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Original Article

Evaluation of Root Dentinal Damage Associated with ProTaper Gold, WaveOne Gold, and ProTaper Next during Cleaning and Shaping Procedures: An *In vitro* Analysis

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ABSTRACT

Aim: The purpose of this study is to evaluate and compare the incidence of dentinal defects after root canal shaping using rotary nickel-titanium (Ni-Ti) instruments (ProTaper Gold [PTG] and ProTaper Next [PTN]) and reciprocating instrument (WaveOne Gold [WOG]). **Materials and Methods:** One hundred human mandibular premolars with single root and single canal with canal curvature <10° were randomly divided into five groups (n = 20 teeth per group). The root canals were instrumented using hand K-files (positive control), full sequence rotary files PTG and PTN, and reciprocating single-file system WOG. One group was left unprepared and served as negative control. Roots were sectioned horizontally at 3, 6, and 9 mm from the apex and evaluated under a stereomicroscope. **Results:** PTG, WOG, and PTN showed dentinal defects in 40%, 53.3%and 30% of the samples, respectively. **Conclusion:** Irrespective of motion kinematics, dentinal defects are observed in all the Ni-Ti file groups. Within the limitations of the present study and the available literature, incidence of dentinal defects is less with instruments working in continuous rotation rather than instruments with reciprocating motion.

KEYWORDS: *Dentinal damage, microcracks, motion kinematics, nickel-titanium instruments, reciprocation*

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INTRODUCTION

The ultimate goals of conventional and modern endodontic instrumentation are complete removal of microorganisms and tissue debris, by enlarging the canals to an adequate size so as to create a canal form that permits a three-dimensional seal.[1] During root canal preparation, the canal is cleansed by the contact between the instrument and the canal walls, which creates many momentary stress concentrations in the root dentin. In most of the cases, the use of rotary file systems usually creates more stresses in the radicular dentin.[2] Such stress concentrations may induce dentinal defects in the form of microcracks or craze lines, which could ultimately lead to vertical root fracture, which is one of the frustrating complications of root canal treatment often resulting in tooth loss.[2,3]

The newer rotary file system ProTaper Gold (PTG; Dentsply Maillefer, Ballaigues, Switzerland) and reciprocating system WaveOne Gold (WOG; Dentsply Maillefer, Ballaigues, Switzerland) are manufactured with a gold heat treatment procedure. Gold heat treatment is carried out by heating the file and then cooling slowly which differs from the premanufacturing heat treatment used in M-Wire technology. This process gives the file its distinctive gold finish and improves the strength and elasticity of the file.[4] These design variations of rotary nickel-titanium (Ni-Ti) files may also alter the forces acting on the root during instrumentation, contributing to the incidence of dentinal effects.[5] There is scant literature pertaining to comparative evaluation

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OTHER ARTICLES

Primary Reconstruction in Segmental Resection of Mandible—An Outcome Analysis of Different Reconstructive Techniques

K. P. Manoj Kumar[1] · Sujatha Varma[1] · A. P. Vipindas[1] · T. Das Ajay[1] · Aswathi Vinod[1] · Aswin Mullath[1]

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Abstract Functional and cosmetic defects in the maxillofacial region may result from trauma, inflammatory disease, benign or malignant tumors. There are several well established reconstructive options for restoring mandibular continuity and function. Traditionally, surgeons have used their past experience to determine the best way to perform the osteotomy, graft harvesting, and graft shaping procedures for mandibular reconstruction. Focus has now shifted to optimize functional and aesthetic outcomes in mandible reconstruction. Refinements in surgical techniques continue to improve patient's quality of life. The purpose of this study was to evaluate the outcome of a range of reconstructive techniques in 20 patients who underwent segmental resection of mandible during the period 2004-2017.

Keywords Mandibular reconstruction · Odontogenic cyst and tumor · 3D planning

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Introduction

Mandibular continuity is essential for oral function and aesthesis. Aggressive treatment of tumors of dentofacial region often creates complex mandibular defects. Aesthetic appearance of the face, speech, oral competence, deglutition and mastication are often compromised which may have an impact on the patient's quality of life [1]. Reconstruction of segmental mandibular defects represents a significant challenge for the maxillofacial surgeon. Though the reconstruction of mandible has evolved significantly over the last 40 years with a wide range of surgical techniques, the choice of the most suitable method remains an important issue. Early attempts in mandibular reconstruction using non-vascularized, autogenous bone grafts, reconstruction plates were often disfiguring and encountered with complications [2] Pedicled osteomyocutaneous flaps like the pectoralis major with rib, sternocleidomastoid with clavicle and trapezius with scapula, led to improved outcomes by bringing vascularized bone to restore the mandibular contour [2, 3]. The introduction of micro vascular surgery and its subsequent application in the transposition of bone grafts has brought about a revolution in mandibular reconstructive surgery [3–7]. In developing countries and probably in some parts of the world, this implies high costs and is therefore not affordable.

Alloplastic materials like wire mesh provide good aesthetic acceptance, but the failure rates were as high as 35% [2]. Since the late 1980s, the technique of computer-aided design (CAD)/computer-aided manufacture (CAM) has been extensively applied in the field of medicine which significantly facilitates orthopedic surgery, plastic surgery and oral and maxillofacial surgery. Rapid prototyping (RP) technology has the ability to fabricate complex-shaped

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Comparative Evaluation of Flexural Strength of Glass Ionomer Cement and Cention N in Artificial Medium Over Time Intervals - An In-Vitro Study

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ABSTRACT

BACKGROUND

Glass ionomer cement (GIC) is a versatile restorative cement in paediatric dentistry. Due to its less flexural strength, alternative materials have been developed. Cention N is one such material, but since it's a new material evidence is lacking regarding its physical properties, especially flexural strength for evaluating its clinical outcome. We wanted to compare the flexural strength of glass ionomer cement and Cention N stored in artificial saliva and its variation over different time intervals, i.e., after 24 hours, 1 week and 4 weeks.

METHODS

A total of 30 specimens were prepared for GIC (Fuji IX) and Cention N and were further categorized according to the duration of storage time of 24 hours, 1 week and 4 weeks (N = 10). A 3 - point bending test using a universal testing machine was used to evaluate the flexural strength.

RESULTS

GIC Fuji IX showed a mean flexural strength of 35.296 ± 1.61 Mpa at the end of 24 hours, 47.234 ± 4.12 after 1 week and 66.039 ± 11.05 Mpa at the end of 4 weeks. GIC showed a statistically significant increase of flexural strength from 24 hours to one week and a further increase after 4 weeks of storage. The flexural strength of Cention N at 24 hours was 175.985 ± 22.11 Mpa, at the end of one week was 163.486 ± 17.55 MPa, and after 4 weeks was 175.437 ± 27.22 Mpa. Cention N did not show any statistically significant change in flexural strength value from 24 hours to 4 weeks. Cention N showed highly significant difference between flexural strength compared to GIC at all - time intervals.

CONCLUSIONS

Cention N has a superior flexural strength compared to GIC at all - time intervals.

KEY WORDS

Cention N, Flexural Strength, Glass Ionomer Cement

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Case Report

Double Flap Palatoplasty for Management of Post-traumatic Oronasal Fistula

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ABSTRACT:

Oronasal fistula mainly represents functional problem which can lead to nasal regurgitation of food and fluid. It can also cause significant impairment of speech resulting in mental trauma to the patient. Palatal fistulas are formed mostly by various pathologies, secondary to radiotherapy,removal of cyst and tumors, trauma, minor surgeries including extraction of posterior tooth etc. Many fistula closure techniques have been proposed but with high reccurrence rates. So here we are sharing our institutional experience of succesfully treating residual post-traumatic Oronasal fistula by double flap palatoplasty technique.

Key-words: Palatal fistula, oronasal fistula, oroantral comunication,palatal flap,Double Flap Palatoplasty

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INTRODUCTION

Palatal fistulas can usually involve nasal cavity or maxillary antrum or combination of both. They are formed as a result of various etiologies such as cleft palate surgeries, post trauma, surgical removal of maxillary pathologies, sequelae of radiotherapy and other minor surgeries including maxillary posterior tooth extraction (1). Palatal fistulas can cause significant morbidity to the patients by way of nasal regurgitation of fluids and food, speech impairment, halitosis and recurrent respiratory infection. All these can lead to emotional and psychological troubles in speaking and eating (1,3). Surgical closure of palatal fistula is challenging and technique sensitive with high failure and recurrence rates of about 25%(4,5,6). Several techniques have been employed extending from local flaps to free tissue transfer to fulfil the closure. Palatal flap, nasolabial flap, buccal fat pad, facial artery myomucosal flap and tongue flap are the most common locoregional flaps that can be used for the closure (6). Palatal flap itself shows wide diversity in various literatures (10,11,12). Here we are reporting a case of delayed repair of post-traumatic Oronasal fistula closure in an elderly man with double flap palatoplasty technique. Our palatoplasty technique was influenced from the original Bardachs two-flap palatoplasty (13) widely practiced in the cleft palate repair.

CASE HISTORY

A 56-Year-old gentleman was referred to our department complaining of oronasal communication for the past one month. He gives alleged history of Road Traffic Accident (RTA) 6 weeks back and underwent primary care and palatal wound suturing from elsewhere. Patient had comorbidities like uncontrolled Diabetes mellitus and hypertension. Clinical examination of the hard palate revealed a 3cm x1cm defect over left hard palate close to midline without soft palate extension, obliterating and exposing the ipsilateral floor of the nasal cavity (Figure-1). The defect was associated with communication between the nasal and the oral cavity with no active pus/fluid discharge. CT scan confirmed the isolated palatal defect with oronasal communication not involving any other structures of the face.

On the basis of the clinical and radiological findings the patient was provisionally planned for fistula closure surgery. After evaluation of the large residual midline palatal defect, the proposed double flap palatoplasty (Figure-2) inspired from Bardachs

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OTHER ARTICLES

Paramassetric Subcutaneous Dirofilariasis: A Rare Entity

Ajay T. Das[1] · Sooraj Soman[2] · Tom Thomas[2] · Sachin A. Aslam[2] · Leslie Sara Mathew Kalathil[2] · Depesh Vijayakumar[1]

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Abstract Dirofilariasis is an uncommon zoonotic parasitic infection affecting humans due to the bite of a mosquito vector. It is an endemic caused by Dirofilaria which is characterized in humans as nodules in lungs, subcutaneous tissue, peritoneal cavity, eyes. We present a case of Dirofilariasis with subcutaneous presentation in paramassetric region.

Keywords Dirofilariasis · Facial swelling · Paramasseteric region · Maxillofacial surgery

Introduction

Dirofilariasis is a zoonotic infection caused by a helminthic nematode belonging to the genus Dirofilarae. They usually occur as habitual parasites of canines. Although rare, humans have been reported to serve as end hosts for these parasites. The parasitic infection is usually transmitted by an intermediate host mosquito vector belonging to the genre *Ades. Anopheles or Culex* [1].

There are about 40 variants of Dirofilarial species identified, among which six are known to cause infection in humans. *D. repens*, *D. ursi*, *D. tenuis* and *D. striata* are found in the subcutaneous tissue where as *D. immitis* and *D. spectrum* are found in the pulmonary and vascular spaces [2]. The species causing the subcutaneous infection tends to show geographical variation, where the *D. repens* is reported to be found commonly in Asia.

In India majority of the cases have been reported from the southern state Kerala [3, 4]. We report a case of an elderly female with subcutaneous Dirofilariasis in the paramassetric region.

Case Report

A 50 year old female hailing from Malappuram district, Kerala presented with a painless nodular swelling on the left cheek in the inferior paramassetric region of one month duration which was insidious in onset and gradually increasing. Clinical examination revealed a firm, oval swelling in the left cheek measuring 2 cm × 1 cm, which was freely mobile. The skin and the mucosa overlying the swelling were normal in appearance. The systemic examination was non remarkable and the patient was unable to recall any injury or insect bite to the face. No regional lymph node enlargement was detected (Fig. 1a).

An ultra-sonographic examination revealed an oval cystic lesion in the left side of the face superficial to masseter muscle with curvilinear echogenic areas suggestive of live worms (Fig. 1b).

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Evaluation of Efficacy of Customized Lidocaine Bioadhesive Anaesthetic Patch for Extraction of Primary Tooth - An Invitro Study

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ABSTRACT

BACKGROUND

We wanted to clinically evaluate the efficacy of lidocaine bioadhesive patches for extraction in paediatric dentistry and assess the comfort and pain response by sound eye motor (SEM) scale and intensity of pain using the visual analogue scale (VAS).

METHODS

A total of thirty-five co-operative children of age group 8 - 12 years without systemic diseases who needed dental extraction participated in the study. Extraction was carried out using customized lidocaine bioadhesive patches as anaesthetic agent. Evaluation of comfort and pain response was done by sound eye motor scale and intensity of pain using the visual analogue scale. Statistical analysis was done with SPSS version 2.0. Comparison of SEM scale and VAS scores between different subgroups was done using a chi-square test. P value less than 0.001 was considered statistically significant.

RESULTS

Children of higher age groups belonging to both the genders demonstrated less perception to pain during extractions using lidocaine patch. During extraction of firm teeth and teeth with Grade I mobility, perception of pain was more in girls. Maxillary arch extraction in children with various grades of mobility perceived less pain. Irrespective of age, gender and arches, teeth with Grade II and Grade III mobility were extracted with minimal VAS and SEM score.

CONCLUSIONS

Bioadhesive patches serve as a potential non-invasive alternative to traditional modes of local anaesthetic delivery with the advantage of eliminating needle phobia and possible negative influence on the behaviour.

KEY WORDS

Bioadhesive Patches, Lidocaine, Extraction, Paediatric Dentistry

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Original Research Article

Assessment of Pain Perception in Paediatric Patients on Application of Cooled and Uncooled Topical Anaesthetic Gel before Infiltration Anaesthesia - A Pilot Study

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ABSTRACT

BACKGROUND

Topical anaesthesia is fundamental in enhancing pain control during the process of dental injections. The study compared the effect of cooled and uncooled topical anaesthetic gel before infiltration anaesthesia in assessing pain perception in paediatric patients undergoing dental treatment procedures.

METHODS

This is a split-mouth study where 16 children aged between 8 and 10 years who required bilateral local anaesthesia administration for various dental procedures were selected. Before infiltration anaesthesia, topical anaesthetic gel cooled to 4° C was applied on one side in the first visit followed by application of uncooled gel on the contralateral side in the subsequent visit. The patients were asked to individually rate their pain experience on each side using the Wong-Baker Faces Pain Rating Scale (WB-FPRS). Anxiety was assessed using pulse oximeter and FLACC scale (face, legs, activity, cry, and consolability). Data was analysed statistically using the paired 't'-test and a P value less than or equal to 0.05 was considered as statistically significant.

RESULTS

Patients reported less pain on Wong-Baker Faces Pain Rating Scale by using cooled topical anaesthetic gel. Discomfort and anxiety levels were also seen to be low when assessed using pulse oximeter and FLACC Scale for the same group ($P < 0.05$).

CONCLUSIONS

Cooling the soft tissue site with anaesthetic gel helped reduce pain perception during infiltration in children and was seen to be a more feasible technique. Hence this technique can be used as a successful adjunct to the local anaesthesia administration prior to dental procedures.

KEY WORDS

Anaesthesia, Cooling, Topical Gel, Injection, Pain

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Biodentine Total Pulpotomy as an Effective Alternative to Conventional Endodontic Therapy for Young Permanent Teeth – A Study from Calicut, India

Amith Adyanthaya[1], Prathyusha P.[2], Risana K.[3], Aparna Sivaraman[4], Nazreen Ayub K.[5], Reshma Aloysious[6], Sangeetha C. R.[7], Swetha S. Nair[8]

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ABSTRACT

BACKGROUND

The vitality of dental pulp is essential for long-term survival of the tooth. Vital pulp therapy (VPT) intends to maintain healthy pulp tissue by eliminating bacteria from the dentin-pulp complex. There are many treatment options for vital pulp therapy in extensively decayed teeth. Pulp capping or pulpotomy procedures rely upon an accurate assessment of the pulp status, and careful management of the remaining pulp tissue. We wanted to evaluate as to whether biodentine total pulpotomy is an effective alternative to conventional endodontic therapy for young permanent teeth.

METHODS

Full coronal pulpotomy was performed in young permanent molars diagnosed with acute irreversible pulpitis with Biodentine as the pulpotomy medicament. Follow up evaluation was done clinically and radiographically at 3, 6 and 12 months.

RESULTS

During follow-up periods clinical signs/symptoms were absent including pulpal pain, swelling or presence of sinus and percussion pain. Continuous root development and healing of periapical radiolucency were noticed in the study which were indicative of maintenance of vitality of the pulp.

CONCLUSIONS

Within the limitations of this clinical study, it is concluded that total pulpotomy with Biodentine has a promising scope in regenerative approaches in the treatment of carious young permanent teeth.

KEY WORDS

Biodentine, Coronal Pulpotomy, Permanent Teeth, Total Pulpotomy

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COMPARATIVE EVALUATION OF PH CHANGES OF SALIVA USING PROBIOTIC AND CHLORHEXIDINE MOUTHWASH IN CHILDREN – A SHORT TERM CLINICAL STUDY

Dr. Prathyusha P.[1], Dr. Amith Adyanthaya[2], Dr. Nazreen Ayub K.[3]*, Dr. Sangeetha C. R.[3], Dr. Swetha S. Nair[3], Dr. Risana K.[3]

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ABSTRACT

Objectives: The aim of the study is to evaluate and compare effect of Probiotic mouthwash and Chlorhexidine containing mouthwash on salivary pH in children. **Method**: The study was conducted over a period of one month among 40 healthy school children aged between 6-12 years. The subjects who fulfilled inclusion criteria were selected and randomly divided into 2 groups namely probiotic and chlorhexidine groups. Saliva was collected immediately after rinse (baseline), 15 mts after rinse, 30 mts after rinse and pH of each salivary sample was recorded using pH meter. Statistical analysis was done using unpaired t test. P-value <0.05 was considered statistically significant. **Result**: There was a significant increase in the pH of salivary sample in both Group A and Group B after the mouth rinses. Group A shows minimum increase in the salivary pH after the immediate, 15 and 30 min when compared to Group B. Comparing 2 groups, there was statistically significant difference between Probiotic mouth wash and Chlorhexidine gluconate mouth wash. **Conclusion**: The study conducted shows beneficial effects of probiotics in providing an alkaline environment which is conducive to oral health of children.

KEYWORDS: dental caries, probiotics, salivary pH.

