with acrocephalosyndactyly [4].

Apert syndrome can be inherited in an autosomal dominant fashion; however, most cases are sporadic and associated with advanced paternal age [5]. Its etiology can also be attributed to two specific mutations of a gene located on chromosome 10q26, encoding fibroblast growth factor receptor 2 (FGFR2). More severe craniofacial anomalies are associated with S252W mutation occurring in 67% of patients and severe syndactyly with P253R mutation [6]. These mutations affect the region linking the immunoglobulin-like domains II and III of FGFR2 and result in increased affinity and altered specificity of ligand binding [7]. This in turn leads to deregulation of cell migration, proliferation, and differentiation and ultimately to premature osteogenesis and skeletal abnormalities that characterise the syndrome.

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The coronal synostosis and the sagittal and metopic suture agenesis coupled with early synostosis of the cranial base results in acrocephaly, brachycephaly, flat occiput and high prominent forehead, hypoplastic midface, and a vertically accentuated craniofacial complex [8]. Eyes exhibit downward-slanting palpebral fissures, hypertelorism, shallow orbit, proptosis, and exophthalmos. The nose has a marked flat nasal bridge. Additionally, the maxilla is hypoplastic and retro-positioned. The palate is high-arched and narrow due to poor aeration in maxillary antra [9]. There are bulbous lateral palatal swellings, which make the central furrow of the palate very prominent and difficult to cleanse. Pseudo-cleft palate along with an anteriorly tipped palatal plane is very common [10]. The maxillary arch is V-shaped and slants down posteriorly, resulting in an anterior open bite. Severe crowding of developing teeth within the alveolus, delayed eruption, impactions, thick gingiva, and, sometimes, supernumerary or congenitally missing teeth are seen [11]. In the mandible, these findings are less pronounced. Skull radiographic findings like copper-beaten/beaten-metal appearance are seen in craniosynostosis due to the prominence of convolutional marking. The lips are characterised by the crossbow shape of the upper lip or the trapezoidal shape of both lips.

Cervical spine fusion occurs in up to 71% of patients with Apert syndrome and most often involves the fifth and sixth vertebrae [12]. Individuals become mouth breathers of necessity due to reduced airway patency with resultant anterior open bite. Syndactyly involves partial or complete fusion of second, third, and fourth digits [13]. Intelligence varies from normal to subnormal. Papilledema, optic atrophy may be associated and hyperhidrosis is commonly seen. Cardiovascular manifestations like atrial septal defect (ASD), ventricular septal defect (VSD), patent ductus artery (PDA), and pulmonary stenosis may be present as well [14].

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Comparative Evaluation of Classical Inferior Alveolar Nerve Block and Gow-gates Nerve Block for Surgical Removal of Mandibular Third Molar: A Prospective Study

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FACING SHEETS OF PUBLICATIONS

ACADEMIC YEAR 2022-23

Original Article

Evaluation between Flowable Composite and Conventional Pit-and-Fissure Sealant among School Children in Bengaluru City: Randomized Controlled Trail

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Abstract

Introduction: Restorative dentistry has achieved remarkable developments in halting caries predominantly seen in pit and fissures. Flowable composite resin is predominantly used as pit-and-fissure sealants in recent years. The aim of our study was to compare the retentive properties of a flowable composite resin compared to a conventional sealant in 6–9 years school children over 18 months' period. **Materials and Methods:** The study was a randomized controlled trail and conducted over a period of 18 months. Forty participants were randomly selected for this study from the private school. Flowable composite resin was used to seal the mandibular 1st molars on one side and conventional resin sealant was used on the other side. **Results:** The differences in the retention status between the sealants after 12 and 18 months were found statistically significant with $P = 0.02$ and $P = 0.03$, respectively. When the retention status was compared within the materials at different intervals, it was found to be statistically significant ($P < 0.001$). **Conclusion:** Conventional resin-based sealants had better retention rate at 12 and 18 months' duration than the flowable composite resin.