INTRODUCTION

The maintenance of oral hygiene is one of the key elements of oral health. The oral cavity harbors bacteria and is exposed to environmental stimuli such as foods, chemicals, and temperature which remain in a balanced state during healthy state of mouth. However, imbalances in equilibrium of defense mechanisms and various stimuli lead to various oral diseases such as dental caries and periodontal diseases.[1]

Dental caries is the most common chronic oral disease that affects 60–90% of the young population. It has multifactorial etiology.[2] Interaction of bacteria, diet and host response play a major role in initiation and progression of dental caries. Salivary pH has a direct effect in maintaining oral health. Acidic pH results in demineralization and gingival inflammation. It has been well documented that the dissolution of enamel occurs when the pH falls below critical pH of 5.5.[3]

A mouth rinse is advantageous home care measure to augment oral hygiene and to prevent dental caries. A variety of synthetic mouthwashes are available in the market to prevent dental caries.[4] The most common benefit of mouth rinsing is that it increases the salivary pH. Chlorhexidine is one of the most popular mouth rinses. It is considered as a gold standard, but it has few disadvantages such as tooth staining, unpleasant taste, alters taste sensation, and increased calculus formation.[5] Hence, there is a need for alternative to chlorhexidine.

Recently, various economical and efficacious agents have been tried out in combating dental caries. Among these, probiotics are also being used. Probiotics are useful microorganisms which when administered in adequate amounts confer beneficial effects on the health of host. Commonly used probiotic strains are Lactobacillus rhamnosus GG, Lactobacillus casei, Lactobacillus reuteri, Lactobacillus plantarum, Lactobacillus brevis CD2, and Bifidobacterium species.[6] Probiotics inhibit pathogenic biofilm formation, induction of cytoprotective proteins, reduction of inflammation, stimulation of the host immune response, and killing of pathogens through production of bacteriocins along with altering the local environment pH.[7]

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MALAYSIAN DENTAL JOURNAL

BUCCAL BIFURCATION CYST: COHERENT YET MISCONSTRUED

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ABSTRACT

Background: The buccal bifurcation cyst is an often confusing inflammatory cyst that occurs in young children between the ages of 5.5 years to 11 years predominantly in relation to the mandibular first molars. Though the histological picture is non-specific, it can be clearly distinguished by the presence of very distinct clinical and radiographic features. Giving undue importance to the histological features without a proper clinical and radiographic examination can result in loss of a tooth which is extremely vital for maintaining skeletal and dental symmetry.

Case Report: A 9-year-old boy presented with a mildly tender, unilateral swelling on the left side of his lower face. The case report discusses the investigation protocol followed in this case with an impetus on cone-beam computed tomography and also adds a note on adjunctive aids like ultrasonography and immunohistochemistry and their relevance to the diagnosis.

Conclusion: The advent of cone-beam computed tomography has made it easier to examine the buccal bifurcation cyst. This is extremely relevant to this entity as misdiagnosis can lead to unwarranted removal of a tooth that is important for the maintenance of a balanced occlusion.

Keywords:

Buccal bifurcation cyst, odontogenic cyst, inflammatory collateral cyst, paradental cyst

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Silk Fibre Reinforced GIC – A Promising Alternative to Conventional GIC

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Glass Ionomer cements are excellent anti cariogenic restorative materials in the non-stress bearing areas of the teeth. Poor mechanical properties like compressive strength and wear resistance limits its use clinically. In order to overcome these limitations various chemical resin fillers and natural fibres like silk were added to GIC. Natural silk fibres exhibit excellent mechanical properties apart from being highly biocompatible. Hence this in-vitro study was undertaken to analyze the shear bond strength of silk fibre reinforced GIC and compared to conventional GIC.

Materials and Method: A total of 60 permanent decoronated premolar teeth were used in this study. The teeth were randomly distributed into 20 samples each of 3 groups. Silk particles extracted from Bombyx mori silkworm cocoons was incorporated into conventional type 2 GIC (GC, CORP, JAPAN) at 3% by weight. Thus, obtained silk reinforced GIC was tested for shear bond strength on dentin surface of the decoronated premolar

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Original Article

Attention to COVID-19 Pandemic among Dental Experts of Kerala State, India: A Knowledge, Attitude, and Practice Study

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ABSTRACT

Background: Dentists are the common preys for the transmission of pandemic disease because of the airborne spread via routine dental checkups. This study which is a cross-sectional one gives the idea about awareness and alertness of dentists about COVID-19 in Kerala, India. **Materials and Methods:** The survey comprised 25 closed-ended questions. The survey was separated into two sections. The initial segment of the poll was identified with the socio-segment qualities that were researched, while the subsequent part was worried about dental practitioners' perspectives toward the management of COVID-19 and the apparent danger of defilement in dental facilities. **Results:** Coronavirus management in dental clinics differs regarding adherence to the rules. An aggregate of 750 respondents finished the form, out of which 686 (91.46%) complete reactions were incorporated. The majority of the respondents concurred on inquiries regarding the knowledge, practice, and mentality of dental specialists toward the COVID-19 pandemic. **Conclusion:** The feedback of most dental specialists with respect to the readiness and view of disease control measures against the COVID-19 pandemic was positive. Dental facilities need to adhere more to the central and state government suggestions in alertness of their facilities or by tutoring their dental specialists and staff.

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KEYWORDS: *Dental practitioners, fear, safety*

INTRODUCTION

Coronavirus Disease (COVID-19) infection was first appeared in Wuhan, China, in December 2019.[1] The novel virus severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) has rapidly extended from Wuhan to a large portion of Hubei region and to the remainder of the world.[2] On January 30, 2020, the World Health Organization (WHO) declared that coronavirus episodes as a pandemic.[3] The first instance of COVID-19 in India, an MBBS student who had returned home from Wuhan University, was tested positive on January 30 in Kerala's Thrissur district.[4]

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COVID-19 and dental treatment

Dentistry is experiencing its difficult stretch yet, with the coronavirus pandemic. Dental specialists are at the greatest danger of contracting and transferring the coronavirus, alongside other medical care providers. Dental facilities in the country over have stayed shut for more than 5 months. With the disease still on the ascent, there is no expectation of improvement at any point in

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Crestal Bone Preservation - A Review

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Type of Publication: A Review Paper

Conflicts of Interest: Nil

Abstract

Abstract Maintenance of crestal bone around dental implants is one among the vital factors that have effect on the longevity and aesthetics. The amount of bone crest close to the implant is of utmost significance for osseointegrated implant success, as preservation of marginal bone height is extremely necessary for long-term dental implant survival. Various approaches are described within the literature to prevent the crestal bone loss together with platform switching, non-submerged approach, scalloped implants, implant design modifications, progressive loading, immediate implant placement, etc. The aim of this paper is to review all the possible methods or combination of the methods used to preserve the crestal bone for the long-term success. The establishment of a physical, connective tissue attachment to the Laser-Lok surface has generated an entirely new area of research and development. Crestal bone preservation has to be planned before implant placement. The simplest possible method or the combination of strategies ought to be used to preserve the crestal bone for the long-term success of the implants.

Keyword

Bone density, crestal bone preservation, immediate implant placement, non-submerged implants, platform switching, Implant loading

Introduction

Currently, dental implants are the first choice of treatment for missing teeth and a satisfactory osseointegration with minimal marginal crestal bone loss is imperative for long-term success. [1] Stable crestal bone is one of the most important features for the

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Literature Review

RETRIEVAL METHODS FOR FRACTURED IMPLANT SCREWS

*Dr. Ranjith M, **Dr. Varenya R, ***Dr. Sheejith M, ****Dr.Anusree Gopinath

Abstract

In implant dentistry, dental implant screw loosening and fracture complications can be as high as 45% over a 10-year period. Once a screw has fractured, it can be challenging to remove it from the implant chamber. A variety of techniques are used nowadays to manage these clinical situations. The purpose of this review is to understand about various methods of retrieval of fractured implant parts. A PubMed/MEDLINE search was conducted to gather available reports. A total of 21 articles were included which described about the management of fractured implant parts.

Key Words: Retrieval techniques, fractured implant screws, implant complications

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Introduction

Implantology is the branch of dentistry that deals with the permanent implantation of artificial teeth in the jaw. Implant therapy is one of the most effective and reliable options for replacing missing teeth. But, even with the high success and survival rates of dental implants, clinicians may still have to deal with a variety of complications.[1] Complications may be described as minor, moderate, or severe. Minor complications are those that can be easily resolved with little morbidity or expense. Moderate complications may be resolved without major expense but require more physical intervention to reverse the complication and severe complications are those that require replacement of critical components and result in a level of patient morbidity.[2]

Complications can also be described as mechanical, technical and biological in which mechanical includes screw loosening, screw fracture and cement failure, technical comprises of fracture of veneering porcelain, fracture of the framework in implant supported fixed partial dentures and biologic encompasses adverse soft tissue reactions, sensory disturbances and loss of bone integration.[3]

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A single impression technique for complete denture fabrication on flabby ridge using addition silicone impression material -A case report

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Growth of tissue over the ridges is common clinical findings in maxillary as well as mandibular arch. This tissue overgrowth is commonly called as flabby ridges. The flabby ridge affects the stability and the retention of the prosthesis. So proper management of flabby ridge is essential for the stability and the retention of the prosthesis. The special impression technique advocated for proper recording of flabby ridges includes window technique for static impression. This article discusses a case report of a patient with flabby ridge on anterior part of the maxilla. A single impression technique using addition silicone impression material is used for recording the flabby tissue.

Keywords: Flabby ridge, Addition silicone.

Introduction

The alveolar ridge may become mobile and extremely resilient due to the replacement of bone by fibrous tissue. They are known as flabby ridges or fibrous ridges. It is most commonly seen in anterior part of maxilla where opposing natural teeth is present. Flabby ridge occur mostly due to the presence of excessive load on the ridge and unstable occlusal conditions. Fibrous tissue over the ridge may get displaced during mastication. Displaced flabby tissue results in unstable position of the denture, failing to establish a proper peripheral seal. Histopathological studies of such ridge reveals marked fibrous, inflammatory and resorptive findings of underlying bone. [1]

Considering flabby ridges and dentures, it is found that these ridges provide poor support for the denture. For a

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Literature Review

3D PRINTING AND ITS FABRICATION TECHNIQUES: A REVOLUTION IN PROSTHETIC DENTISTRY

*Dr. Ranjith M, **Dr. Pranav AG, ***Dr. Sheejith M,**** Dr.Nivea Francis

Abstract

The evolution of 3D Printing in the beginning of 1980s to construct models from a computed file brought in a proportional change in biomedical disciplines The advancements have developed into an essential tool which is incorporated in surgical planning, treatment, and fabrication of dental prosthesis. The technology aids in the construction of three-dimensional (3D) structures with complex geometries with ease that can be difficult to fabricate by other various methods. The purpose of this paper is to review the different techniques of 3D printing used in contemporary prosthetic rehabilitation as this technology has become widely spread in the field of medicine and dentistry. It is a sort of additive manufacturing technology where a three-dimensional object is made by laying down successive layers.

Key Words: 3D-printing, rapid prototyping, additive manufacturing of prosthetic construction

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Introduction

The concept of computer-aided design/computer-aided manufacturing (CAD/CAM) of objects was invented long time ago in the 1970s and has already been applied in the field of dentistry for decades in fabrication of dental restorations in Prosthodontics. In 1984, Chuck Hull developed 1st working 3D printer.[1] Today, 3D printing techniques is experiencing rapid development due to the expiration of many patents and 3D printing described as the key technology of the next industrial revolution. 3D printing is the process in which multiple layers of materials are added layer by layer under computer aided design software or Artificial intelligence assistance to create 3-dimensional prosthesis. The process is more correctly described as additive manufacturing and it is also known as rapid prototyping. It is the perfect solution to get customized prosthesis in the field of dentistry. Typically, prosthesis or implants have to match with the patient's morphology and aesthetic view. And it is also true

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Case Report

Oral rehabilitation of a patient with Kenny–Caffey syndrome using telescopic overdenture

Abu Nazar, Roshy George, Nicholas Mathew

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Abstract Kenny–Caffey syndrome (KCS) is a rarely reported autosomal disorder characterized by skeletal, ocular, and oral manifestations. Oral features such as microdontia, hypodontia, malalignment of teeth, bone loss, and difficulty in mastication results in serious esthetic and functional handicap. The prosthetic rehabilitation of such patients is challenging, especially when implant placement is not a good choice due to poor Vitamin D levels. The existing literature is scarce in describing the treatment options. This case report describes the oral rehabilitation of a patient affected with KCS using telescopic overdenture.

Keywords: Hypodontia, microdontia, Kenny–Caffey syndrome, telescopic overdenture

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INTRODUCTION

Kenny–Caffey syndrome (KCS) is a rare autosomal disease characterized by short stature, cortical thickening and medullary stenosis of tubular bones, delayed closure of anterior fontanelle, ocular abnormalities such as microphthalmia and papilledema, hypoparathyroidism, and associated hypocalcemia.[1-4] It can be classified into KCS type 1 and KCS type 2. KCS type 1 is an autosomal recessive form caused by mutations of the tubulin-specific chaperone E gene, and KCS type 2 is an autosomal dominant form caused by mutations of the FAM111A (family with sequence similarity 111 member A) gene.[1] The patient discussed in this case report is already diagnosed with KCS type 2.

Patients show normal intelligence in KCS type 2. The dental abnormalities associated with the disease are hypodontia, microdontia, abnormally shaped and positioned teeth, and associated difficulty in mastication.[5]

The prosthodontic rehabilitation of KCS affected patients is not adequately reported in the literature. This article aims in reporting a case of successfully rehabilitated prosthodontic intervention for a KCS type 2 affected young patient.

CASE REPORT

A 26-year-old male patient diagnosed with KCS type 2 reported to the department of prosthodontics with the

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Integrating dentistry into palliative medicine - Novel insights and opportunities

SADJ April 2021, Vol. 76 No. 3 p153 - p159

A Majeed[1], A Ahsan[2], M Vengal[3], P Sampath[4], G Vivek[5]

ABSTRACT

Palliative care is a global human right, to be provided in a systematic way. The dentist can help the patient right from the initial diagnosis of the condition up to the relief of pain in the terminal stages of the diseases. This inquiry into the oral physician's role on elderly care and special needs would be of benefit to researchers of Palliative Dentistry; particularly in multidisciplinary contexts. This text proposes to discussintegrated oral care, oral health care delivery system, and a flow of educational actions, resources, research, conceptual framework, guidelines and dissemination of newer trends in oral palliative care.

Keywords

Palliative dentistry, geriatric dentistry, mobile dentistry, portable dentistry, palliative oral care.

BACKGROUND

Oral care, in majority of terminally ill patients is often neglected. This is because patients are not always able to receive oral care in their preferred place of care, are often shuttled between sites of care and experience unnecessary hospital admissions as they near the end of life. The patient's emotional, social and economic wellbeing add to these woes. Literature has shown that oral palliative care can have a positive impact on the quality of life of patients; however, the provision of oral palliative care is often still less than optimal.[1-4] There is therefore a need to integrate dentistry to palliative care needs and to disseminate the concept of palliative care amongst oral healthcare professionals. Palliative care dentistry has been defined by Wiseman as the study and management of patients with active, progressive, far-advanced disease in whom the oral cavity has been compromised either by the disease directly or by its treatment; the focus of care is quality of life.[5]

Palliative care is a global human right, to be provided 'throughout the illness course'.[6] According to Obadan-Udoh et al. "providing care that is patient-centered is an indication of quality and that should be our ultimate goal. Dental profession has huge challenges in meeting these expectations."[7] The purpose of this article is to offer practical tips and techniques for establishing successful oral palliative care.

Palliative care in South Africa

South Africa has a population of 55 million people of which 62% constitutes the urban population. It is designated an upper middle-income country by the World Bank with $12,730 GNI per capita in 2014. Life expectancy in 2014 was 57 years.[8] In 2011, the World Bank report on human resources in health identified that there were 4.7 nurses, 0.8 doctors and 0.085 dentists per 1000 people.[8,9] The estimated need for palliative care using only mortality data is that 0.52% of the population requires palliative care in any year. There are currently eight hospital palliative care services (two dedicated children's palliative care services) and 150 hospices providing palliative care, about 40 of them also provide care for children. Funding for palliative care is a limiting factor and a number of hospices closed in the period 2011-2016 for wants of funds.[8]

The South African National Department of Health (NDoH) requires the support of all government and non-government organizations (NGOs) in their vision of a healthy life for all people of SA. The care provided by hospices takes place mainly within the patient's home. In response to this need Hospice Palliative Care Association (HPCA) adopted the Integrated Community- Based Home Care Model,[10] which was developed by the South Coast Hospice in KwaZulu-Natal (KZN). The NDoH recognized this as a best practice model and commissioned HPCA to replicate the model in urban, peri-urban, and rural communities; to determine the cost of the model and to

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Laterally Displaced Condylar Fracture Of Mandible –An Early Intervention To Prevent Late Complications

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:ation of this Article: Dr Manoj Kumar KP, Dr Anroop A, Reader, Dr Ajay Das T, Reader, Dr Shweta Sabu, Dr ıahita Ann Koruth, Dr Reshma Gafoor, "Laterally Displaced Condylar Fracture Of Mandible –An Early Intervention › Prevent Late Complications", IJDSCR – April - 2021, Vol. – 3, Issue - 2, P. No. 30-37.

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ype of Publication: A Case Report

:onflicts of Interest: Nil

ıbst[illegible]

Condylar fractures account for 20% to 62% of ıll mandibular fractures. Given the unique geometry of he mandible and temporomandibular joints (TMJs), :hese fractures can result in marked pain, dysfunction, and deformity if not recognized and treated appropriately. There is continued debate on whether condylar fractures should undergo surgical or conservative management. This paper reports the case of a 43 years old male patient injured in the submental region leading to restricted mouth opening. CBCT revealed subcondylar fracture of left condyle of mandible, showing displacement of condylar fragment out of glenoid fossa with lateral overlap. Early diagnosis and appropriate management aided in alleviating the symptoms of the patient.

Keywords

Subcondylar fracture, lateral displacement, Absolute indication, ORIF, miniplate, Maxillofacial trauma.

Introduction

The first description of mandibular fractures dates to the 17 th century BC in the "Edwin Smith papyrus" brought by Smith in Luxor in 1862 and later translated by Breasted. Mandibular fractures are one of the most common facial fractures, and of these, fractures of the subcondylar and condylar region are generally clinically challenging. Condylar fractures account for

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Literature Review

DENTAL MANAGEMENT OF PATIENTS TAKING WARFARIN

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**Dr. Navia George, **Dr. Aparna TK

Abstract

The possibility of postoperative bleeding in patients taking warfarin is a concern for dentists. However, before deciding if warfarin therapy should be interrupted the risk of preoperative or postoperative bleeding must be balanced against the risk of thromboembolism. Before dental treatment a thorough medical history should be obtained including details of any condition likely to be treated with warfarin. The dentist should also consider possible drug interactions with warfarin. Medications including antibiotics such as Metronidazole, herbal remedies and alcohol may unpredictably alter the INR. If an interaction is considered likely or if the effect of any prescribed medication is not known, the dentist should consult the doctor supervising the patient's anticoagulant therapy. The INR should be checked before surgery. The purpose of this article is to discuss about the dental and surgical management of the patients who are on warfarin therapy.