Keywords: *Conventional resin sealant, flowable composite resin, retention status, school children*

Introduction

Recent years have witnessed exceptional developments in preventive dentistry coupled with a significant reduction of dental caries worldwide. Caries preventive strategies are largely depending on noninvasive techniques rather than invasive ones.[1] Most effective method of caries prevention is the application of pit-and-fissure sealants along with periodic fluoride application, adequate diet and good oral hygiene.[2]

Occlusal morphology of young permanent molars and premolars, inherent anatomical aberrations including deep and narrow fissures make young permanent susceptible to caries.

Pit-and-fissure sealants get adhered to tooth structure effectively and seal the morphological irregularities completely. Adherence and retention to tooth structure are very critical in preventing microleakage and caries.[3,4]

Sealants are economical and affordable preventive treatments when compared to other therapeutic treatments done before the caries progresses. Retention of the sealant is a determining factor for effective prevention of inception of any new caries lesion and its progression.[5] Longevity depends on strict isolation, acid etching, micropore formation, flow of the material, and skill of the operator.

The three most commonly used materials as sealants are glass ionomer cements, compomers, and resins. Glass ionomer cements have the advantage of releasing active F− in the surrounding enamel and make them less susceptible to caries. Resin-based sealants provide mechanical barrier to the nutrients for microorganism and inhibit their growth. Compomers have the advantages of both glass ionomer cements and resins.[3] The most susceptible periods for young permanent teeth is 2-year posteruptive maturation period and this critical period has to be seized by prompt placement of pit-and-fissure sealants. The aim of this clinical study was to evaluate

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"FLEXURAL STRENGTH AND COMPRESSIVE STRENGTH OF CONVENTIONAL GLASS IONOMER LUTING CEMENT AND RESIN MODIFIED GLASS IONOMER LUTING CEMENT AFTER INCORPORATION OF CHLORHEXIDINE."

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Abstract:

Introduction: *Glass ionomer luting cements (GIC) and Resin modified glass ionomer luting cements (RMGIC) are used to attach and seal fixed dental prostheses to teeth. Despite of their anticariogenic properties, there is still existence of caries. Studies have shown incorporation of chlorhexidine (CHX) can increase its antimicrobial action without affecting their physical properties.*

Objectives of the study: *The objective was to evaluate the effect of incorporation of CHX on flexural and compressive strength of conventional GIC and RMGIC. To compare the strength of both the cements on incorporation of CHX.*

Methodology: *Forty bar shaped specimens and cylindrical specimens of both the cements were prepared for flexural strength and compressive strength testing using stainless steel mold. CHX powder was incorporated into experimental groups of both luting cements in a concentration of 1%. Specimens were stored in artificial saliva for 24 hours. Flexural strength and compressive strength of the specimens was determined using universal testing machine. Morphological evaluations for fractured surfaces were done using scanning electron microscopy. The data was statistically analyzed using independent sample t-test.*

Result: *The results of the study showed that, addition of 1% CHX decreased compressive and flexural strength of both conventional GIC and RMGIC. On addition of CHX RMGIC showed better compressive and flexural strength compared to conventional GIC.*

Conclusions: *The Chlorhexidine (CHX) amount should be kept below 1% for both the cements to sustain their strength.*

Key words: *Glass Ionomer Luting Cement; Resin Modified Glass Ionomer Luting Cement; Chlorhexidine, Compressive Strength; Flexural Strength.*

Review Article

Effect of Periodontal Therapy on Endothelial Dysfunction – A Systematic Review

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Abstract

Background: Endothelial dysfunction is considered a common precursor to and occurs before cardiovascular events. Therefore, endothelial dysfunction is the first step in atherosclerosis growth that leads to cardiovascular disease CVD. Patients with periodontitis are ideal models for determining how endothelium-dependent vasodilation is affected by inflammation. **Objective:** The objective is to determine the effect of periodontal therapy on endothelial dysfunction. **Methodology:** This review was conducted as per the Preferred Reporting Items for Systematic reviews and Meta-Analysis and JBI guidelines. A total of twelve randomized clinical trials published over a period of the past 14 years were included in the review (200420018). **Results:** There were 813 patients in the research, which lasted between 2 and 6 months and looked at the effects of periodontal therapy on endothelial dysfunction. The common interventions given for the intervention group in all of the studies were supra or subgingival scaling and root planing with some studies providing antibiotic medications such as amoxicillin and minocycline as an adjuvant for periodontal therapy. All included studies reported a high level of evidence (LOE) of 1c. **Conclusion:** This study focused on periodontal therapy and its effect on endothelial dysfunction precisely and compared the levels of endothelial function before and after intervention, however, the studies included in this review did not do matching between cases and controls on endothelial function levels. This review revealed that more multi-centric randomized control trials are required in this area of research with proper randomization and adequate sample size and proper matching done between cases and controls.

Keywords: Cardiovascular disease, endothelial dysfunction, periodontal therapy

Introduction

Cardiovascular diseases (CVDs) are a major cause of morbidity and mortality worldwide. It is proved with evidence gathered by several observational and clinical trials that bacteremia-induced destruction of supporting structures of the tooth such as periodontium and alveolar bone results in the initiation and progression of periodontitis.[1-3] Periodontitis is related to CVD s and a risk factor for CVDs which is proved by various observational and clinical trials. It is also found that patients with CVD commonly suffer from chronic periodontitis.[4-6]

Periodontitis is a chronic oral inflammatory disease which is initiated by the accumulation of a bacterial biofilm on the tooth surface and it is perpetuated by a local and systemic immune-inflammatory response (Pihlstrom BL, Michalowicz BS, Johnson NW).[7] Various forms of periodontitis are seen in most of the adult population. The disease is characterized by chronic and progressive bacterial infection of the gums leading to loss of soft tissue attachment to the teeth followed by alveolar bone destruction.

However, many confounding factors such as social status, smoking, ageing, hypercholesterolemia, diabetes mellitus, obesity, menstrual cycle, etc., may also affect the relationship between CVD and periodontitis. Periodontitis is responsible for a low-grade systemic bacteremia and inflammation causing atherosclerosis which starts off several biochemical reactions which causes atherosclerotic plaque formation and endothelial injury. Another mechanism by which periodontitis affects cyclic vomiting syndrome is due to the toxins released by

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Original Article

Effect of Dental Anxiety on Oral Health among the First-Time Dental Visitors: A Hospital-based Study

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ABSTRACT

Objective: The objective was to assess dental anxiety and to find its association with oral health status and oral health-related quality of life (OHRQoL) among 20–40-year-old patients visiting Vokkaligara Sangha Dental College and Hospital. **Materials and Methods:** A single-center, hospital-based cross-sectional study was done among first-time dental visitors in the Department of Oral Medicine and Radiology, Vokkaligara Sangha Dental College and Hospital over a period of 8 months (July 14–February 18). The sample size was determined to be 700. Participants in the age group of 20–40 years were selected based on inclusion and exclusion criteria. Data were collected using Corah's Modified Dental Anxiety Scale, Oral Health Impact Profile-14 (OHIP-14), and clinical examination was done using the WHO oral health assessment form and OHI-S. Data were analyzed using Chi-square test and *t*-test. The associations found through bivariate analysis were entered as predictor variables into linear and binomial logistic regression models with high dental anxiety as the outcome variable. **Results:** The results of the study suggested that 56% of the study participants were having dental anxiety. Local anesthetic injection (80%) and fear of tooth drilling (60%) were the most anxiety-provoking stimulus. Analysis of OHIP-14 suggested that respondents perceiving oral health as affecting their life quality (very often/fairly often) in the past year were observed for items such as tension, difficulty to relax, irritability, difficulty in doing usual jobs, and totally unable to function because of oral problems. Dental anxiety was significantly associated with gender (odds ratio [OR] = 1.32), education (OR = 1.43), occupation (OR = 2.07), poor oral hygiene status (OR = 3.15), presence of dental caries (OR = 2.67), bleeding on probing (OR = 1.57), presence of periodontal pockets (OR = 2.64), clinical attachment loss (OR = 1.63), and OHRQoL (OR = 1.76). Stepwise linear regression model of independent variables (<0.05 variables included) explained dental caries as highest predictor (39%), followed by debris (22%), calculus (38%), mean OHIS (27%), mean OHIP-14 (29%), deep pocket (14%), and the least predictor was shallow pocket (9%). **Conclusion:** Dental anxiety was associated with poor oral health status seeking further attention to modify patients' behavior regarding improvement in oral health status.