Key Words: warfarin, management, anticoagulant

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Introduction

Warfarin is an anticoagulant which helps in reducing the formation of blood clots. Warfarin is used to treat or prevent blood clots in veins or arteries, which can reduce the risk of stroke, heart attack, or other serious health conditions.[1]

Warfarin is an anticoagulant which inhibits synthesis of the vitamin K-dependent coagulation factors II, VII, IX and X. Indications for anticoagulation are increasing, and dentists will be consulted by patients taking warfarin.[2]

The activity of warfarin is expressed using the international normalised ratio (INR).[3] A normal coagulation profile has an INR of 1.0. The desirable INR range for patients depends on the condition being treated. Patients receiving treatment for deep vein thrombosis have a lower target range than

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Literature Review

DENTAL MANAGEMENT OF PATIENT TAKING ASPIRIN

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**Dr. Navia George, ***Dr. Aparna TK

Abstract

The number of geriatric patients seeking dental service is ever-rising because of increased life expectancy, also with problem of increased chronic medical conditions. One of them are patients on anti-thrombotic medication. Bleeding complication after minor oral surgery by anti-thrombotic agents is of concerns to dentists on dental management of these patients. Risk and benefit of the anti-thrombotic agents must be weighed before initiating dental procedures, which should be established as a treatment guideline. Purpose of the paper is to optimize the management of the dental patients on anti-thrombotic medication via standardization of treatment protocol of such a patient.

Key Words: anti-thrombotic, anti-coagulant, anti-platelet, minor oral surgery

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Introduction

Thromboembolism in acute coronary syndrome or atrial fibrillation is largely prevented by anti-thrombotic agents.[1,2] However, bleeding complications related to these agents after minor oral surgery is of concern to dentists for dental management of these patients. Risks and benefits of the anti-thrombotic agents must be weighed before initiating dental procedures, which should be established as treatment guidelines.

The purpose of this paper is to optimize the management of dental patients on anti-thrombotic medication via standardized treatment protocols. The target readership of the paper is undergraduate and postgraduate dental students, and general dental practitioners.

Hemostasis occurs as a result of the interaction of the components of Virchow's triad, namely endothelial cells, blood composition and vascular flow. Interplay of these three factors determines the chance of thrombotic accident. Arterial thrombosis is related to platelet-rich white clots, whereas venous thrombosis is related to fibrin-rich

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In vitro evaluation of push-out bond strength of fiber posts cemented using two different adhesive approaches

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Resin-based cements are commonly used for luting glass fibre posts into intraradicular dentin. A combination of the etch-and-rinse adhesive system and regular resin cement is the approach most often used in dental practice. In the past decade, self-adhesive resin cements were introduced to provide easier clinical application compared with regular resin cements.

Objective: To compare push-out bond strength of fiber-posts luted with two different adhesive approaches to root canal dentin

Materials and methods: Twenty mandibular first premolars were decoronated and endodontically treated. Specimens were randomly distributed into two groups (n = 10) and fiber-posts were inserted using two different luting materials: self-adhesive resin cements (RelyXUnicem, 3M Espe) in group one and a self-etch adhesive/ dual cure resin cement(Para Core , Coltene) in group two. The roots were sectioned into slices of 2mm thickness at the coronal third and middle third and after 24 hours push-out bond strength was investigated.

Conclusion

Within the limitations of this study the self-adhesive resin cement exhibited the least push-out bond strength values among the two groups, with best results in the coronal sections.

Keywords: Bonding Technique, Fiber Posts, Push-Out, Root Canal, Self-Adhesive Resin Cements

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Case Report

An extremely rare pseudoaneurysm of posterior superior alveolar artery arising after orthognathic surgery

ABSTRACT

Le Fort 1 osteotomy is one of the most versatile techniques in orthognathic surgery employed for the correction of dentofacial deformities and is considered technically safe. Pseudoaneurysms (PAs) which can cause life-threatening hemorrhage are rare after corrective jaw surgery. Here, we describe a clinical case of delayed postoperative epistaxis secondary to an extremely rare PA of the posterior superior alveolar artery followed by Le Fort 1 osteotomy subsequently managed with endovascular selective embolization.

Keywords: Embolization, internal maxillary artery, Le Fort 1 osteotomy, orthognathic surgery, pseudoaneurysm

INTRODUCTION

Orthognathic surgery became the need of the hour for the patients with dentofacial skeletal deformities. Le Fort 1 osteotomy is considered to be one of the safest, reliable, and predictable surgical techniques across the globe for the correction of such dentofacial deformities.[1,2] Le Fort 1 osteotomy also carries few uncommon serious postoperative vascular complications, resulting from unrecognized intraoperative vascular injury.[3] Vascular complications as a result of this can range from common postoperative oronasal bleeding to very rare arteriovenous fistulas and pseudoaneurysms (PAs).[4] Utmost care should be taken while performing osteotomies, especially the pterygomaxillary disjunction in order to prevent injury to the nearby vasculature, including the internal maxillary artery (IMA) and its branches.

Acute epistaxis after Le Fort 1 osteotomy in the immediate postoperative period is relatively common, but the diagnostic challenge lies when it persists further. True aneurysms are characterized by the expansion of all the three layers of blood vessel, whereas PA involves rupture of one or more layers followed by an incomplete injury of the vessel. This results in the leakage and collection of blood within the layers of blood vessels or formation of a capsule into the surrounding soft tissues.[4,5]

The rupture of PA can lead to severe life-threatening hemorrhage, and the surgeon should be competent enough to diagnose and perform primary management in an emergency suite. PA can be asymptomatic most of the times or they may even present with symptoms such as pain, swelling, and epistaxis. Therefore, they can be undiagnosed for a period of weeks or months, which becomes a diagnostic challenge. The most vulnerable facial vessels for the formation of PAs are facial artery and superficial temporal artery because of their relative superficial anatomy[2,4] and their nature of being more prone to maxillofacial trauma. The possibility of PA in the branches of IMA was reported in the literature,[1-4,6] but they are relatively uncommon after Le Fort 1 osteotomy.

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2020

Evaluation of Tetracycline Hydrochloride and Chlorhexidine Gluconate in Intracan Smear Layer Removal – A Comparative in Vitro S.E.M Study

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Biologically, smear layer has been considered to be an avenue for leakage. The aim of this study is to evaluate with the aid of scanning electron microscope the efficacy of Tetracycline Hydrochloride and Chlorhexidine Gluconate on the removal of intra canal smear layer, compared to Bidistilled water and Sodium Hypochlorite intra group and inter group compariion was done after SEM analysis. Tetracycline HCl and NaOCl removed smear layer better than Chlorhexidine Gluconate and NaOCl.Chlorhexidine Gluconate and NaOCl is better in smear layer removal than NaOCl used alone.

Keywords: Smear Layer, S.E.M Study, Tetracycline Hydrochloride, Chlorhexidine Gluconate.

Introduction

Smear layer is a combination of organic and inorganic debris on the canal walls following instrumentation [2]. The inorganic materials in the smear layer are made up of tooth structure and some nonspecific inorganic contaminants. The organic components may consist of heated coagulated proteins, gelatin formed by the deterioration of collagen heated by cutting temperatures, necrotic or viable pulp tissue and odontoblastic processes plus saliva, blood cells and microorganisms.

Obturating the canal wall with smear layer must be considered a weak union because the smear layer can be torn away from the underlying matrix[4]. Biologically, smear layer has been considered to be an avenue for leakage. Also viable bacteria may use smear layer for their sustained growth and activity. Similarly the smear layer may delay the action of disinfectants on the bacteria harboured in the dentinal tubules. In endodontics, once the smear layer is removed, a better adaptation of obturating materials and sealers become possible. Dentin

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ORIGINAL RESEARCH PAPER

Pathology

A COMPARATIVE STUDY OF THE EFFICACY OF CEDARWOOD OIL, COCONUT OIL AND DISH WASH LIQUID AS ALTERNATIVES TO XYLENE AS DEPARAFFINIZING AGENTS

KEY WORDS: Xylene, Cedar wood oil, Coconut oil, Dishwash liquid (DWL)

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ABSTRACT

Xylene is an aromatic hydrocarbon which is widely used as a deparaffinizing agent, and it is extremely biohazardous. Various biosafe alternatives to xylene have been studied in the past with variable results. The aim of this study was to compare the efficacy of Cedar wood oil, Coconut oil and Dish wash liquid (DWL) with Xylene as a deparaffinizing agent and to figure out the best biosafe alternative to Xylene. The study consisted of 50 samples and results were analyzed based on the cellular architecture and total quality of staining. Xylene and DWS showed same result of high-quality staining in case of cellular architecture. But in case of total quality of staining, only Xylene showed the best results. Hence, we could conclude that though Xylene is toxic, it is still the best deparaffinizing agent and more studies has to be done in this field to prove the efficiency of natural agents.

INTRODUCTION

Histopathology is an art of analyzing and interpreting the shapes, sizes and architectural patterns of cells and tissues within a given specific clinical background and a science by which the image is placed in the context of knowledge of pathobiology, to arrive at an accurate diagnosis.[1]

Hematoxylin and Eosin-stained Paraffin sections are the backbone of daily histopathological diagnostic work. Paraffin sections are conventionally prepared by methods largely unchanged for over 150 years. The process of deparaffinization of the slides using Xylene is an important preliminary step before the staining process, which makes the tissue sections to uptake the Hematoxylin and Eosin stain properly. This makes Xylene an unavoidable compound in histopathology due to its paraffin solvent action. But unluckily; Xylene is found to be a toxic compound, that is hazardous for human use and the environment in which it is disposed. Therefore, any substitute that minimizes the use of Xylene in experiments is the need of the hour.[2]

MATERIALS AND METHODS:

The present study consisted of 50 Formalin fixed paraffin embedded tissue blocks of previously diagnosed random cases which were collected from the departmental archives.

From each paraffin blocks, 4 sections of 3-4 µm were sliced using semiautomatic Microtome (MICROM model HM340E). Since sample size was 200, total 200 sections were obtained. Each section of same blocks was deparaffinized with Dish wash liquid, Coconut oil, Cedar wood oil and Xylene respectively at different time in a single day. Deparaffinizing agents were changed in a weekly basis to improve deparaffinization.

Table 1:- Deparaffinization & H and E staining procedure for Xylene, Cedar wood oil, DWL & Coconut oil:

Procedure	Material used	Temperature	Time
Deparaffinization	Xylene I	At room temperature	5 min
	Xylene II	At room temperature	5 min
	Cedar wood oil	At room temperature	4 hrs
		70°C	1 min
		Water wash with distilled water	5 min
	1.7% DWL	90°C	2 min
		Water wash with distilled water	2 min
	Coconut oil	90°C	2 min
		Water wash with distilled water	2 min
Rehydration	Descending grades of alcohol	At room temperature	10 min
	Water wash	At room temperature	10 min
Nuclear staining	Harri's Hematoxylin	At room temperature	8 min
	Water wash	At room temperature	2 min
Differentiation	1% acid alcohol	At room temperature	1 dip
	Water wash	At room temperature	10 min
Cytoplasmic staining	1% eosin	At room temperature	1 min
Dehydration	100% alcohol	At room temperature	5 min

The deparaffinized sections were stained with H & E and seen under Compound microscope. Assessment of staining was done by using the scoring system given by Sugunakar Raju Godishala et al.

- **Scoring system: -**

1. Cellular architecture:

1) SCORE 0: Indistinct nucleus - cytoplasm
2) SCORE 1: Distinct Nucleus – cytoplasm

2. Quality of staining:

1) SCORE - 0 = Poor
2) SCORE - 1 = Satisfactory
3) SCORE - 2 = Good[3]

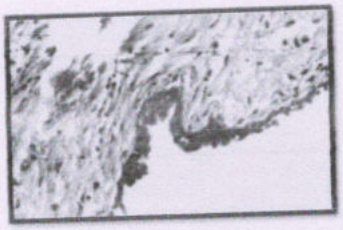


Figure 1: Deparaffinization with Xylene (H & E, 20X)

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Original Article

Cheiloscopy in gender determination: A study on 2112 individuals

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Abstract

Background: Lip prints are seen to remain the same for an individual throughout his/her life. Cheiloscopy can be used as an effective tool in the identification of the persons from pieces of evidence that may be left behind from lip prints. **Aim and Objectives:** The aim of the current research was to evaluate the predominant lip groove pattern among Calicut population, Kerala. **Materials and Methods:** The study involved 2112 individuals (1056 males and 1056 females) in the Department of Oral Medicine and Radiology, KMCT Dental College, Calicut, Kerala. Lipstick was used to record the lip groove patterns and the patterns were visualized by magnifying lens after the institutional ethical clearance and informed consent from the individual. Statistical analysis was done using SPSS software 22.0. **Results:** Among the study population, Type 1', Type 1, Type 4, and Type 5 were found to be common lip groove patterns. Males showed predominance on Type 1' and Type 1 lip groove patterns, whereas females showed predominance on Type 4 and Type 5 lip groove patterns. The results were similar when analyzed on upper and lower lips separately on males and females. **Conclusion:** Cheiloscopy is a reliable tool in personal identification and gender determination of an individual. The geographical prevalence of lip groove patterns was reported in the current research and is added to the database of the anthropological data. Studies in different geographical regions will add lip groove patterns on the database in the future and henceforth the potential of cheiloscopy could be further utilized.

Keywords: Cheiloscopy, gender determination, lip print, personal identification

Introduction

The identification of human beings is a process based on certain scientific principles.[1] There are many methods used in personal identification rather than traditional methods for anthropometry, age estimation, gender determination, differentiation by blood groups, fingerprints, and DNA analysis.[2] The branch of dentistry that deals with the identification of individuals based on evidence in the court of law is termed forensic dentistry. It includes rugoscopy, cheiloscopy, bite mark analysis, tooth prints, radiographs, photographic study, and molecular methods.[3]

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Identification in civil and criminal cases requires scientific evidence and support. Cheiloscopy is the technique in which individuals are identified based on the lip groove patterns.[4] It is possible to identify the lip groove patterns as early as the sixth week of intrauterine life. Lip groove pattern once formed is permanent and does not change permanently following climatic variations, pathology, minor trauma, inflammation, and infections.[5,6] The salivary and sebaceous secretions from glands located at vermillion border aid in the formation of a latent lip groove pattern.[7]

Lip groove patterns aiding in criminal investigations have been well documented.[8] It is an adjunctive mode of identification accepted in the court of law.[9]

Cheiloscopy is a forensic investigative technique that deals with the identification of individuals based on lip groove patterns.[10]

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FACE BOW TRANSFER, IS IT NECESSARY IN PROSTHODONTICS – A CRITICAL REVIEW

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Abstract:

It has been accepted for the past many decades that an anatomically related anterior reference point is required during a face-bow transfer. Many anterior reference points have been advocated by different researchers. This paper explores several articles including systematic reviews and clinical trials regarding different concepts of face bow and came to the conclusion that the literature search failed to draw up evidence from controlled trials that there is any benefit from locating an anatomically related anterior reference point during face bow transfer in complete denture. And face bow transfer itself is the waste of time and manpower in complete denture construction.

Key words: Facebow, Anterior reference point, plane of reference

Introduction

In prosthodontics, while we attempt to restore or replace missing teeth, it becomes imperative to mount patients maxillomandibular relation on an articulator with maxillary and mandibular casts, oriented to the hinge axis, for laboratory procedures. Facebow is a caliper-like instrument used to record the spatial relationship of the maxillary arch to some anatomic reference point or points and then transfer this relationship to an articulator.[1] This requires the use of two posterior points and an anterior point of reference for orienting a maxillary cast to an articulator.[2]

Maxilla is a part of the cranium and is a fixed entity. When the teeth of both jaws come in contact, maxilla becomes related to the mandible so that entire craniomaxillary complex is articulated with a moving bone, which is the mandible. The opening movement to bring the jaw from occlusal to rest position is almost a pure hinge movement. Here the mandible moves in an arc of a circle with a definite radius from the temporomandibular joint. This path of the condyle is determined by the curvature of the condylar head and the curvature of glenoid fossa.[3] Since the radius is not constant for all the patients, it has to be determined for every individual patient. Similarly the relationship of upper jaw to the lower jaw and the anatomy of maxilla and the temperomandibular joint varies from one individual to the other. Thus, recording of the orientation jaw relationship is considered to be very important, which is done with the help of facebow record.[4]

An anterior reference point is a physical requirement

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LASER EXCISION OF PYOGENIC GRANULOMA: A CASE REPORT

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ABSTRACT

Pyogenic granuloma is a commonly occurring inflammatory hyperplasia of the skin and oral mucosa in females. It is a relatively common benign mucocutaneous lesion. The term is a misnomer as the lesion does not contain pus nor it is granulomatous. This tumor like growth is considered to be non neoplastic in nature and has a varied clinical presentation. Etiology of the lesions is unknown, but predisposing factors that have been reported include pregnancy, trauma, vascular malformation and chronic inflammation. The most common treatment of pyogenic granuloma is surgical excision but alternative approaches such as laser excision have also been proposed. Here present one such case of pyogenic granuloma, which was excised with diode laser.

Key words: Pyogenic granuloma, hyperplasia, diode laser.

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Case Report

ORAL MELANOTIC MACULE

* Dr. Thulasi Raj, **Dr. Rahul R, ***Dr.Niyas Ummer

Abstract

Melanotic macule is one of the most common pigmented lesions involving the oral cavity. The most common intraoral locations include gingiva, palate and buccal mucosa. The lesion is completely benign and shows very little tendency to recur or become malignant. Most often, it is difficult to distinguish it clinically from other pigmented lesions such as nevus, malignant melanoma in situ or incipient malignant melanoma. Presented here is a case report of a 53-year-old male with a pigmentation on his palate involving the interdental papilla and extending to the buccal aspect. Patient was reviewed for 6 months on a regular basis with no remarkable changes.

Key Words: oral melanotic macule, pigmentation, melanoma

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Introduction

Melanotic macule is one of the most common pigmented lesions involving the oral cavity. It is a benign lesion resulting from increased melanin production with occasional increase in melanocyte number.[1] Lesions have been reported in patients aged 1–98 years, with a mean of approximately 42 years.[2,3] The majority of melanotic macules are found in females. Most investigators report an average 2:1 female to male ratio, however Gupta et al. reported a 5:1 female to male ratio in a series of 79 cases.[2,4-6]

Clinically, melanotic macule presents as a solitary, well-defined, homogenously pigmented, flat lesion varying from tan to dark brown in color. Rarely multiple lesions have also been reported.[5,8,9]

Lesions can vary in size from 0.1 to 2.0 cm, with the majority appearing less than 1 cm.[1,10] The most common intra-oral locations include gingiva, palate and buccal mucosa. Both labial and intraoral lesions are typically asymptomatic. Some patients are unaware of the presence of the pigmented macules, while others report noting their appearance since weeks to years.[5,10,11]

Treatment usually consists of surgical excision and biopsy to rule out the possibility of an early malignant melanoma. Although the lesion is completely benign and shows very little tendency to recur or

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Review Article

Pediatric soft tissue tumors of head and neck – An update and review

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ABSTRACT

Pediatric malignancies especially sarcomas are the most common and predominant cause of death in children. Such ongoing efforts are crucial to better understand the etiology of childhood cancer and foster the survival rate for malignancies with a poor prognosis and maximize the quality of life. In this review article we authors aim to discuss relatively common benign and malignant craniofacial soft tissue tumors (soft tissue tumor), focusing on current management strategies and key developments, as the relate to the role of the otolaryngologist- head and neck surgeon. Other cancers of the head and neck tumors are beyond the scope of this review.