KEYWORDS: *Dental anxiety, hospital, oral health*

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INTRODUCTION

Anxiety is defined as an aversive emotional state anticipating a feared stimulus in future[1] with or without the presence of an immediate physical threat. Dental anxiety relates to the psychological

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Objective: Primary objective of this invitro study was to determine the effect of mandibular premolar pre and post access cavity preparation and shaping on pericervical dentin thickness [PCD] and the secondary objective was to compare the remaining PCD thickness among experimental groups shaped with different files based on varying cross sectional designs and principles.

Materials and Methods: Twenty seven permanent mandibular first premolar teeth with closed apices were used for the study. Preoperative CBCT scan of each sample was done. PCD thickness was measured at the level of CEJ, as an average of shortest distance from the canal outline to the closest adjacent root surface, measured on facial, lingual, mesial, and distal surfaces. Samples were divided into three groups of nine teeth each. Group 1: Traditional access cavity Group 2: Conservative access cavity Group 3: Ultra-conservative access cavity Each group was again be subdivided into three (three teeth per subgroup). Subgroup 1: K File (Dentsply Maillefer) Subgroup 2: ProTaper Gold (Dentsply Sirona) Subgroup 3: TruNatomy (Dentsply Sirona) Cleaning and shaping of pulp space were done for all the specimens in each group [Subgroup 1 - apical enlargement up to ISO K file size 25 and stepback up to ISO K file size 45, Subgroup 2 – up to ProTaper Gold F2, Subgroup 3 – up to TruNatomy PRIME]. For all groups 3% NaOCl, 17% EDTA and 0.9% Isotonic Saline solution were used as irrigants. Post instrumentation CBCT scans were made and PCD thickness was measured as mentioned.

Statistical Analysis: One-way ANOVA test.

Results: Different access cavity designs and instrumentation impact the remaining PCD thickness. Pericervical dentin was preserved more in ultra-conservative group using TruNatomy file system.

Conclusion: Different access cavity designs and instrumentation impact the remaining PCD thickness. In this study, pericervical dentin was preserved more in ultra-conservative group using TruNatomy file system.

Abstract 42

Crack formation in root dentin associated with four different rotary instrumentation systems: An *in vitro* study

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Objective: The objective of this study was to compare the incidence of crack formation on root dentin after shaping with four shaping files based on offset shape in cross section, thermal treatment, variable cross - section and slim NiTi wire design.

Materials and Methods: Forty freshly extracted permanent mandibular first premolar teeth were selected. Samples were divided into four groups (n = 10), Group 1 – One-curve (Micro-Mega) Group 2 – TruNatomy (Dentsply Sirona) Group 3 – ProTaper Gold (Dentsply Sirona) Group 4 –. ProTaper Next (Dentsply Sirona) Shaping of pulp space were done for all specimens in each group [Group 1 – with One-Curve, Group 2 -TruNatomy PRIME, Group 3 - up to ProTaper Gold F2, Group 4 – up to ProTaper Next X2] Roots were sectioned horizontally of length 4mm, from coronal, middle and apical third using diamond disc. All slices were then viewed under CBCT.

Statistical Analysis: Chi-square test.

Results: TruNatomy files inflicted less dentinal cracks, followed by one curve, ProTaper Next and ProTaper Gold. Crack formation were more in the apical third when compared to middle and coronal thirds.

Conclusion: All shaping files might inflict dentinal cracks. In this study, single file system induced less dentinal cracks in coronal, middle and apical third of the pulp space than multiple file system.