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1. Introduction

Pediatric cancers differ from the adult malignancies in both prognosis and distribution by histology and tumor site. The incidence pattern in adults the cancer rates tend to increase steadily with increasing age unlike in children. In children a relatively wide age range exists, with two peaks – the first in early childhood and the second in adolescence.[1]

Most of the pediatric tumors of maxillofacial region are benign, hemangioma being the most common benign tumor of infancy and childhood.[2] Although childhood cancer is relatively uncommon, it remains a significant cause of mortality in this population and is second only to accidents as a cause of death in children over 5 years of age. Data from the United States National Cancer Institute database suggest that the head and neck are involved in 12% of all childhood malignancies.[3] In literature, neoplasms of the head and neck region account for approximately 5% of all childhood malignancies.[4]

Ionising radiations, genetic factors, rays, chemotherapeutic agents, family history, infections, immuno deficiencies and congenital anomalies are the most commonly involved risk factors for these paediatric cancers. Even though many genetic conditions are associated with increased risks for childhood cancer, but they are thought to occur in only less than 5% of the conditions. Extremely small fraction of paediatric cancer is to arise due to environmental exposures compared to adult epithelial tumor.[1]

Curative therapy with chemotherapy, radiation and surgery may unfavourably affect a child's development & result in serious long term medical & psycho social effects in both childhood & adulthood. Probable undesirable delayed side effects include subsequent malignancy, early mortality infertility, reduced stature, cardiomyopathy, osteoporosis, pulmonary fibrosis, neurocognitive impairment affective mood disorders & altered social functioning. The core objective in this matter is to enhance the survival rate of a lot of children with cancer by coordinated participation and research trials.[1]

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Review Article

Hemangiomas of the Oral and Maxillofacial Region: A Series of Five Cases with Literature Review

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Abstract

Most of the vascular tumors in the maxillofacial region are hemangiomas. Hemangiomas are basically benign lesions of a vascular origin. This article describes a series of five cases on hemangioma recorded on the lip, buccal mucosa, and zygoma. Here, we present four variants of hemangioma, namely cavernous hemangioma, capillary hemangioma, lobular capillary hemangioma, and intraosseous hemangioma, which were reported to our Maxillofacial Unit.

Keywords: Capillary hemangioma, cavernous hemangioma, intraosseous hemangioma, lobular capillary hemangioma

Introduction

Hemangiomas are defined as the proliferation of blood vessels creating a mass, connected to the main vascular system. They are fundamentally classified as superficial, deep, or compound and as congenital or infantile. Even though hemangiomas of the head and neck region are common, they are a rare entity in the oral cavity.[1] They can be cutaneous (the lips, skin), mucosal, intramuscular (masseter and other perioral muscles), and intraosseous.[2,3] There is a high incidence of soft tissue hemangiomas noticed among children, whereas hemangiomas of the bones are seen in the elderly. The likelihood for developing hemangiomas in preterm babies increases by 23%.[4] Hemangiomas usually manifest since birth or at early childhood and they comprise a proliferative phase, an early involution phase, and a late involution phase (10–12 years).

Hemangiomas may appear soft, pedunculated, smooth, lobulated, or sessile. They can vary from a few millimeters to several centimeters in size. Hemangiomas of the oral mucous membrane appear slightly raised and are usually blue in color.[5] Lobular capillary hemangiomas are a histological variant of pyogenic granuloma; these have blood vessels in lobules. The most common site for occurrence of the lobular capillary hemangioma is the lip, with the least being the tongue.[6]

Intraosseous hemangioma occurs in the calvaria and vertebral column. Vertebral and skull hemangiomas are usually asymptomatic, whereas facial intraosseous hemangiomas are commonly symptomatic.[7] Among the calvarial bones, the parietal bones are commonly affected whereas the occipital and temporal bones are least affected.[8] Intraosseous hemangiomas of the facial bones are rare. The sites of occurrence observed in literature are the maxilla, mandible, and nasal bones.[9] Intraosseous hemangiomas of the zygomatic bone are unusual, with an incidence of only about 8% to 12%.[8] If they do occur, they involve the orbit that results in ocular complications such as proptosis, diplopia, and visual loss.[7] A routine biopsy that is usually done to establish the type of lesion is dehorted in hemangiomas due to the risk of hemorrhage, and needle aspiration is mostly preferred.[9]

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ORIGINAL ARTICLE

Single-insertion technique for anesthetizing the inferior alveolar nerve, lingual nerve, and long buccal nerve for extraction of mandibular first and second molars: a prospective study

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Abstract (J Korean Assoc Oral Maxillofac Surg 2020;46:403-408)

Objectives: Appropriate and accurate local anesthetic (LA) techniques are indispensable in the field of oral and maxillofacial surgery to obtain a satisfactory outcome for both the operating surgeon and the patient. When used alone, the inferior alveolar nerve block (IANB) technique requires supplemental injections like long buccal nerve block for extraction of mandibular molars leading to multiple traumatic experiences for the patient. The aim of this study was to anesthetize the inferior alveolar, lingual, and long buccal nerves with single-needle penetration requiring a minimal skillset such as administering a conventional IANB through introduction of the Benny Joseph technique for extraction of mandibular molars.

Materials and Methods: This was a prospective study conducted in the Department of Oral and Maxillofacial Surgery, Kunhitharuvai Memorial Charitable Trust (KMCT) Dental College, Calicut, India. The duration of the study was 6 months, from June to November 2017, with a maximum sample size of 616 cases. The LA solution was 2% lignocaine with 1:100,000 adrenaline. The patients were selected from a population in the range of 20 to 40 years of age who reported to the outpatient department for routine dental extraction of normally positioned mandibular right or left first or second molars.

Results: Of the 616 patients, 42 patients (6.8%) required re-anesthetization, a success rate of 93.2%. There were no complications such as hematoma formation, trismus, positive aspiration, and nerve injuries. None of the cases required re-anesthetization in the perioperative period.

Conclusion: The Benny Joseph technique can be employed and is effective compared with conventional IANB techniques by reducing trauma to the patient and also requires less technique sensitivity.

Key words: Benny Joseph technique, Lingual nerve block, Inferior alveolar nerve block, Long buccal nerve block

[paper submitted 2019. 10. 6 / revised 2019. 12. 13 / accepted 2019. 12. 17]

I. Introduction

Appropriate and accurate local anesthetic (LA) techniques are indispensable in oral and maxillofacial surgery to obtain a satisfactory outcome for both the operating surgeon and the patient. For these purposes, various surgical techniques have been utilized for the maxilla and mandible. To obtain anesthesia in the mandible, various techniques like the inferior alveolar nerve block (IANB), Spix, Vazirani-Akinosi, and Gow-Gates techniques are available[1]. The Spix IANB is the most commonly used technique, but there have been reports of its failure to achieve adequate anesthesia[2,3]. When used alone, the IANB technique requires supplemental injections like long buccal nerve block for extraction of mandibular molars, leading to multiple traumatic experiences for the patient. Conventional mandibular nerve block techniques like Vazirani-Akinosi and Gow-Gates require a larger volume of LA solution and a well-experienced surgeon. The technical acuity required and the lack of bony stops for these techniques discourage their use by normal dental practitioners even though they are single-penetration techniques[4,5].

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Management of Flabby Tissue: A Review

Dr. Swapna. C[1], Dr. Sheejith. M[2], Dr. Eaketha. P. Lokesh[3]

Abstract: ***'Fibrous' or 'flabby' alveolar ridges pose significant problems for the provision of stable and retentive dental prostheses for affected patients. In particular, problems arise during the act of impression taking, when forces cause the mobile denture bearing tissues to become distorted. The purpose of this paper is to review the impression techniques that can be used to optimize the treatment of edentulous patients with 'flabby' alveolar ridges.***

Keywords: flabby tissue / ridge, combination syndrome, massad's technique, lynch and allen technique, hobkrick technique, window technique, osborne, liddledow, magnessson technique, walter, allen mack technique

1. Introduction

Flabby ridge (displaceable ridge/fibrous ridge) is a clinical condition that affects the retention, stability and support of a prosthesis. According to GPT-4 & GPT-9, it is an "excessive tissue" or a "movable tissue"(1) It is a tissue adaptation to overcome the changes caused by residual ridge resoprtion in providing adequate support which relining procedures will otherwise do.(2)Flabby ridge is actually replacement of alveolar bone by fibrous tissue with poor denture supporting properties, most commonly seen in the anterior maxillae as a result of combination syndrome (Kelly Syndrome) due to excessive load of the residual ridge.(3) Flabby ridges are composed of mucosal hyperplasia and loosely arranged fibrous connective tissues as well as denser collagenase connective tissue. In the soft tissue, varying amounts of metaplastic cartilage &/ or bone has been reported. (4)(5)Flabby ridges could arise as a result of unplanned or uncontrolled dental extractions, long term denture wear without maintenance, poor systemic health, trauma from the denture base, malocclusion, ridge resorption or due to aberrant forces on the prosthesis.(6)(7)(8)

2. Management of Flabby Ridge

The three main approaches to manage a flabby/ displaceable ridge includes: (4)

a) Surgical removal of fibrous tissue prior to conventional prosthodontics.
b) Implant retained fixed or removable prosthodontics.
c) Conventional prosthodontics without surgical intervention.

a) Surgical removal of fibrous tissue

Surgical removal will produce a firm denture-bearing area that enhances the stability of the prosthesis. It is indicated for pendulous ridges that interfere with denture stability. This technique can be considered only if patient's health is satisfying and if there is no other systemic complications. It is contraindicated if there is little or no alveolar bone. There exist arguments regarding the surgical removal, as the fibrous part provides a cushioning effect, which reduces trauma to the underlying bone. The removed tissue often requires prosthetic replacement by denture base material, which can increase the bulk of the prosthesis. Also, retention of the prosthesis is adversely affected by the significant loss of sulcular depth, that aid in border seal.(3)(4)

b) Implant retained prosthesis

Implant retained fixed or removable prosthesis offer better retention, stability and oral function. Such prosthesis are usually economical, as fewer implants are used for over dentures. However, recurrent cost due to maintenance can be considerable.(9) Various reports shows the success rates for maxillary implants to as low as 78.7%.(10)This could be due to the placement of shorter implants into highly vascular, poor volume, low-density bone. (3)Considering the time and finance, the initial cost and long term maintenance cost are high. Other factors that must be considered while placing an implant supported prosthesis includes surgical factors, general health of the patient, risk of surgical complications or implant failure & the patient's convenience.(11)

c) Conventional prosthetic management

Variety of impression techniques are practiced in conventional prosthetic management. Uncontrolled displacement of the mobile fibrous tissue from its resting position by forces exerted during conventional impression recording results in an impression with distorted denture bearing area. Basically, three impression principles has been reported in numerous literatures to overcome this problem. This includes:

I. Mucostatic (Non-displasive) impression technique (4)(8)(12): that records the un-displaced denture bearing area at rest. As the resultant denture is more closely adapted to the underlying tissues at rest, it is theoretically more retentive. But the occlusal forces will not be evenly distributed across the underlying denture bearing area.
II. Mucocompressive (Displaceable technique)(13): aims to compress the loose flabby tissue to allow functional support from it by replicating the ridge contour of the ridge during compression by occlusal forces.
III. Selective pressure technique: where some denture bearing tissues are displaced, & others are not. A close fitting custom tray and high viscosity impression material are used, the soft tissues at the vibrating line on the palate are compressed, while the tightly bound tissue on the hard palate is not.(4)(13)(14)

At present, there is lack of scientific evidences to support the superiority of any technique over the other. Various authors have described techniques to record the hyperplastic fibrous tissue.

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Evaluation of Signs and Symptoms Post Recovery in COVID Patients: A Questionnaire Survey

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ABSTRACT

Aim: Purpose of the present study was to understand as well as assess the signs as well as symptoms in patients after recovery from coronavirus infection.

Methodology: About 287 survivors from COVID-19 were included in the study, each received a questionnaire divided into three main parts starting from subjects' demographic data, data about the COVID-19 status and other comorbidities of the subject, and finally data about post-COVID-19 manifestations.

Results: Only 10.8% of all subjects have no manifestation after recovery from the disease while a large percentage of subjects suffered from several symptoms and diseases. The most common symptom reported was fatigue (72.8%), more critical manifestations like stroke, renal failure, myocarditis and pulmonary fibrosis were reported by a few percent of the subjects. There was a relationship between the presence of other comorbidities and severity of the disease. Also, the severity of COVID-19 was related to the severity of post-COVID-19 manifestations.

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Guest Editorial

Research publications in India-current scenario

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1. Introduction

It gives me immense pleasure to address this guest editorial. I have been a reviewer for this prestigious journal since few years. I have seen the journey of this journal, becoming as popular as each year passby. I congratulate editorial/reviewer board, publishers and technical team for their success. The main advantage of this journal is being limited to our speciality which has its own significant importance in research publications field.

I would like to utilize this opportunity to enlighten you all about current research publication scenario in India. I did some search on statistics, got few interesting findings to share with.

According to a study done by the US National Science Foundation (NSF) in 2018 the number of scientific papers published in India was over 1.35 lakh, with that India was world's third largest producer of scientific articles. The data also said published articles increased from 48,998 to 1,35,788 in 10 years. (2008-2018). That shows an average growth of 10.73%. The country used to account for 5.31% of the total world publications in science and engineering.[1]

But in 2019 another study recvealed that India stands 5th position with 15.8% growth trailing the UK, which has 37.3% research work published in top 10 journals, the US (36.2 %), Germany (33.4%) and China (27.6%).[2]

India has been struggling in terms of interest, commitment, infrastructure, resources, funds, incentive, and time constraints besides lack of trained faculty in research to guide students are well-known reasons for the same.[3]

So to address this issue we need to improve the quality of research publications. All the academicians should undergo training for writing a research publications so that potential will be utilized in right direction.

Let us all work towards improving the quality of research publications

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Original Article

Frequency of Middle Mesial Canals in Mandibular First Molar in Malabar (North Kerala) Population without Advanced Aids – An *In Vivo* Study

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ABSTRACT

Introduction: This study was undertaken in department of conservative and endodontics, KMCT dental college, Kozhikode, within the span of 2 years ranging from June 2017 to June 2019. Total of 227 teeth were evaluated from 220 patients. All the teeth evaluated were mature mandibular permanent first molars referred for endodontic therapy to the department.

Purpose: The presence of middle mesial (MM) canals is quite high in North Kerala population. Missing these canal space would potentially lead to failure of root canal treatment.

Methods: All the mature mandibular first molars treated between June 2017 and June 2019 were considered for the study. Mesial developmental groove was inspected and explored in every case to detect accessory canal. If cases were that having MM canal was found, it was cleaned, shaped, and recorded. Results were analyzed using Chi-square test.

Results: A total of 227 first molars from 220 patients were treated during the specified period, of which 78 teeth (34.36%) had negotiable MM canals. Statistical analysis revealed no significant relationship between different age groups with incidence of MM canals but gender had slight influence, wherein female patients had more.

Conclusion: The presence of MM canals is quite high in North Kerala population.

Key words: Accessory canal, Mandibular molar, Middle mesial canal, Root canals

INTRODUCTION

A successful endodontic treatment depends on complete debridement of pulp space and creating a fluid tight seal. Favorable environment for healing should be created, which is free of microbes and necrotic tissue. However, this is not always possible in teeth with unusual canal morphologies. They are probably more prone to treatment failures due to insufficient knowledge of canal anatomy and aberrations associated with it.

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Mandibular first molars normally have two roots and three to four canals (two mesial and one-two distal).[1] The incidence of variation is quite high, including seven to eight canals, C-shaped canals, isthmus, and an additional third canal in the mesial root.[2,3]

The middle mesial (MM) canal used to be an occasional entity, which lies in the developmental groove between the mesiobuccal (MB) and mesiolingual (ML) canals. Since its first reporting by Vertucci and Williams as well as Barker *et al.* in 1974, the MM canal has been extensively studied. Its incidence has been reported to be 0–46%.[4]

Pomeranz *et al.* classified MM canals into three categories – (1) Fin: The file passes freely between the main mesial canal (ML or MB) and the MM canal (transverse anastomosis), (2) confluent: The MM canal merges with the main mesial canals in the apical third, and (3) independent: The MM

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Original Article

Vertical Fracture Resistance of Endodontically Retreated Teeth Using Two Instrumentation Systems

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Abstract

Introduction: Vertical root fractures are the most challenging complication associated with endodontically treated teeth. Different nickel-titanium (NiTi) instrument designs are associated with different levels of stress and resistance of roots to fractures.

Purpose: This study was designed to evaluate the fracture resistance of retreated roots using two different rotary retreatment systems.

Materials and Methods: Sixty freshly extracted human mandibular premolar with single, straight roots were randomly divided into four groups of fifteen specimens each. Samples of negative control were left untreated. Samples of positive control were cleaned and shaped with ProTaper files up to F_3. Obturation was done using gutta-percha and AH Plus sealer (Dentsply Detrey, Konstanz, Germany). For the samples of experimental groups three and four, removal of gutta-percha was performed using ProTaper Universal (Dentsply Maillefer, Ballaigues, Switzerland) and Mtwo (Sweden and Martina, Padova, Italy) rotary retreatment systems. The specimens were then embedded in a self-curing polymethyl methacrylate resin, and the force required to cause vertical root fracture was measured using a universal testing device. The force of fracture of the roots was recorded, and the results in the various groups were compared. Statistical analysis was accomplished by one-way analysis of variance and a *post hoc* Turkeys tests.

Results: There were statistically significant differences between the control groups and experimental groups ($P < 0.05$). However, there were no significant differences among the experimental group.

Conclusion: Type of rotary files used for retreatment does not significantly alter the fracture resistance of the tooth.

Key words: Endodontically retreated tooth, Fracture resistance, Retreatment files

INTRODUCTION

Residual necrotic tissue or bacteria existing in an obturated canal can be responsible for recurrent periapical inflammation and pain.[1] Thus, the main objective of nonsurgical retreatment is to regain access to the apical foramen and eliminate persistent organisms.[2] Efficient removal of the existing root canal filling material is essential for optimal non-surgical retreatment. The techniques applied to remove gutta-percha are varied and include the use of hand or rotary instruments, with or without heat, solvents, and/or ultrasound.[3] However, manual removal of gutta-percha using is time-consuming, especially in well-condensed canals. Thus, the use of contemporary rotary nickel-titanium (NiTi) instruments is more efficient and less fatiguing to the patient and operator.