Abstract 43

Effect of different irrigation agitation techniques on postoperative pain in permanent anterior teeth with symptomatic irreversible pulpitis: A randomized controlled trial

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Aim: The randomized controlled trial compared the effect of Conventional needle irrigation (positive pressure irrigation) and EndoVac irrigation (true apical negative pressure irrigation) on the incidence of postoperative pain following biomechanical preparation in the permanent maxillary anterior teeth with symptomatic irreversible pulpitis.

Materials and Methods: Fifty patients of the age group 18-50 years, with symptomatic irreversible pulpitis were selected for the study. The subjects were randomly allocated to two groups, Group 1 (Conventional needle irrigation) and Group 2 (EndoVac irrigation) according to the final irrigation methods performed during root canal preparation. The preoperative pain was assessed prior to the procedure. In group 1, root canal irrigation was performed using a syringe and a 27-G open-ended needle (Dispovan). In group 2, the EndoVac system (Kerr Endodontics) was used for irrigation. Postoperatively, the patients were prescribed ibuprofen 200 mg to take every 8 hours if required. Pain levels were assessed by an analog scale questionnaire after 6, 12, 24, and 48 hours. The amount of ibuprofen taken within these intervals was recorded.

Results: The data were subjected to Mann-Whitney test and Chi-square test for intergroup analysis and Repeated Measures ANOVA for intragroup analysis. At 12-, 24-, and 48-hour time intervals, group 1 patients reported more intense postoperative pain than patients in group 2 ($p < .05$). There was no significant difference between the 2 groups at the first 6-hour time interval ($p > .05$), and in both groups the intensity of postoperative pain decreased over time. The number of analgesics taken was significantly higher in the conventional needle irrigation group ($p < .05$).

Conclusion: The use of the apical negative pressure irrigation system, EndoVac, resulted in significantly less postoperative pain and necessity for analgesic medication than a conventional needle irrigation protocol. From the results of this study, it was concluded

Original Article

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Original Article

Effect of Three Different Smear Layer Removal Agents on the Push-Out Bond Strength of an Endodontic Sealer: An *In Vitro* Study

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Abstract

Aim: The aim of this study was to evaluate the effect of smear layer removal agents 0.2% chitosan, 7% maleic acid, and 0.6% chitosan maleate on the push-out bond strength of AH Plus sealer to root dentin. **Materials and Methods:** Thirty single-rooted mandibular premolar teeth were decapitated and enlarged using Gates Glidden drills up to #3. Three slices with 2-mm thickness were obtained from the middle third of each root. After standardized irrigation using 5.25% sodium hypochlorite, the roots slices were randomly divided into three groups ($n = 10$) Group 1: 0.2% chitosan, Group 2: 7% maleic acid, and Group 3: 0.6% chitosan maleate. Final irrigation regimen was carried out and the root slices were, then, dried and AH plus sealer applied. Each root section was, then, subjected to a compressive load through a universal testing machine until sealer dislocation occurred. Bonded interface area was calculated. **Results:** The data were collected and statistically analyzed. **Conclusion:** Removal of smear layer with 0.6% chitosan maleate as a final rinse enhanced the adhesive ability of AH plus sealer, followed by 0.2% chitosan and 7% maleic acid. The new chelating solution 0.6% chitosan maleate gave highest push-out bond strength values when compared to 0.2% chitosan and 7% maleic acid.

Keywords: Chitosan, Maleic acid, Chitosan maleate, AH plus sealer, Smear layer removal, Bond strength.

Introduction

Successful endodontic therapy depends on chemomechanical preparation of the root canal system as well as three-dimensional obturation that provide complete sealing of the spaces previously occupied by the canal contents.[1]

Studies show that currently used methods of instrumentation, especially rotary instrumentation techniques, produce a smear layer that covers root canal walls and the openings to the dentinal tubules.