Vertical root fractures (VRF) are the most challenging complication associated with endodontically treated teeth.[4] True vertical root fracture is defined as a longitudinal fracture confined to the root that usually initiates on the internal canal wall and extends outward

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JPID Gallery > JPID - Vol 03 - Issue 03 > Article 3

PROSTHETIC REHABILITATION OF A PATIENT WITH ORBITAL EXENTERATION USING SILICONE PROSTHESIS

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Abstract:

Social and psychological well being of a patient directly or indirectly depends upon their facial beauty. Any of the maxillofacial defects will alter the quality of life, blemish the social integration and collapses the patient's expectation to return to normalcy. Orbital exenteration is enforced to treat various neoplasms or non-malignant diseases. Conventional or implant retained orbital prostheses may be indicated, to recreate the appearance of the patient. For patients who cannot afford implant retained prostheses, orbital prostheses fabricated from silicone, and retained by mechanical means such as spectacles, or adhesives,present an economically viable treatment option. This case report presents a simplified method of fabricating the silicone orbital prosthesis in a patient with a history of orbital exenteration due to carcinoma of sebaceous gland.

Key words: Orbital exenteration, orbital prosthesis, silicone elastomers

Introduction

Patients requiring treatment with orbital prosthesis are those who have lost orbital structures through exenteration. Orbital exenteration is performed by an ophthalmic surgeon for the treatment of potentially life-threatening malignancies or implacably progressive conditions unresponsive to other treatments.[1] Indications for orbital exenteration include neoplasms like basal cell carcinoma, squamous cell carcinoma;painful blind eye; infection; recent injury; disfiguring blind eye; prevention of sympathetic ophthalmia etc.[2] This will scourge the cosmetic, functional and psychological problems in the patients.

Patient usually dissent the cosmetic rehabilitation with reconstructive surgical procedures because of the need for further surgical procedures, added cost, and multiple postoperative visits. In such cases, the patient must be motivated for the prosthetic rehabilitation in time.[3]

This case report presents a simplified method of fabricating the silicone orbital prosthesis in a patient who was referred to the Department of Prosthodontics from MVR Cancer Institute, Kozhikode, for cosmetic rehabilitation after orbital exenteration due to carcinoma of sebaceous gland. The method described here was found to be cost effective, easy to perform, and resulted in the restoration of facial esthetics and overall wellbeing of the patient.

Case Report

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FULL MOUTH REHABILITATION IN PAEDIATRIC DENTISTRY: A CLINICAL CASE REPORT

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Abstract
Early childhood caries (ECC) is a major health concern that affects the oral health of infants and children leading to deterioration of general body health. Despite improvements in the oral health of children in recent decades, early childhood caries (ECC) still remains a serious threat to child welfare. In early childhood caries, there is gross destruction of the deciduous teeth leading to problems like reduced vertical dimension, masticatory insufficiency, impaired aesthetics, development of parafunctional habits and psychological problems.

The restoration of severely decayed primary teeth is often a difficult procedure that presents a special challenge to paediatric dentists. This case report documents full mouth rehabilitation of severely mutilated deciduous dentition in a patient with ECC to improve oral and general health.

Introduction
Dental caries is a common chronic infectious transmissible disease resulting from tooth-adherent specific bacteria, primarily mutans streptococci (MS), that metabolize sugars to produce acid which, over time, demineralizes tooth structure.1

Although the etiology of ECC is multifactorial, improper feeding practices and adoption of more cariogenic food with the weaning of milk is one of the major reasons for this disease.2 Early loss of the anterior deciduous teeth may cause countless issues. These include psychological impact, which cannot be measured; development of harmful oral habits, speech difficulties and finally negative aesthetic effects including embarrassment when speaking and smiling.3,4 The premature loss of deciduous molars in turn can cause mesial shifting of erupting permanent molars causing profound malocclusion in the developing dentition. In such cases rehabilitation may be achieved with removable functional space maintainers, which are well-accepted by children.

Multiple treatment options are available for rehabilitation of a severely mutilated dentition of a deciduous dentition which have distinct aesthetic characteristics, difficulty levels, and costs. Therefore, taking into consideration all factors the dentist should choose the treatment that best suits the patient, respecting the patient's limits of acceptance and cooperation, while maximizing safety and comfort. In addition, treatment should restore both function and aesthetics, as an aesthetic reconstruction will have a positive impact on emotional aspects and consequently provide psychological benefit to the child.

This case report describes rehabilitation of a severely mutilated dentition of a 6-year-old boy with a comprehensive treatment plan including restorations, extractions, endodontic treatment, stainless steel crowns and functional space maintainer.

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Hollow ocular prosthesis: an offshoot from the conventional

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Abstract

Fabrication of an ocular prosthesis not only restores the esthetics of the patient but also preserves the socket by restricting the outgrowth of soft tissues. A well preserved socket is open to more treatment options compared to a poorly managed ocular defect. Custom ocular prosthesis improves tissue health by eliminating any stagnating space with its close tissue adaptation. It provides better range of movements and improves patient comfort. Primary factor that decides the fabrication protocol for a maxillofacial prosthesis is the defect size. Larger ocular defects could be rehabilitated using a custom fabricated hollow ocular prosthesis.

Keywords: Ocular Prosthesis, Hollow Prosthesis, Enucleation

Introduction

Custom ocular prosthesis has got many advantages over stock prosthesis. It adapts closely to the soft tissue bed in the socket there by distributing the pressure equally and improves tissue health by eliminating any stagnating spaces.[1,2] A customized prosthesis shows better range of movements through its close adaptation.[3] Hollow ocular prosthesis further improves patient comfort by reducing the weight through its hollowness. Size of the ocular defect is the primary factor that decides the prospects of fabricating any prosthesis. Larger defects are usually rehabilitated using hollow ocular prosthesis.

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NANOTECHNOLOGY AND ITS ROLE IN DENTISTRY

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bstract:

Nanotechnology is the branch of technology that deals with tolerances and dimensions of less than 1 nometres, mainly the manoeuvring of individual atoms and molecules. Nanotechnology has got multi plications in the field of medicine and dentistry. Here a concise of dental application of nanotechnology scribed.

ndex Terms: *Nanotechnology, nanomaterial, nanocomposite, nanorobots, dentistry*

NTRODUCTION:

Nanotechnology is the branch of technology that deals with tolerances and dimensions of less th 00 nanometres, mainly the manoeuvring of individual atoms and molecules. The term 'Nano' was evolv om a Greek word which means "dwarf." A widely used definition for nanotechnology is "The creati nd utilization of materials, devices, and systems through the control of matter on the nanometre scale 00 nm), i.e. at the extent of atoms, molecules, and supra molecular structure anotechnology when integrated into biology is referred as "nanobiotechnology" or "nanomedicine"[1]. 959, Richard P Feyman who was a Nobel Prize winning physicist proposed that it would be possible ing machine tools to make smaller machine tools, which, in turn, would be used to make still smaller mach ols, and so on all the way down to the molecular level . He suggested that such nano-machines, nanorob nd nano-devices ultimately could be used to build up a wide range of atomically accurate microscop strumentation and developing tools. According to Feyman theses tools could be used to produce v antities of ultra small computers and various micro scale and nanoscale robots. He concluded that this ten "a development which I feel can't be avoided", and therefore the vision of nanotechnology was bo anotechnology aims to control particles to make novel structure with unique properties and promis lvances in medicine and dentistry. Nanodentistry will make possible the near perfect oral health throu e use of nanomaterials, biotechnology including tissue engineering and nanorobotics[2].

YPES OF NANOTECHNOLOGIES:

- Nanoscale structured materials and devices which will be used to fabricate sophisticated a complicated diagnostics and biosensors, targeted drug delivery systems, and smart drugs
- Molecular medicine via genomics, proteomics, artificial biobotics (microbial robots)
- Molecular machine systems and medical nanorobots allow instant pathogen diagnosis and extermination, and also for the efficient augmentation and improvement of natural physiologi function[3].

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ORIGINAL ARTICLE

Digital occlusal analysis of vertical dimension and maximum intercuspal position after placement of stainless steel crown using hall technique in children

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Abstract

Background: The stainless steel crowns (SSCs) placed using the Hall technique disrupt the occlusion, but stabilization appears to occur within a short period after placement. Negligible understanding and comprehension is presently handy about the changes in overbite and bite force after placement of stainless steel crown using the Hall technique in children.

Aim/Hypothesis: To evaluate the digital occlusal analysis of vertical dimension and maximum intercuspal position to understand the changes in overbite and bite force after placement of stainless steel crown using the Hall technique.

Design: Twenty children who needed treatment for the carious tooth with decay extending to enamel and dentin and multisurface caries were managed using the Hall technique. Following that, overbite measurement for vertical dimension was carried out clinically using digital vernier calipers. Later, the T-Scan III was used for measuring occlusal load at the maximum intercuspal position. The bite force and occlusal premature contacts were digitally analysed and recorded pre-operatively, immediately after placement of SSC and after 1 month follow-up period.

Results: A significant result in the vertical dimension, bite force on crowned tooth, and significant reduction in the prematurities were seen from baseline to one month follow-up.

Conclusion: There was an occlusal re-equilibration attained after 1 month.

KEYWORDS

bite force, children, hall technique, SSC, T-scan

1 | INTRODUCTION

Mastication provides the adequate stimulus for proper functioning and normal development of maxilla and mandible. Several factors potentially influence masticatory efficiency including occlusal contact area, number of functional teeth, and bite force. Areas of contact between occluding teeth determine the area available for shearing food during each chewing cycle.[1] Long-term mastication on one side due to gross destruction of untreated caries leads to asymmetric masticatory muscles or decrease in the function.[2,3] If the process continues, it consequently results in compromised facial growth and development due to an imbalance in the equilibrium and a disturbed harmony. There is also a high chance of tooth migration towards the tooth that is affected due to proximal caries, as there is a reduced mesiodistal width of

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Case Report

Non-surgical endodontic management of mandibular first premolar with three roots and root canals: A case report

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ABSTRACT

A detailed knowledge of the pulp canal anatomy and variations in individual tooth is important to effectively clean and shape the root canal system. Identification of such variations and their instrumentation together with adequate disinfection can avoid need for future retreatment and surgical intervention. Several case reports reported variations in tooth morphology and root canal systems related to the mandibular first premolars. The occurrence of three roots in the mandibular first premolar is unusual. This article reports the identification and management of mandibular first premolar with aberrant root and root canal system.

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1. Introduction

For root canal treatment to be successful, it is necessary to locate all root canals, debride them thoroughly and seal them three-dimensionally with an inert root filling material. A complete knowledge on the pulp canal anatomy is critical to successfully clean and shape the canal and its varying morphology which eventually will build the long-term success of the treatment. In the literature, the mandibular first premolar is usually single-rooted with incidence of 97.1%. However, studies revealed an incidence of approximately 2.7% of bifurcated teeth. Mandibular first premolar with three roots are extremely rare with an incidence of 0.2%. Scott and Turner described the accessory root as "Tome's root".[1]

Although uncommon, possible variations in morphology reported in the literature include mandibular one rooted first premolars with two canals, three canals and four canals; two rooted with two canals, three canals and four canals; three rooted with three canals and four rooted with four canals.[1]

This article reports identification and nonsurgical endodontic management of mandibular first premolar with three separate roots and three separate root canals.

2. Case Report

A 46-year-old female reported to the Department of Conservative Dentistry and Endodontics with a chief complaint of pain in her lower right back tooth region while having food for five days. Medical history of the patient was noncontributory. She reported lingering pain associated with intake of hot and cold drinks in the right posterior mandibular tooth. Clinical examination revealed deep distal caries in relation to #44. Cold test with EndoFrost (Coltene Whaledent, Langenau, Germany) and electric pulp test on the involved tooth showed hyper response and lingering pain. Pre-operative radiograph for #44 [Figure 1A] revealed radiolucency involving enamel and dentin which was approximating pulp chamber. There was no radiographic evidence of apical periodontitis. Radiographic examination revealed the aberrant morphology of the first premolar root. The tooth was diagnosed with symptomatic irreversible pulpitis secondary to dental caries based on the clinical and radiographic examination and it was decided to carryout endodontic treatment in mandibular first right premolar.

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Review Article

COVID-ified' orthodontic practice: A review

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ABSTRACT

Corona virus disea : 2019 (COVID-19) is a contagious disease caused by severe acute respiratory syndrome corona vir s (SARS-CoV-2). It emerged as a global pandemic in early 2020, affecting more than 200 countries and te itories. As SARS-CoV-2 has also been identified in the saliva of infected individuals, it poses a significan risk for dental professionals and their patients. This article focuses on the changes which are to stay in e wake of COVID-19 especially with respect to orthodontic practice. It is important to have a thorough k owledge about handling the procedures and emergencies in the current scenario or in the wake of an unpre edented future lockdown. Practitioners must anticipate and be prepared for the effects of unsupervised orth dontic treatment in the wake of unprecedented suspension of elective treatment due to COVID 19. This literature also focuses on publications regarding this new corona virus and supplies valuable indications o professionals concerning protective and preventive measures that can be adopted. Orthodontically rele ant sources of information were searched using electronic databases including PubMed and Google Scholar, Scopus and SciELO. As keywords, the terms "Orthodontics" and "Covid-19" were used in English. Where available, peer-reviewed and more recent publications were given priority.

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1. Introduction

In October 2015, blood samples were collected from 218 villagers in Jinning, China. The villages surround cave: that are known to host SARS-related coronavirus harbo ring bats. The blood samples found that nearly 3% ca ried antibodies against SARS-like coronavirus. There wa s no history of contact with bats nor did they exhibit any clinical symptoms. This was the first recorded incic ence of a bat-to-human transmission of the coronaviruses. This research,[1] also mentioned that these coronaviruses h ve a high rate of mutation and "are prone to recombinati on if different viruses infect the same individual."[2]

With its beginnings i: Wuhan city, China, as a cl ister of cases of pneumonia with unidentified aetiology, it was soon identified to be caused by a novel strain of corona virus (CoV), called severe acute respiratory syndrome C V-2 (SARS-CoV-2), which spread primarily through droplets, respiratory secretions and through direct contact. The COVID-19 pandemic is an unprecedented global crisis. By mid-September, 2020, over 22 million confirmed cases of COVID-19 had been reported worldwide, with almost 9,30,000 deaths.

SARS-CoV-2, has created a much deadlier pandemic in part because once it infects a person it can lie undetected for a long time. An individual who had the SARS coronavirus do not transmit the disease until 24 to 36 hours after displaying symptoms such as fever and dry cough; people feeling ill could be isolated before they made others sick. But individuals with COVID-19 may transmit the virus even before they show clear symptoms. Not feeling sick, infected men and women work, commute, shop, eat out and attend parties, all the while exhaling the virus particles into the airspace.

COVID-19 came out of nowhere!! And so, dental practice owners now face a challenge they have not been

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Review Article

Pathogenesis of Gustatory and Olfactory Dysfunction in Coronavirus Disease 2019 Patients: A Neurophysiological Hypothesis

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ABSTRACT

Coronavirus disease 2019 (COVID-19), the global pandemic, has taken a toll on health and socioeconomic status of the entire world. Clinical spectrum and outcome of this disease still remain a mystery. Centers for Disease Control and Prevention has recently included olfactory and gustatory dysfunction in the key symptoms suggestive of COVID-19 infection. In spite of various studies since the outbreak of this disease, the exact pathological mechanism of this ailment is yet unclear. Cyclic adenosine monophosphate (cAMP), the ubiquitous protein essential for many biological processes, has been proved as a key factor in signal transduction of taste and smell as well as in viral replication. This article hypothesizes that virus utilizes cAMP for its replication in oral and olfactory mucosa resulting in depleted level of cAMP available for transmission of chemosensory impulse and thereby resulting in dysregulated taste and smell in COVID-19 patients.

Key words: ACE2 receptor, Coronavirus disease 2019, Cyclic adenosine monophosphate, Gustatory dysfunction, Insular cortex, Olfactory dysfunction

INTRODUCTION

Coronavirus disease 2019 (COVID-19), a zoonotic infection caused by SARS-CoV-2, started as an outbreak in Wuhan, China, in December 2019 and quickly became an epidemic. Within no time, it attained pandemic status to shudder the entire world and has caused an unprecedented and unimaginable psychosocial impact on millions of people. Clinical spectrum of COVID-19 is exceedingly varied and can range from asymptomatic form to severe multiorgan dysfunction and failure. In extremes of life and in people who are immunologically compromised, the disease can run a fatal course. In symptomatic cases, the disease manifests as fever, dry cough, tiredness, and shortness of breath which appears 2–14 days after exposure. Mild-to-moderate symptomatic cases, if not treated adequately, may progress to more severe condition within a couple of days leading to dire consequences. Unfortunately, there are no specific clinical symptoms to secernate COVID-19 from other viral respiratory infections.

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Chemosensory dysfunction was not a commonly reported symptom from the initial epicenter of COVID-19. Subsequently, both olfactory and gustatory dysfunctions were found to be prevailing in patients with mild-to-moderate infection. The American Academy of Otolaryngology-Head and Neck Surgery and The British Association of Otorhinolaryngology are now recommending these symptoms to be added to the list of primary screening symptoms for COVID-19.[1,2] Centers for disease control and prevention has recently included olfactory and gustatory dysfunction in the key symptoms for COVID-19 infection.

Olfactory and gustatory dysfunction may appear before, during, or after the general symptoms. The altered taste

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Literature Review

DRAWBACKS OF COMPOSITE RESIN AND POLYMERIZATION SHRINKAGE

*Dr.Noopura S, **Dr. Ramesh Kumar M , ***Dr.Elsy P Simon, ****Dr.Ravi.S.V

Abstract

Composite resins have always been a priority for the restoration of anterior teeth; increasingly, they have also gained prominence in the restoration of posterior teeth. This has been due to their advantages as an alternative to amalgam1. Their drawbacks however,can include poor marginal adaptation, postoperative sensitivity and cuspal movement1. These are particularly associated with the polymerization shrinkage accompanying the placement of composite resins. This article aimed at evaluating drawbacks of composite resin with more emphasize on to polymerization shrinkage.