Smear layer can hinder the penetration of intracanal medicaments and sealers.[2] When the smear layer is removed from the root canal wall, endodontic sealers penetrate to the dentinal tubules and increase adhesion to the root canal dentin.[3]

Among the different endodontic irrigants which have been introduced over the decade, the alternate use of sodium hypochlorite (NaOCl) and ethylene diaminetetra acetic acid (EDTA) has been considered as the accepted protocol in irrigation.[4]

This conventional irrigation protocol has the following demerits: (a) NaOCl is associated with cytotoxicity, allergic reaction, unpleasant taste, and adverse effects on periradicular tissues; and (b) EDTA causes erosion, leading to decreased dentin micro hardness, as well as negatively influencing the bonding of sealer to dentin.[5,6] Due to such demerits, a safer and more effective alternative to this combination is desirable.

Maleic acid is a mild organic acid[7,8] with smear layer removal ability. It is biocompatible than EDTA and has antibacterial property.[9]

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Effect of Three Different Smear Layer Removal Agents on the Push-Out Bond Strength of an Endodontic Sealer: An *In Vitro* Study

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Abstract

Aim: The aim of this study was to evaluate the effect of smear layer removal agents 0.2% chitosan, 7% maleic acid, and 0.6% chitosan maleate on the push-out bond strength of AH Plus sealer to root dentin. **Materials and Methods:** Thirty single-rooted mandibular premolar teeth were decapitated and enlarged using Gates Glidden drills up to #3. Three slices with 2-mm thickness were obtained from the middle third of each root. After standardized irrigation using 5.25% sodium hypochlorite, the roots slices were randomly divided into three groups ($n = 10$) Group 1: 0.2% chitosan, Group 2: 7% maleic acid, and Group 3: 0.6% chitosan maleate. Final irrigation regimen was carried out and the root slices were, then, dried and AH plus sealer applied. Each root section was, then, subjected to a compressive load through a universal testing machine until sealer dislocation occurred. Bonded interface area was calculated. **Results:** The data were collected and statistically analyzed. **Conclusion:** Removal of smear layer with 0.6% chitosan maleate as a final rinse enhanced the adhesive ability of AH plus sealer, followed by 0.2% chitosan and 7% maleic acid. The new chelating solution 0.6% chitosan maleate gave highest push-out bond strength values when compared to 0.2% chitosan and 7% maleic acid.

Keywords: Chitosan, Maleic acid, Chitosan maleate, AH plus sealer, Smear layer removal, Bond strength.

Introduction

Successful endodontic therapy depends on chemomechanical preparation of the root canal system as well as three-dimensional obturation that provide complete sealing of the spaces previously occupied by the canal contents.[1]

Studies show that currently used methods of instrumentation, especially rotary instrumentation techniques, produce a smear layer that covers root canal walls and the openings to the dentinal tubules.

Smear layer can hinder the penetration of intracanal medicaments and sealers.[2] When the smear layer is removed from the root canal wall, endodontic sealers penetrate to the dentinal tubules and increase adhesion to the root canal dentin.[3]

Among the different endodontic irrigants which have been introduced over the decade, the alternate use of sodium hypochlorite (NaOCl) and ethylene diaminetetra acetic acid (EDTA) has been considered as the accepted protocol in irrigation.[4]

This conventional irrigation protocol has the following demerits: (a) NaOCl is associated with cytotoxicity, allergic reaction, unpleasant taste, and adverse effects on periradicular tissues; and (b) EDTA causes erosion, leading to decreased dentin micro hardness, as well as negatively influencing the bonding of sealer to dentin.[5,6] Due to such demerits, a safer and more effective alternative to this combination is desirable.

Maleic acid is a mild organic acid[7,8] with smear layer removal ability. It is biocompatible than EDTA and has antibacterial property.[9]

Chitosan is a natural polysaccharide[10] with excellent biocompatibility, no toxicity, high bioactivity, biodegradability,

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Original Article

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CASE REPORT

AESTHETIC REHABILITATION OF SPACING IN MAXILLARY ANTERIORS WITH INDIRECT CERAMIC VENEER- A CASE REPORT

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ABSTRACT

The introduction of esthetic dentistry has drastically changed the field of smile designs. Advancements in restorative techniques favors the implementation of functional and esthetical smiles. Various treatment options include esthetic space closure using composite resins, orthodontic space closure, or both. This case report discusses the management of spacing of maxillary anterior teeth using ceramic veneers.

Keywords: Aesthetic rehabilitation, Spacing, Veneer.

J Odontol Res 2022;10(2)29-32

Original Article

Comparative efficacy of three deproteinizing agents on the shear bond strength of pit and fissure sealant: An *in vitro* study

ABSTRACT

Objective: The objective of this study was to evaluate and compare the shear bond strength (SBS) of pit and fissure sealant with and without deproteinization with agents such as 5% NaOCl, papain gel, and bromelain gel.

Materials and Methods: In this *in vitro* study, 60 premolar teeth were divided into four groups of 15 teeth each. In control Group 1, enamel was etched for 60 s with 37% phosphoric acid and rinsed with water. In Group 2, deproteinizing agent 5% sodium hypochlorite was applied for 60 s before acid etching. In Group 3, deproteinizing agent papain gel was applied for 60 s before acid etching. In Group 4, deproteinizing agent bromelain gel was applied for 60 s before acid etching. Following this, Clinpro™ 3M™ ESPE™ pit and fissure sealant disc was built on the enamel buccal surface of each tooth. Samples were then tested for SBS using Universal Testing Machine after storage in distilled water for 24 h.

Results: The mean SBS was highest for Group 4 and lowest for Group 1. SBS was significantly higher in the bromelain gel group, followed by the papain gel group ($P < 0.001$), 5% NaOCl group ($P < 0.001$), and control group ($P < 0.001$).

Conclusion: Among deproteinizing agents, deproteinization when carried out with bromelain gel showed effective bond strength and lowest for the control group.

Keywords: Acid etching, bromelain gel, enamel deproteinization, papain gel, phosphoric acid, shear bond strength, sodium hypochlorite

INTRODUCTION

Dental caries among children is one of the greatest challenges faced by dentists globally. Modern dentistry requires preventive options to decrease the incidence of caries in both adults and children.

Pit and fissure sealants are one of the best preventive methods for deep pit and fissures and are very difficult to clean. A pit and fissure sealant is a resin material that is introduced into the pits and fissures of caries susceptible teeth, forming a micromechanically retained physically protective layer that acts to prevent demineralization of enamel by blocking the interaction of cariogenic bacteria and their nutrient substrates, thus eliminating the harmful acidic by-products.[1] They are effective in caries prevention and in preventing the progression of incipient lesions.

Saranya P. Thankachan[1], Tharian B. Emmatty[2], Bijimol Jose[3], Kumar Kavita Krishna[4], Joby Peter[5], John Joseph Methippara[6], Ronin Sebastian[7]

[1]Final Year PG Student, [2]Former Professor and Head, [3]Professor, [4]Former Reader, [5]Professor and Head, [6]Reader, [7]Senior Lecturer, Department of Pediatric and Preventive Dentistry, Annoor Dental College and Hospital, Ernakulam, Kerala, India

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REVIEW

Role of Glut-1 in Tumor Progression and Prognosis in Oral Squamous Cell Carcinoma: A Systematic Review

Elizabeth Sojan, Harishchandra Rai, Supriya Karunakar, Shaila M, Muhammed Afnan, Hima Raj

Abstract

Introduction: Oral cancer, one of the most common cancers worldwide constitutes a major public health problem and is one of the leading cancer sites among men and women in India. Increased uptake of glucose in cancer cells are mediated by glucose transporters. Among 14 isoforms of glucose transporters, Glucose transporter 1 (GLUT-1) isoform expression predominate Oral squamous cell carcinoma (OSCC).

Aim: To emphasize the expression of GLUT-1 in OSCC and to assess its role in tumor progression and prognosis.