Key Words: composite, polymerization shrinkage, drawback

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Introduction

The use of composite resins in dentistry and the interest have risen markedly in recent years. A wide variety of vastly improved composite materials have been and will continue to be used for the overall purpose of conservative restorative dentistry.[1,2] Dental composite resins are heterogeneous materials with two components, the resin matrix and the filler particles. The polymeric matrix in dental resins contains a variety of high molecular weight monomers, mainly based on bis-GMA, which is derived bis- phenol.[3-6] The fiIller particles constitute up to 86 per cent weight,[7] 71 per cent by volume of the material , and those used in commercial composites cover the whole range of quartz, borosilicate glass and aluminosilicate glass.[7,8] The monomer matrix is very viscous diluent monomers are added to improve workability. These are typically difunctional monomers, of lower mass than bis-GMA, Some composite resins also utilize alternative monomer systems in which bis-GMA a partly or wholly replaced by aliphatic or aromatic urethane dimethacrylates6. During setting, the resin typically undergoes free radical polymerization to harden with a consequent reduction in volume. The generally preferred mode of cure in dental composites

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Literature Review
A QUICK UPDATE OF ENDODONTIC IRRIGATING SOLUTIONS

*Dr. Subin Bharath

Abstract
Irrigation is a key part of successful root canal treatment. It has several important function which may vary according to the irrigant used: It enables smooth movement of the instrument with in the canal, it improves the cutting efficiency and it has a washing effect and an antimicrobial / ant biofilm effect. Irrigation is also the only way to impact those areas of the root canal wall not touched by mechanical instrumentation. Sodium hypochlorite is the main irrigating solution used to dissolve organic matter and kill microbes effectively. EDTA is required as a final rinse to remove the smear layer. Saline may be used between these two main irrigants. Root canal irrigation is the most important determinant in the healing of periapical tissues along with proper instrumentation and obturation of the root canal. In this review of literature various irrigants and their mode of action, pros and cons, protocols are discussed.

Key Words: Endodontic Irrigation , Sodium Hypochlorite, Chlorhexidine Gluconate Irrigation Protocols

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Introduction
Debridement of the root canal system is essential for predictably successful endodontic therapy. The significant therapy of the root canal irrigation to endodontics strengthen in the period between 1859 when Tuft recommended frequent syringing of the root canal to remove irritants until the mid-1940's when endodontics become a special fields with in dentistry and the American endodontic society was established.[1]

Higher success rate in non – surgical endodontic treatment can be attained by improved debridement of isthmuses and apical anatomy, effective smear layer removal, disruption of bio-film and removal.[2]

Instrumentation serves to clear a pathway for effective flow of irrigation by removing debris while maintaining natural canal anatomy and curvatures.[3] Improvement in our success will come from improved methods of irrigation. Most of the inter radicular bacteria hide and reside in root

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Literature Review

RECENT ADVANCES IN COMPOSITE RESIN: AN OVERVIEW

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Abstract

Composite restorative materials represent one of the many successes of modern biomaterial research, since they replace biological tissue in both appearance and function. At least half of posterior direct restoration placements now rely on composite materials.These materials were introduced to overcome the inherent shortcomings of amalgam restorative materials. Earlier composites lack in mechanical properties to withstand the masticatory forces. Various filler particles have been added to composite resins to improve their physical and mechanical properties. Filled composite resins exhibit high compressive strength, abrasion resistance, ease of application and high translucency. Depending on the filler size and shapes, various composites have been developed until now. This article is a review of numerous types of composites that are technologically advanced to modify their properties.

Key Words: composite, recent advances, review

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Introduction

Acrylic resin was introduced to the dental profession in the mid 1950s. Since their introduction, acrylic based materials have continued to play a major role in restorative and prosthetic dentistry. The potential for greater application of resins came about with the introduction of the bisphenol A glycidyl methacrylate, or BIS-GMA, by Bowen in the early 1960s. This formulation possessed a higher molecular weight and therefore better mechanical properties and reduced polymerization shrinkage, the newer polymer offered potential for much greater applications that included anterior and posterior composite resin restorations, indirect inlays/onlays, pit and fissure sealants and more wear resistant denture teeth.

Although Bowen's formulation has been available for more than 30 years, the chemistry has remained relatively unchanged. As a result, the mechanical properties also have not improved substantially. The purpose of this article is to

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CHANGING FACE OF DENTISTRY

Change the way you look at things and
the things you look at change

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INTRODUCTION

The profession of Dentistry and Dental Care has a long history. Researchers have traced dentistry back to 7500 B.C in ancient Egypt. The earliest known reference to a person identified as a dental practitioner was in the form of an inscription on the tomb of Hesy-Re, an Egyptian scribe, often called the first 'dentist'. The inscription includes the title "the greatest of those who deal with teeth, and of physicians."

The beginnings of dentistry as a profession dates back to the middle ages where 'A Guild of Barbers' were established in France. Barbers eventually evolved into two groups: surgeons who were educated and trained to perform complex surgical operations; and lay barbers, or barber-surgeons, who performed more routine hygienic services including shaving and tooth extraction. These partially trained hair cutters began using a "Dental Pelican" in the 14th century and then a "Dental Key" to extract teeth from their patients' mouths. Both of these tools were similar to and the precursor to modern day forceps. These barbers were not full-time dentists, but in fact, their work was focused solely on removing any infected teeth for alleviating pain purposes, not preventive care.

It was between 1650 and 1800 that the concepts behind dentistry got its start. Dentists, barbers, and surgeons, were separated as professions. For some time, surgery was thought of as a rather low profession among doctors, so people veered away from it as a subject. As knowledge of anatomy and medical procedure became more precise, more patients began surviving elaborate and dramatic surgeries. As fewer barbers were called upon to perform surgery, that aspect of the profession died out.



The man behind the science of dentistry was 17th century French Physician, Pierre Fauchard. He published 'The Surgeon Dentist, A Treatise on Teeth (Le Chirurgien Dentiste)' in the 1700's. Fauchard is credited as being the Father of Modern Dentistry because his book was the first to describe a comprehensive system for the practice of dentistry including basic oral anatomy and function, operative and restorative techniques, and denture construction. Thereafter, dental profession passed through an era of rapid advances including the widespread use of porcelain crowns, and attempts at construction of a dental foot engine.

More advances in science and education began in the 19th century. The 19th century, in particular, was an age where progress was accelerated, due to scientific and technological advances. There were many cathartic inventions and controversies during this period including the first reclining dental chair, the ever famous 'amalgam war', rubber dam, vulcanite, the world's first dental school at University of Maryland and introduction of the world's first national dental organization, the American Society of Dental Surgeons.

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Root Coverage by Subepithelial Connective Tissue Graft Harvested Bilaterally : A Case Report

* S. Hima, *Sijina K.K, * Sruthi V.G, ** Santhosh V.C.

Abstract

The subepithelial connective tissue graft was introduced by Langer and Langer in 1985. Then, this technique was modified by Nelson in 1987. The main objective of the technique was to provide soft tissue coverage to individual and multiple root sites. The technique aims at covering deep and wide recession areas where often desirable results were not achieved. The success of these grafts has been attributed to the double-blood supply at the recipient site from the underlying connective tissue base and the overlying recipient flap. It is mainly indicated in esthetically important areas where gingival color matching should be considered. This case report aims to determine the effectiveness of subepithelial connective tissue graft harvested bilaterally for the coverage of two multiple denuded roots surface area in the same patient in two visits.

KEYWORDS- connective tissue graft, recession, root coverage

KDJ 2020 | Vol. 43 | No. 4 | Pg 158-162

▸ Introduction

The desire for improved esthetics and the consequent demand for cosmetic dentistry has increased tremendously in recent times. Cosmetic procedures have become an integral part of periodontal treatment. Coverage of denuded roots is one of the commonly used esthetic periodontal procedures. Gingival recession is the term for the exposure of root surface due to apical migration of gingival margins. Gingival recession can give rise to complication like root caries and tooth discoloration[1]. Many patients seek treatment because of concerns about esthetic appearance, root sensitivity, or fear of early loss of the affected teeth.

The most common cause for gingival recession is abrasive and traumatic tooth brushing habits[2]. Some other causes are buccally positioned teeth, periodontal inflammation and resultant loss of attachment, frenal and muscle attachments that encroach on marginal gingiva, and orthodontic tooth movement through a thin buccal osseous plate[3,4].

Since the middle of 20th century, different techniques have been developed to cover the denuded roots[5,6]. Such treatment of denuded roots surfaces may improve esthetics, controls plaque retention, reduce the risk of caries and establish an adequate zone of attached gingiva. The introduction of the subepithelial connective tissue graft (SCTG) into the mucogingival armamentarium significantly improved the predictability of mucogingival surgical procedures[7]. The SCTG technique quickly became a popular modality of esthetic root coverage procedure because of its high degree of success and greater predictability[8].

▸ Case Report

A 25 year old male patient came to our department with chief complaint of sensitivity in lower front tooth region since 1 year. Patient had history of bleeding gums before 1 year, for that scaling was done, then sensitivity developed, which is persisting during eating and speaking. Patient had no relevant medical history present. Extra oral examination and soft tissue examination appears normal. Position of gingiva was 3.5 mm below CEJ in 41, 3mm below in 43, and 2mm below in 44. So the case was diagnosed with Millers class 1 gingival recession in relation to 41,43,44. And the treatment plan was phase I

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Literature Review

CLASSIFICATION OF COMPOSITE RESINS AND A REVIEW ON NANOFILLED COMPOSITE

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Abstract

Composite resins have progressed from macrofills to microfills and from hybrids to microhybrids. The recently introduced 'nanofilled composites' are produced by the nanofiller technology and formulated using nanomer and nanocluster filler particles. The aim of this review is to compile recent evidences related to nanofilled resin composite materials regarding their properties. Special attention was given to mechanical properties, such as strength, hardness, abrasive wear, water sorption, and solubility.

Key Words: nanofilled composite resin, hybrid composite resin, microfilled composite

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Introduction

Composite resins are increasingly been used in modern dentistry due to its desirable qualities, such as esthetic appearance, good physical and mechanical properties.[1] Their clinical applications include restorations, cavity lining, core buildups, luting and more. The Mechanical properties and esthetic appearance of resin composites rely mostly on their composition and microstructure. Despite the improvements in various properties over the years, the major changes to their composition involve the fillers rather than the monomer systems, which were originally developed by Bowen[2] in 1962.

Classification of resin based composite

Generally, a composite resin include three phases:

(1) the organic phase (the matrix)

(2) the interfacial phase (the coupling agents) and

(3) the dispersed phase (the fillers)[3]

Based on the manufacturing technique, average size and chemical composition, the filler particles can be categorized into three-

(1) Traditional macrofillers
(2) microfillers (pyrogenic silica), and
(3) microfiller-based complexes.

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Surgical management of a rare case of inverted intranasal mesiodens

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DESCRIPTION

A 20-year-old female patient had reported for orthodontic treatment, and during the routine radiographical investigations, it was noticed that a mesiodens was impacted in the lower nasal floor. On further clinical examination, the tip of the mesiodens was clinically visible on the floor of the nose through the left nostril. Furthermore, the patient mentioned a history of recurrent rhinitis and sinusitis, and was not under any medication thinking that it was of allergic origin (figure 1).

Aetiology of an intranasal tooth is still not clear, but few factors play a key role in its occurrence: (1) genetic predisposition, (2) tooth displacement by trauma or pathosis, (3) supernumerary teeth developing from the dental lamina near the permanent tooth bud or from a permanent bud itself and (4) developmental disturbances like cleft lip and palate.[1 2] The prevalence of its occurrence is 0.1% in the general population and 0.48% in association with cleft lip and palate.[3]

Determining the position of the mesiodens was done using a CT scan (figure 1) which revealed the palatally placed root. Access through the nostrils was challenging as it is difficult to grasp or luxate the impacted supernumerary tooth intranasally. As the overlying palatal shelf of bone was acceptably thin, the surgical plan was to approach the root intraorally through the palatal side and achieve adequate luxation of tooth orally. Once the tooth is luxated, the mesiodens will be grasped and extracted through nostrils as the greatest convexity of tooth was more towards the nasal end.

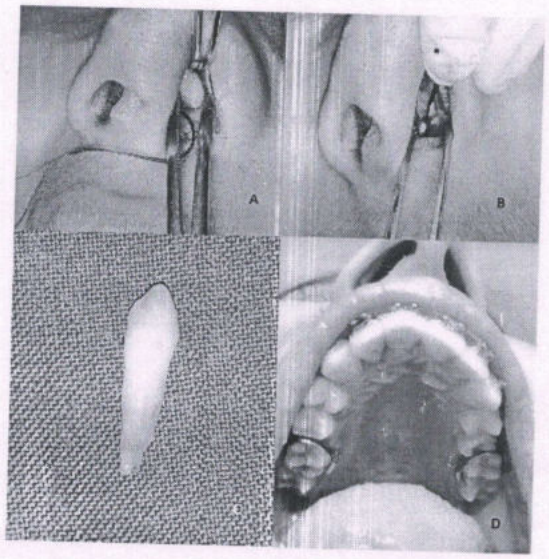


Figure 2 (A) Extracting mesiodens through the left nostril. (B) Left nostril immediately after extraction of mesiodens. (C) Extracted intranasal mesiodens. (D) One-year post-op of the palatal region after uneventful healing.

Adequate local anaesthesia was achieved by administering bilateral infraorbital nerve block along with multiple palatal and intranasal infiltrations. A gauze with a suture tie was then packed

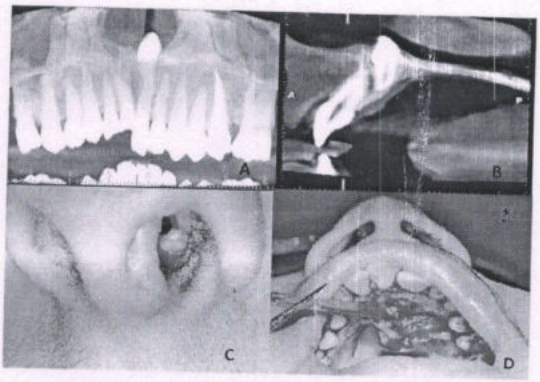


Figure 1 (A) Preoperative CT frontal view of the inverted intranasal mesiodens showing penetration into the nasal cavity. (B) Preoperative CT sagittal view showing the inverted intranasal mesiodens extending into the nasal cavity. (C) Inverted intranasal mesiodens clinically visible through the left nostrils. (D) Palatal approach of the intransal mesiodens for luxation of the tooth.

Learning points

- Intranasal retained tooth can cause symptoms like facial pain, external nasal deformities, foul-smelling rhinorrhoea, recurrent epistaxis, nasal obstruction and oronasal fistulae.
- Since very limited number of cases are reported, a definite treatment plan has not been developed. Treatment plan for each case is different based on the placement of the retained teeth and a thorough investigation should be performed before attempting to remove the teeth.
- Complications of nasal teeth include intraoperative injury to the soft tissues of the nasal region, haemorrhage and aspiration of tooth during extraction. Postoperative complications that may occur are—naso-septal perforation, naso-oral fistula, pain, postoperative infections and periodic nose bleeding from the extraction site.

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ABSTRACT

The dental implants has made it possible for many patients to experience an artificial dentition as their natural teeth were. Progress in implantology has been focused at increasing patient's comfort by reducing the treatment time and achieving esthetic and functional rehabilitation at the earliest.There are still many clinical situations where the patient would have to go through a waiting period after a surgical procedure. During such a waiting period, the patient needs to function on a fixed temporary restoration till the final restoration are placed. This has been made possible today by the advent of transitional implants which have been placed along with the conventional implants for the replacement of the patient's missing dentition and enabling the patient to experience the benefits of implantology immediately.This paper presents an overview on clinical application of transitional implants.

Key words: Osseointegration, transitional implants, implantology.

Dental implant treatment has evolved over the years. The greatest impact on implantology, which now forms its basis, is the concept of osseointegration.[1] Progress in all fields of dentistry, especially implantology, has been focused at increasing patient's comfort by reducing the treatment time and achieving esthetic and functional rehabilitation as early as possible. Although this has been achieved to a large extent by the use of immediate loading concepts, the same cannot be applied to all clinical situations. There are still many clinical situations wherein the patient would have to go through a waiting period after a surgical procedure (it could be the surgery to place a dental implant or bone grafting surgery, or even extraction of some teeth).

Transitional implants are narrow diameter implants that were developed to support provisional fixed restorations during the phase of osseointegration of the definitive implants and are usually placed simultaneously with definitive implants.[2] They are placed in a non submerged fashion in a single stage surgical procedure and are designed to be immediately loaded. Typically they are placed between the definitive implants, following a set of guidelines, as discussed subsequently, and allow for their load free osseointegration. The patient can function normally and at the same time have good esthetics and phonetics with the help of good provisional temporary restorations fixed to such transitional implants.

They are removed with manual tools at the end of the provisional phase. The definitive implants are then restored according to the main treatment plan.

EVOLUTION OF TRANSITIONAL IMPLANTS

The concept of osseointegration, i.e. direc anchorage of pure/alloyed titanium in the jav bone, was a great breakthrough in oral rehabil tation.[1] For a long time, submerging of th implant by means of a two-stage procedure wa thought to be a prerequisite. This is the classic Branemark protocol and involves placing of th implant in the bone and covering it with muco-periosteal flap.[1] The implant is unco ered after a submerged healing period. A proc dure wherein the implant was placed in the bor with the healing abutment attached to it at th same stage and mucosa sutured circumferentia ly around it.[3] Such single stage procedures a gaining in popularity but can be utilized on when the suitably long (more than 10 mn implants are inserted with a high 'prima stability'(high insertion torque), in patien native bone and in a mouth free of periodont disease.

Over the last two decades, the ability to accurat ly assess bone quality and quantity has great simplified the treatment planning process. C scanning, use of three dimensional reformatt imagery and related software, e.g. Simpla (Columbia Scientific Inc, Columbia) has add to our ever increasing diagnostic armamenta um. [4] Advances in techniques and materi have facilitated rebuilding ridge height a volume, preventing some of the surgical a prosthetic problems that used to be encountere Today's reality is that a sound foundation can prepared for future health, function and esthe using modern implantology. Yet, in the world implantology of today, two major difficult remain:

a) Maintenance of soft tissue and stabilization the rebuilt ridges continues to be a problema area.

b) Stable stress-free restorations have not be provided for patients to wear during the lengt healing period required for osseointegration.

The problems posed by these difficulties ha ultimately resulted in poor esthetic outcom and fixture instability, subsequent micro-moti and ultimate failure.

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Use of Bio-Stimulation on Laser assisted Frenectomy -A Case Report

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Abstract

A high frenum attachment may cause orthodontic problem (Central diastema), prosthodontic problems (Poor retention of denture), periodontic problems (gingival recession and inflammation). A frenectomy is the removal of folds of tissue from the frenum area and Laser-assisted frenectomy is a comfortable procedure for the patient because it means that no scalpel or sutures are required. Bio stimulation with lasers down regulate the inflammatory process thereby accelerates the wound healing and is a useful tool in healing of wound that are complicated by infection or inherently require a prolonged period of time to heal. This case report presents the management of high frenum attachment using diode laser followed by bio stimulation.

Keywords: frenectomy, laser, bio stimulation

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▸ Introduction

The midline frenum is an anatomical structure that attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum. Placek etal. have classified frenum depending on the extension of attachment of fibers, (1) Mucosal: when the frenal fibers are attached up to mucogingival junction, (2) Gingival: when fibers are inserted within attached gingiva, (3) Papillary: when fibers are extending into interdental papilla, and (4) Papilla penetrating: when the frenal fibers cross the alveolar process and extend up to palatine papilla[1].

The presence of highly attached frenum is one of the etiological factors for the persistence of an aesthetic and functional difficulties. The aberrant frenum can be treated by a surgical procedure called frenectomy which means complete removal of the frenum, including its attachment to the underlying periosteum. This can be carried out using a conventional scalpel technique, electro surgery or by lasers[2].

Lasers are quickly becoming the standard of care for many surgical procedures because of its improved precision, visualization, reduced hemorrhage, less post- operative complications thereby enhancing the patient's compliance[3]. Diode laser is most commonly used because of its high absorbance by pigmented tissues with hemoglobin, melanin and collagen chromophores[4]. All diode lasers have an added property referred to as low-level laser therapy (LLLT) or "bio-stimulation" when used in low power[5]. This property of diodes is widely used for postoperative analgesia, for temporomandibular joint (TMJ) disturbances, to improve wound healing, etc.

▸ Case Report

A 18 year old female patient was referred for evaluation of maxillary labial frenum and he was undergoing orthodontic treatment. On intraoral examination midline diastema with high frenal attachment (papillary) was observed. Frenectomy was advised for the patient,procedure was detailed to the patient and written consent was obtained.

▸ Procedure:

Frenectomy procedure was performed using diode laser of 980nm. Frenum was anaesthetized by giving infiltration and

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Original Research

ASSESSMENT OF POST INSERTION PROBLEMS AMONG REMOVABLE DENTURE WEARERS IN THREE DENTAL INSTITUTIONS OF CENTRAL MALABAR

*Aswathi Mahesh,*Lubaiba Manat, **Dr.Abu Nazar N,**Dr. Monisha VS,
*Amal Ajith, *Fathima V.V, *Prajitha T, *Shahiya K.S

Abstract

Background: Removable partial dentures are an economic and easy treatment modality for edentulous patients, but some patients may encounter few complications during their adaptation period. If these complaints are not addressed properly it can lead to patient disappointment and ultimately removable dental prostheses failure. The present study intends in providing a structuro-functional assessment of complete denture complaints as reported by patients of three Dental Colleges in the Malabar region. **Aims and objectives:** To evaluate the incidence of common post insertion problems and to point out and minimize common post insertion complaints of removable dentures fabricated in dental institutions of central Malabar. **Materials and Methods:** A questionnaire based study was conducted in three dental institutions of Central Malabar. The study was carried out on 120 patients who had undergone prosthetic rehabilitation with removable dental prosthesis from these dental colleges and the post insertion complications were evaluated between them. The questionnaire consisted of questions based on various post insertion complications like pain on insertion and removal, ulceration, aesthetics, difficulty in speech, ill-fitting dentures, difficulty in mastication, reduced tongue space. **Results:** According to the study, 95% were satisfied with the denture and only 4.2% showed dissatisfaction. 48.3% complained about ill-fitting dentures, 42.5% about loss of retention, only 27.5% about pain and discomfort ,10% about cheek bite,2.6% about radiating pain .92.5% were satisfied with the denture esthetics, 87.5% were satisfied with teeth shape, 90% with teeth size and 100% with the lip support and 5.8% had a negative response about the sunken cheek appearance. **Conclusions:** Ill filling dentures were the most frequent complaint among denture wearers in the present study followed by lack of retention. Most of the patients were content with the aesthetic aspect of the denture. The most common reason why patients wanted rehabilitation of the lost dentition was for mastication. The quality of denture in the department can be assessed and further efforts can be made on improving the aspect of denture fabrication by undergraduates and postgraduates.

Key Words: Removable partial denture, Post insertion complaints, Denture wearers, Retention
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Review Article

Recent Advances in Bone Graft Substitutes in Dental Implantology: A Review

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ABSTRACT:
Dental Implant surgery has become popular with the advancement of surgical techniques such as sinus lift, guided bone regeneration, and block bone graft. Alveolar ridge augmentation can be completed with various types of bone augmentation materials (autogenous, allograft, xenograft & alloplast). Currently autogenous bone is available in cancellous, cortical, or bone marrow aspirate form. Autogenous bone graft is labelled as the "gold standard" due to faster healing times and integration between native and foreign bone. However, drawbacks including donor-site morbidity and limited quantity of graft available for harvest make autograft a less-than-ideal option for certain patient populations. Progressive advancements in allograft and bone graft substitutes in the past decade have created viable alternatives that sidestep some of the weak points of autografts. Allograft can be a favourable substitute for its convenience, abundance, and lack of patient morbidity. Preferences encompasses structural, particulate, and demineralized bone matrix form. Most frequently used bone graft substitutes include calcium phosphate and calcium sulphate synthetics—these grafts also provide structural support and availability. Other alternatives for allogenic bone grafting include innumerable isolated or combined substitutes of calcium phosphate, tricalcium phosphate, calcium sulphate and coralline hydroxyapatite. Not all bone grafts will have same properties. Therefore, the necessities of the clinical situation and specific properties of the various types of bone grafts is essential to identify the epitome graft. We present a review of the bone repair process and properties of bone grafts and their substitutes to help guide the clinician in the decision-making process.

Key words: Bone Grafts, Dental Implants, Recent Advances

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BACKGROUND:

Bone loss followed by extraction is a common physiological phenomenon. Nevertheless, this phenomenon takes place with alveolar resorption and subsequent formation of bone within the socket followed by osteoblastic differentiation and osteoprogenitor cells [1]. The restoration of missing teeth with dental implant prosthesis has enormously

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Original Research Paper | Dental Science

EVALUATION OF IMPACT OF COMBINED ORTHODONTIC AND ORTHOGNATHIC TREATMENT PROCEDURES ON THE LIFE QUALITY OF PATIENTS WITH SKELETAL MALOCCLUSION

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ABSTRACT

Background: The number of patients undergoing combined orthodontic treatment and orthognathic surgery is increasing. Hence, this study aimed to examine the impact of combined orthodontic and orthognathic treatment procedures on the life quality of patients with skeletal malocclusion.

Materials and methods: 15 patients who had to undergo combined orthodontic and orthognathic treatment procedures were subjected to 22-item Orthognathic Quality of Life Questionnaire customised for the study. The questions were grouped into 4 domains – aesthethic, awareness, pschyological and social domains. They were assessed in three time lines - first when they are explained and made aware of the treatment plan (T0), T1 when the orthodontic treatment is almost complete, and the patient is made ready for orthognathic surgery, then 6 months after the completion of the combined orthodontic-orthognathic surgery (T2).

Results: Out of 15 patients, 9 were females and 6 were males between the age of 18-25 years. As the treatment progressed changes were noted in the patient's attitude. During T1 significant change was observed in functional outcome – chewing. At T2 significant changes were observe in esthetic, functional, social and psychological components ($p<0.001$). The treatment outcome did create a positive change in the patients by correcting their skeletal and dental abnormalities.

Conclusion: The esthetic, functional, social and psychological outcomes of patients who have undergone combined orthodontic and orthognathic treatments are better post operatively.

KEYWORDS : Life quality; orthodontic; orthognathic; combined; questionnare

INTRODUCTION

To achieve a high level of satisfaction among our patients seeking treatments it is prudent to communicate effectively and create awareness in the patients prior to any treatment procedure under your guidance and care. Bailey et al. explains that including patients in the decision-making process increases their awareness and acceptance of the final results.[1] Several studies have shown that educating the patients prior to treatment is needed to achieve a high level of satisfaction among those patients who dental treatments.[1-6] A motivated patient will be willing to undergo the complete treatment suggested by the professional, if he is confident that the outcome will definitely improve the quality of his life.

The number of patients undergoing combined orthodontic treatment and orthognathic surgery is increasing. This may be partly due to the increased awareness created by the dental professional ,the internet, and partly due to access to better treatment at affordable rates. The patient satisfaction and the change in quality of life after a combined orthodontic and orthognathic treatment for correction of skeletal malocclusion has not been evaluated in our centre before. So, we planned for an objective evaluation of patient prior to the treatment, during mid treatment and at the end of the combined treatment. Hence, this study aimed to examine the impact of combined orthodontic and orthognathic treatment procedures on the life quality of patients with skeletal malocclusion.

Materials & Methods

The subjects underwent fixed appliance therapy from the Department of Orthodontics, Government Dental College, Pariyaram. They were subjected to orthognathic surgery from the Government Hospital, Thalassery, Kannur. The research protocol was described to patients and a written consent was obtained before participating in the study. This study has been conducted in full accordance with the World Medical Association Declaration of Helsinki.

Study Participants

A total of 15 patients were included in the study based on the inclusion and exclusion criteria. The exclusion criteria was the presence of a congenital deformity, history of facial trauma or removal of an appliance <6 months previously, patients who were scheduled to undergo orthognathic surgery without orthodontic treatment or with additional features, e.g., genioplasty or distraction device, and patients reluctant to participate in the study.

Methodology

Data were collected using self-administered 22-item Orthognathic Quality of Life Questionnaire(OQLQ a condition specific assessment)based on the study conducted by Faezeh Eslamipour et al in 2017.[7] The Orthognathic Quality of Life Questionnaire (OQLQ) was developed as an instrument to estimate quality of life in patients treated with orthognathic surgery(Figure 1).It was developed in 2000 and validated in 2002 by Cunningham et al.[7,8]

OQLQ questionnaire consists of 22 questions rated on a 5-point Likert scale ranging from "does not bother me at all"(score 0)to "bothers me a lot"(score 4). The total score is 0 to 88. A lower score indicates a better QOL and viceversa. Also, this questionnaire consists of 4 subscales:aesthetic impact (items1,7,10,11,and 14, range 0 to 20), oral function(2 to 6, range 0 to 20), awareness & psychological impact (8, 9, 12, and 13,range 0 to 16), and social impact(items 15 to 22, range 0 to32).

We have modified the original OQLQ questionnaire to suit the population based on the social settings prevailing in this part of the country (Kerala State, India). The 22 questions were therefore divided into 4 domains: aesthetic impact oral function, Awareness & psychological impact and social impact. A lower score indicates a better QOL and viceversa.

The questionnaire was distributed to the patients and asked

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Letter of Acceptance

Date: 02/08/2020

Dear **Dr. Binu Purushothaman, Dr. Rasool Karim Nizaro Siyo, Dr. Naseem KT, Dr. Gayathri MJ, Dr. Lubna P, Dr. Chelza X,**

Warm regards from the entire **IJOHMR** Team.

We are delighted to inform you that your article titled "COVID- 19 AND DENTISTRY: ESTABLISHING THE NEW NORMALITY" has been accepted for publication in the upcoming Issue of IJOHMR.

We would like to thank you for choosing **IJOHMR** for publication and hope to see more of high quality research from your side in future.

Thank You.

Dr. Deepak Ranjan Dalai
Editor in-Chief

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Original Article

Variations of Mandibular First Molar Root Canal in School Children: An Observational Study

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ABSTRACT

Background: Root canal (RC) treatment is most common and effective method for treatment of diseases related to periapical area and pulp of teeth. With the increase in age, the formation of secondary dentin, calcification of canals, and reduction of medullary cavity volume, it becomes increasingly difficult to accomplish a perfect RC treatment, hence the understanding of RC variation and changes in variation with increasing age improves the success rates. **Aim:** The aim of this study was to study the RC variation in the age-group of 10–14 years and to find if the gradual increase in age plays a role in increasing the complexity of RC variation. **Materials and Methods:** This study was carried out in Government Medical College, Patna, Bihar, India, from January 2018 to April 2019. Subjects within the age range of 10–14 years were selected conferring to predetermined inclusion and exclusion criteria. The subjects were divided into the groups according to age—Group I: 10–11 years, Group II: 11–12 years, Group III: 12–13 years, and Group IV: 13–14 years. The subjects were further divided into Group A and B according to sex to study if there is any significant difference in RC variation. Three intraoral periapical (IOPA) radiography with radiovisiography (RVG) of each subject were taken from three different predetermined angles and these IOPAs were then analyzed by three independent observers and the most agreed on value was included. The IOPAs were analyzed for the number of roots, the number of canals in each root and the variation of each RC were classified according to Vertucci's Classification. **Results:** The most common T of RC variation in mesial root of mandibular first molar was T IV succeeded by T II and T I. For distal canal of mandibular first molar, the most common variation was T I, followed by T II and T III. In our study we found that 98.88% of mandibular molars were having two roots. No significant difference was found in the variation of canal according to age or sex in our study. **Conclusion:** Hence, we conclude that no significant difference is seen in RC variation according to sex and age. As the groups we included in our study were not wide apart enough in age, a further long-term study is needed to ascertain if the complexity of RC increases with age.

KEYWORDS: *Intraoral periapical radiograph, mandibular first molar, root canal variation, Vertucci's classification*

INTRODUCTION

The first tooth erupted in the oral cavity is mandibular first molar, hence it is more likely to get caries and need root canal (RC) therapy.[1] To

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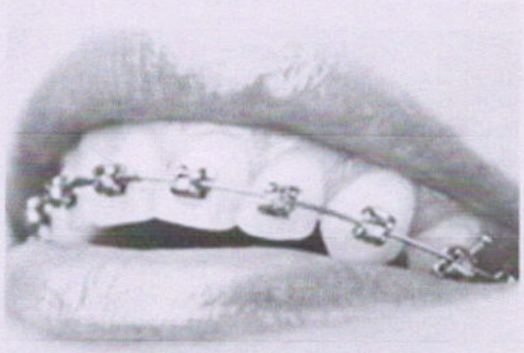
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ORAL CONTRACEPTIVES AND ORTHODONTIC TOOTH MOVEMENT: A REVIEW

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ABSTRACT
Introduction: The purpose of this article is to investigate the effect of some oral contraceptives on orthodontic tooth movements.

Ethinyl estradiol/norgestrel are the most commonly used oral contraceptives. It can significantly decrease the amount of tooth movement . Humans also have significant increase in the periodontal disease, and show higher percentage of pigmentation, pyogenic granuloma and mucosal ulceration.

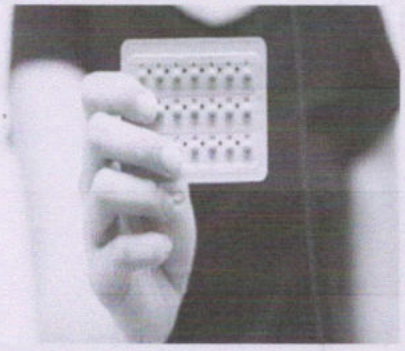
Key words: Oral contraceptives, orthodontic tooth movement, ethinyl estradiol, norgestrel.

INTRODUCTION
Tooth movement forms the basis of any orthodontic treatment. Any biological response towards mechanical force is referred to as tooth movement. It is unique process where a solid object(tooth) is made to move through a solid medium(bone).Tooth movement occurs as a result of bone formation and bone resorption, which occurs simultaneously. This is referred to as bone remodelling. Bone resorption occurs by the action of osteoclast and bone formation occurs by the action of osteoblasts. Several systemic hormones like parathyroid hormone, thyroid hormones, growth hormones etc play an integral role in bone modelling and remodelling.

Oral contraceptive pills can be considered among the most commonly and frequently utilised drugs to prevent pregnancy as it is the most widely available source. It is widely used among adolescents and young adults. Due to its massive use various oral and systemic side effects where identified. oral contraceptive pills are an association of synthetic estrogen and a progestagen. They are utilised in various forms. Three main types of oral contraceptive pills available in the market are; combination pill containing 2 hormones (estrogen and progestin), progestin alone and the continuous or extended use pill.

Few studies have been conducted regarding the effect of oral contraceptives on orthodontic tooth movement. In the most recent study Vescovi et al demonstrated that 2 weeks of low dose oral contraceptive therapy rapidly reduced markers of bone resorption and formation. The studies were conducted in Rat models. It has also shown to have a negative impact on the bone turnover rate. Another study was done on humans and the result was found to be same.

The objectives of the present study is
(1) to examine the effect of contraceptive pills on tooth movement in patients with fixed orthodontic appliance and compare the tooth movement in patients who consume and do not consume the drug.
(2) to examine the effect of oral contraceptive pills(OCP) in general oral cavity health.
(3)to include questions about consumption of oral contraceptives in routine history taking.



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Original Article

Evaluation of remineralization potential and cytotoxicity of a novel strontium-doped nanohydroxyapatite paste: An *in vitro* study

Ratheesh Rajendran, K. Radhakrishnan Nair[1], Raghu Sandhya, P. Mohammed Ashik[2], Rakhi Pattuvanmar Veedu[1], Shinu Saleem[3]

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Abstract

Background: The focus of caries management has shifted to the early detection of caries and noninvasive methods of management of incipient lesions with novel remineralizing agents.

Aim: The aim of this study is to evaluate and compare the remineralization potential of a novel laboratory synthesized strontium-doped nanohydroxyapatite (SrnHAp) paste to a commercially available regular dentifrice.

Materials and Methods: Sixty enamel specimens (4 mm × 4 mm × 1 mm) were divided into two groups based on the type of dentifrice applied: Group I – regular toothpaste and Group II – SrnHAp paste. Calcium/phosphorous ratio of all sound specimens was evaluated using Scanning Electron Microscopy-Energy Dispersive X-ray analysis. Samples in both groups were subjected to demineralization, and the calcium/phosphorous ratio was analyzed. The samples were then subjected to remineralization using the specific agents in each group, and the mean calcium–phosphorus ratio was assessed. Cytotoxic evaluation of both pastes was done by direct microscopic observation and MTT assay.

Statistical Analysis: Comparison of mean calcium and phosphorous values of sound enamel, demineralized, and remineralized specimen in Groups I and II was done using the one-way ANOVA and Tukeys *post hoc* test. Intergroup comparison after remineralization was done using the Student's *t*-test.

Results and Conclusion: Group II showed higher remineralization potential than Group I and was statistically significant. Cytotoxicity of novel paste was less compared to the regular toothpaste. SrnHAp showed better remineralization than regular toothpaste and can be considered for enamel repair in incipient carious lesions.

Keywords: Cytotoxic evaluation; remineralization; scanning electron microscopy-energy dispersive X-ray; strontium-doped nanohydroxyapatite

INTRODUCTION

Dental caries is one of the significant public health problems and we continue to search for ways to reduce the risk of caries in patients. The focus of caries management has shifted to the early detection of caries and noninvasive methods of management of incipient lesions with novel remineralizing agents.[1]

White-spot lesions are the earliest phase of the caries process and are reversible. The mechanical and crystallographic studies on white-spot lesions revealed

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Original Article

Serum Iron Indices in Patients with Oral Submucous Fibrosis- A Comparative Study

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Abstract

Introduction: Oral submucous fibrosis (OSMF) is a potentially malignant disorder whose etiopathogenesis is still under investigation. Studies have reported altered serum iron levels in patients with OSMF. Hence, iron has been proposed to play an important role in the incidence and progression of the disease. This study was undertaken to understand the role of iron in the etiopathogenesis of OSMF by estimating haemoglobin and serum iron indices (serum iron, Total iron binding capacity [TIBC], percentage transferrin saturation and serum ferritin) in subjects with OSMF. **Materials and Methods:** Study group comprised of patients with histopathologically confirmed OSMF (n = 30). Age and sex matched subjects with clinically normal mucosa were selected as control group (n = 15). Hemoglobin, serum ferritin, serum iron, and TIBC were estimated (Siemens Dimension RXL Max Integrated chemistry system™). **Statistical analysis used:** SPSSv16 was used for statistical analysis. Independent sample *t* test was performed to compare the values between the study group and control group. 'p' value less than 0.05 was considered to be statistically significant. **Results:** There was a significant decrease in the haemoglobin, serum iron percentage transferrin saturation, serum ferritin levels and an increase in TIBC levels in the study (OSMF) group when compared to the control group ($P < 0.001$). TIBC levels showed a significant ($P < 0.001$) increase in the study group. Among the study group 44% were in an anemic state as per the hemoglobin values. **Conclusion:** The findings of the present study suggest that, iron deficiency state is prevalent among patients with OSMF. This deficiency of iron has an important role in the pathogenesis and progression of this disease.