Materials and Methods: Hand searching and electronic databases such as PubMed/Medline, Google scholar and Science-Direct were done for mesh terms such as OSCC, GLUT-1, prognosis, tumor markers, prognostic marker and risk predictor. Studies were pooled and relevant articles were evaluated.

Results: Final analysis identified thirteen articles after considering the inclusion and exclusion criteria. These studies evaluated 926 OSCC cases and 70 healthy controls for GLUT-1 immunoexpression. The data was extracted and evaluated manually. GLUT-1 expression was found to be elevated in OPMDs and OSCC than in healthy controls. The pattern of expression of GLUT-1, its correlation with clinico-pathological features, role in tumour progression and prognosis, expression in tumor invasive front, correlation with other markers and role in therapeutics are also discussed in detail.

Key Words: GLUT-1; Oral Squamous cell carcinoma; Prognosis; Tumor markers; Prognostic marker; Risk predictors

Oral and Maxillofacial Pathology Journal (2023): ***https://www.ompj.org/archives***

Introduction

Oral carcinogenesis is a multistep process that often arises from a precancerous phenotype followed by uncontrolled cell proliferation associated with multistep genetic alterations and phenotypic progression to invasive malignancy.[1] Proliferation in tumor population is characterized by accelerated glucose metabolism that helps to maintain energy in hypoxic condition. A malignant cell shows high rate of anaerobic metabolism even in presence of oxygen (aerobic glycolysis) and is known as Warburg effect.[2]

Increased uptake of glucose in cancer cells are mediated by glucose transporters. They are the transmembrane proteins that transport glucose across plasma membrane of a cell. They include two families: Sodium glucose linked transporters (SGLTs) and the facilitative glucose transporters (GLUTs). Glucose transporter-1(GLUT-1), one of the 14 members of the mammalian facilitative glucose transporter family is detectable in normal tissues like erythrocytes, perineurium of the peripheral nerves; endothelial cells in the blood – brain barrier vessels etc.[3] GLUT-1 expression has been detected in various malignant tumors like cervical, ovarian, thyroid, esophageal, pancreatic, breast, gastrointestinal carcinoma and OSCC. Among 14 isoforms of glucose transporters, GLUT-1 isoform expression predominates in OSCC.[4]

The presence of hypoxia in tumors leads to resistance to radiotherapy & chemotherapy and is associated with an increased potential for metastasis. Therefore, pretreatment characterization of tumor hypoxia may be useful for predicting the prognosis and facilitate in establishing a risk adapted treatment strategy.[5] This systematic review is an attempt to reflect the findings of various authors on the role of GLUT-1 as a biomarker for tumor progression and prognosis in OSCC.

Materias and Methods

An initial search using Pub Med/Medline database, Google scholar and Science direct was performed using the

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Source of Support: Nil

Conflict of Interest: None

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International Journal of Pedodontic Rehabilitation

Original Research

Dentists use of caries risk assessment& individualized caries prevention among paediatric patients in Bengaluru - a cross sectional study.

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ABSTRACT

INTRODUCTION- The first stage of a comprehensive protocol for a child's oral health treatment is risk assessment.
AIM- The purpose of the current study was to determine if dentists in Bengaluru who are currently in practice carry out Caries Risk Assessment and offer individualized caries prevention to their paediatric patients.

MATERIAL & METHODS- A cross-sectional survey was carried out among Bengaluru's active dentists. The study individuals were picked using simple random sampling. Using a standardized self-administered questionnaire, the data was gathered.

RESULTS- Of the 215 dentists who responded, 80% thought it was crucial to undertake a caries risk assessment on young patients. Individualized Caries Prevention was used more frequently by 67% of dentists. There was no correlation between Individualized Caries Prevention and Caries Risk Assessment Factors, which suggested that patient affordability accounted for a large portion of treatment decisions.

CONCLUSION- Dentists should encourage parents and caregivers to start a dental home concept as soon as possible, which includes education, anticipatory guidance on the prevention of oral illnesses, and caries risk assessment.

Key words: *Caries risk assessment, Individualized caries prevention, Use of fluorides, Xylitol gums*

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