Keywords: *Oral submucous fibrosis, trace element, serum iron, percentage transferrin saturation, serum ferritin, total iron binding capacity*

Introduction

Oral submucous fibrosis (OSMF) is a chronic disease and a well-recognized potentially malignant disorder of the oral cavity characterized by inflammation and a progressive fibrosis of the lamina propria and deeper connective tissues.[1] The disease is seen mostly among south east and south Asian population, particularly in the Indian subcontinent.[2,3]

The precancerous nature of OSMF was first described by Paymaster in 1956.[4] The malignant transformation rate in oral submucous fibrosis range from 4.5% to 7.6% from different studies.[5] The epidemiological studies on OSMF have shown a strong association with areca nut chewing.[6] The pathologic process involved in OSMF related to fibrosis and progression into malignancy is still under investigation.[7]

Trace elements are essential components of biological enzyme systems and structural proteins. They have been extensively studied in recent years to assess their modifying effects in the pathogenesis and progression of oral premalignant and malignant conditions. Iron as a trace element is required for the proper maturation of collagen. Various studies have shown that, fibrotic state can alter the serological iron levels.[8] There are many reports that have analysed the levels of hemoglobin and serum iron in OSMF patients.[9,10] But very few studies have evaluated other serum iron indices like

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Case report

DENTURE RELINING USING ALL GREEN IMPRESSION TECHNIQUE IN SEVERELY RESORBED MANDIBULAR RIDGE

* Dr. Roshy George, **Dr. Nicholas Mathew, **Dr. Abu Nazar, **Dr. Monisha VS, ***Dr. Anaswara Rose,****Dr Amrtha Maria

Abstract

Restoration of comfort, esthetics and masticatory function in severely resorbed atrophic ridges is challenging to the clinician. Extreme resorption of the mandibular denture bearing areas results in unstable and non retentive dentures with associated pain and discomfort. This article attempts to present a modified physiologic impression technique in severely atrophic mandibular ridge using contemporary materials to reline a non retentive and unstable mandibular denture.

Key words: All green impression technique, atrophic mandibular ridge, special impression technique, relinning

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Introduction

The management of severely resorbed mandibular ridge cases is always challenging to the Prosthodontists. Various special impression techniques are being followed to effectively record the resorbed mandibular ridges. Some among them are admixed, functional, all green, and cocktail technique.[1-3]

This case report presents a special impression technique – "the all green impression technique" used to reline a mandibular denture which was unstable and non-retentive in patient's mouth. The all green impression technique is the recording of entire ridge with the greenstick compound followed by final impression using zinc oxide eugenol impression paste.[4]

Case report

A sixty six year old male patient reported to the Department of Prosthodontics with the chief complaint of loose lower denture since one year. Medical history revealed uncontrolled diabetes for the past fifteen years and was under medication. The patient

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Review Article

Effective dentistry requires Interdisciplinary clinical research

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ABSTRACT

Interdisciplinary research involves combination of different fields to carry out a particular research Dentistry being a field comprising of various specialitiesa interdisciplinary treatment approach will improve the treatment plan .In this article we have briefly discussed on the various aspects of interdisciplinary research and the need for same.

Introduction

"United we stand ,Divided we fall" Aesop.

Dentistry is a diverse field compromising of different branches. Every treatment plan of every patient requires an interdisciplinary approach. Interdisciplinary clinical research increases the effectiveness and efficiency of the dentist and also improve the treatment delivery standard.

The literature reviews also indicate that there are few Medical journalarticles that point to the need for inter disciplinary training or cross education involving Dental professionals. There is a urgent need for not only interdisciplinary research but also the development of interdisciplinary training models to enhance the ability of health professionals to treat the ever growing population.[1]

Interdisciplinary clinical research

Interdisciplinary collaborative research is required for development of oral health research. Interdisciplinarydentistry (ID) has been described asthemutualpermeationofvariousspecialities accompanied by expansion of the scope of each andby no means a new concept in research, training or application.[2,3] As such a widely applicable definition does not exist.[4] Interdisciplinary Dentistry comprise of certain concepts and methods that go beyond the limits of individual specialities.[5] It can also be interpreted as actual fusion of specialities or a multi disciplinary

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Case report

RIDGE-SPLIT PROCEDURE FOR HORIZONTAL AUGEMENTATION OF BONE

* Dr. Sheejith M , **Dr. Sruthi Viswanath, ***Dr. Joseph Thomas, ****Dr. Monisha VS

Abstract

For the support of dentures many dental techniques has been introduced to modify the alveolar ridge around many years. Now a days the dental implants and preimplant preparation of the bone has become common procedures. The ridge-split procedure is one such method of widening and augmenting the alveolar ridge in case of atrophic ridges. Insufficient alveolar ridge width often prevents the ideal implant placement. For the lateral augmentation of the alveolar ridge Guided bone regeneration, bone grafting, alveolar ridge splitting and combinations of these techniques are usually used. Ridge splitting is a minimally invasive technique that is indicated for alveolar ridges with adequate height, which enables immediate implant placement. This case report describes about management of implant placement in narrow mandibular ridge using ridge splitting technique by means of microsaw with immediate placement of implants in the osteotomy site.

Key words: alveolar ridge augmentation; dental implants; ridge expansion; ridge splitting; narrow alveolar ridge; osteotomy

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Introduction

The alveolar ridge is the bony ridge on both the upper and lower jaws that contains the sockets of the teeth. The ridge-split procedure described in this article is a form of ridge widening or augmentation technique.It has been proven that in cases of narrow alveolar ridges this technique is consistently successful. Use of this minimally invasive technique has many advantages in case of a preprosthetic stage of dental implant placement. The benefits includes, low risk of inferior alveolar nerve injury, less pain and swelling, and no need for a second surgical site as donor.

Augmentation of the bucco-lingual dimension of the alveolar ridge can be done using ridge splitting technique, which was first described by Tatum. The ridge splitting technique involves a longitudinal osteotomy

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ORIGINAL RESEARCH

Effectiveness of Various Dental Varnishes in Prevention of Enamel Demineralization Around Orthodontic Brackets: An *In Vitro* Study

Dharmesh H Shivananda[1], Waseem Ansar[2], Dinsha AR Naseema[3], George Sam[4], Sajai Bharath[5], Ateet Kakti[6]

Abstract

Aim: The present study aimed to assess the efficacy of different dental varnishes in prevention of demineralization of enamel along the orthodontic brackets.

Materials and methods: A total of 60 premolars that do not have caries and were extracted for orthodontic purposes were used in this study. Transbond™ Plus was used to bond premolar brackets onto the treated surface of enamel. The teeth were then divided into three groups. Group I: Profluorid varnish, group II: CPP-ACP varnish, and group III: Duraflor™ varnish. A Vickers diamond indenter was used to assess the microhardness of the surface of enamel at baseline, fourth day, and seventh day.

Results: A slightly meaner surface microhardness (SMH; 334.20 ± 2.10) was seen in group III when compared with group I (332.16 ± 3.02) and group II (330.40 ± 2.02). The mean SMH was 342.02 ± 0.82 in group I on the fourth day which was slightly higher than that of the baseline values, followed by group III (339.48 ± 0.34) and group II (336.64 ± 1.14). No statistically significant differences were noted between the groups. A higher mean microhardness of 349.84 ± 0.66 was seen in group I on the seventh day, followed by group III (342.26 ± 1.08) and group II (338.18 ± 1.08). A statistically highly significant difference was seen between the groups.

Conclusion: The present study concluded Profluorid varnish to have maximum potential to reduce demineralization of enamel followed by Duraflor and casein phosphopeptide–amorphous calcium phosphate (CPP-ACP) group.

Clinical significance: A most common clinical challenge encountered in orthodontic clinical practice is enamel demineralization or white spot lesion (WSL) development throughout the fixed appliance treatment. Thus, the information about several available varnishes is important to prevent demineralization in regular dental practice.

Keywords: Brackets, Demineralization, Orthodontic treatment, Varnish.

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Introduction

Loss of mineralization of enamel is sequential to orthodontic treatment and is exacerbated by bad oral hygiene. Initial stages of enamel caries result in loss of mineral along the subsurface with an undamaged enamel on the upper surface. The demineralized enamel reflects light differently than healthy adjacent enamel resulting in a chalky white image. White spot lesions (WSLs) look as tiny lines along the orthodontic brackets in few patients, while they may appear as big unmineralized zones either without cavitation or with cavitation. Identification of WSLs post-orthodontic appliance removal is completely unpromising.[1]

Even though this undesirable complication has been identified by orthodontists and many have taken effective measures to reduce, the formation of white spot and development of caries in patients who do not follow aggressive caries preventive measures during orthodontic treatment still remains a problem. As these conditions are irreversible, not healthy and esthetically unpleasing, it is mostly unpromising to that branch of dentistry which primarily aims to enhance dental and facial esthetics.[2]

Several specialized preventive measures are suggested for patients undergoing fixed orthodontic treatment as the prevalence of WSLs in patients receiving orthodontic treatment is approximately 68.4%. It is the responsibility of an orthodontist to reduce enamel demineralization by providing timely education and drive the patient to achieve good oral cleanliness. Local/topical fluoride application (fluoride-containing varnishes, gels and mouthwashes, and high-fluoride toothpaste) has been found to be

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IMPACTED MESIODENTES; A CASE REPORT

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***Dr. Amith Adhyanthaya, ****Dr. Sreelatha Sadasivan

Abstract

Supernumerary teeth are considered to be one of the most significant dental anomalies affecting the primary and early mixed dentition and may cause a variety of pathological disturbances to the developing permanent dentition and also resulting in poor dental and facial aesthetics. Mesiodens are the erupted or unerupted extra tooth in the midline of maxilla, along with normal teeth (between the central incisors). Early diagnosis and prompt treatment is necessary for prevention of deleterious effects of mesiodens on dentoalveolar structures. The aim of this case report is to share knowledge about management of mesiodens which might assist the clinician in decision-making.

Key words: supernumerary teeth, mesiodens, mixed dentition

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Introduction

By definition, supernumerary teeth are extra teeth in comparison to normal dentition. It is more common in the central region of the upper or lower jaw; however, its occurrence in the mandible is rare. The most common type of supernumerary tooth as indicated by Alberti et al is mesiodens.[1]

Mesiodens may occur as single, multiple, unilateral or bilateral. The presence of multiple supernumerary teeth is called 'mesiodentes'.[2] It seems that positive family history is one of the predisposing factors. In permanent dentition, a 0.15 to 3.8% incidence of mesiodens has been reported, with a two-fold risk of occurrence in the male population compared to the female population.[4] Morphologically, mesiodens may have heterogeneous forms. Three common types; namely, conical or peg shaped, tuberculate and supplemental (tooth like) have been reported, of which the conical form is the most common type.[2,3,5]

Mesiodens may be seen as an isolated finding or as part of a syndrome, especially cleft lip and palate, cleidocranial dysostosis and Gardner's syndrome.[6] The possibility of genetic transmission via an autosomal dominant trait is documented which can

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Original Article

Effect of Incorporation of Nanoclay on the Properties of Heat Cure Denture Base Material: An *In vitro* Study

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Abstract

Purpose: The aim of the study was to evaluate the effect of incorporation of organically modified nanoclay in 1%, 3%, and 5% by weight on the flexural strength, surface hardness, and linear polymerization shrinkage of heat cure denture base material. **Materials and Methods:** One hundred and twenty specimens of heat-polymerized acrylic resin were fabricated. The specimens were divided into four groups (n = 10) coded I to IV. Group I was the control group (unmodified acrylic resin specimens). The specimens of the remaining three groups were reinforced with nanoclay (organically modified montmorillonite) nanoparticles to achieve loadings of 1%, 3%, and 5% by weight. The resulting nanocomposites were subjected to mechanical testing and were characterized using X-ray diffraction, scanning electron microscope, and transmission electron microscope. **Results:** The statistical analysis showed that there was no significant increase in flexural strength within and between the groups. The most significant increase in surface hardness was observed between Group I (control) and Group II (1% nanoclay). Linear polymerization shrinkage of the specimens showed a significant decrease in the control and all the experimental groups. **Conclusion:** Addition of 1 wt% nanoclay to polymethyl methacrylate heat cure denture base material could enhance the surface hardness and reduce the linear polymerization shrinkage of the resin. However, there was no significant increase in flexural strength of the resulting nanocomposite.

Keywords: *Linear polymerization shrinkage, nanoclay, nanocomposite, polymethyl methacrylate, surface hardness*

Introduction

Over the centuries, a variety of materials have been used for denture construction. Polymethyl methacrylate (PMMA), since its introduction in 1930, has dominated the denture base arena for over 85 years. To date, up to 95% of dental prosthesis are composed of PMMA which is due to several reasons such as esthetics, ease of processing, stability in the oral environment, biocompatibility, and easy for patients to maintain oral hygiene. However, few important disadvantages are poor strength properties, low abrasion resistance, and polymerization shrinkage.

Polymer nanotechnology represents a new field of nanoscience. Polymer nanocomposite attracted great attention, especially because of their unexpected hybrid properties that are synergistically derived from the two components. Recently, much attention has been directed toward the incorporation of inorganic nanoparticles into PMMA to improve its properties. Nanofillers such as clay, silver, zirconium oxide, and calcium carbonate have been incorporated into PMMA in order to bypass the shortcomings of PMMA.[1]

Organically modified montmorillonite (OMMT) is one of the nanomaterials incorporated into polymer because of its excellent biocompatibility and esthetics. The nanosized clay has been used to derive nanocomposites with high hardness, tensile, fatigue, and impact strength. However, there are insufficient data evaluating the flexural strength and polymerization shrinkage of the resulting nanocomposite. This study was designed to evaluate the effect of incorporation of organically modified nanoclay in 1%, 3%, and 5% by weight on the flexural strength, surface hardness, and linear polymerization shrinkage of heat cure denture base material. The null hypothesis was that there would be no effect on incorporation of the nanofiller on the properties of heat cure denture base material.

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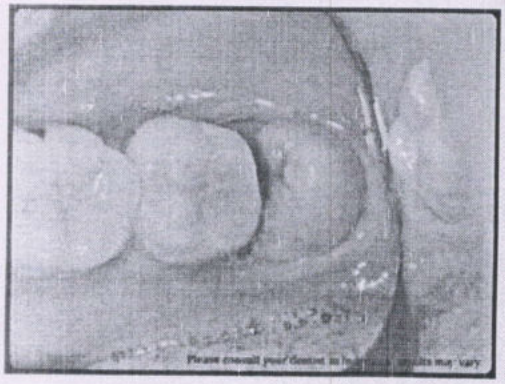
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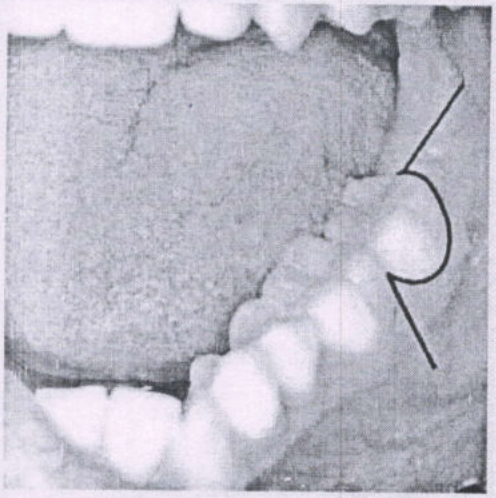
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THOUGH SIMPLE, YET COMPLICATED ! A SURGEON'S DILEMMA

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One of the minor surgical procedures done under oral and maxillofacial surgery is surgical removal of impacted tooth. An impacted tooth is one that fails to erupt into the dental arch within the expected developmental window. Teeth may become impacted because of adjacent teeth, dense overlying bone, excessive soft tissue or a genetic abnormality. Most often, the cause of impaction is due to tooth size-arch length discrepancy.



The clinician should have thorough knowledge about the anatomy, proper clinical and radiographical assesment prior to surgery. Follow proper aseptic precautions, surgical principles and evaluation of the case can help us to prevent many of the complications.

And always keep in mind a good surgeon knows how to operate, a better surgeon knows when to operate and the best surgeon knows when not to operate .Always weigh risk-benefit ratio before taking up a patient, whatever may be the procedure.

Complications may occur during:
During surgical procedure
Immediate post- operative
Late post -operative

Perioperative complications can occur during:
. Incision making
. Bone removal
. Tooth sectioning
. Elevation of tooth

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RESEARCH ARTICLE

COMPARISON OF ORAL PREMEDICATION IN CHILDREN (1-16YRS) USING MIDAZOLAM VERSUS CLONIDINE: A PROSPECTIVE DOUBLE BLIND STUDY

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Abstract

Background

Premedication in pediatric anesthesia is a challenge for Anesthesiologist. Anxious children have higher incidence of negative postoperative behaviors for up to two weeks after surgery. Hence, right premedication is the eternal search for anesthesia fraternity.

Aims and Objectives

To compare oral midazolam (0.5mg/kg) with oral clonidine (4 micrograms/kg) as a pre medication in children

Material & Methods

This study was carried out on 30 children who were admitted to Yenepoya Medical College & Hospital for surgical intervention under general anaesthesia during the period from 01-10-2009 to 30-11-2011.

Result

In the midazolam group the mask acceptance was good in 86.7% of the subjects . In the Clonidine group 100% of the subjects had good acceptance.

In the midazolam group parental separation were good only in 56% of the subjects where as it was 93.3% in the Clonidine group which is statistically highly significant.

In the midazolam group the sedation score after 30 mins and 90 mins, 80% of the subjects were awake . In the Clonidine group it was found that 66.7% are drowsy at 30 mins and 70% are drowsy at 90 mins. The difference between to the groups was statistically highly significant.

Conclusion

Present study showed that premedication oral clonidine appeared to superior than oral midazolam.Oral clonidine produces significantly better sedation than oral midazolam

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ORIGINAL RESEARCH ARTICLE

COMPARISON OF FUNCTIONAL OUTCOME IN THE MANAGEMENT OF CONDYLAR FRACTURES- AN OBSERVATIONAL STUDY

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ABSTRACT

Background: The purpose of this study is to compare the functional outcome following surgical and nonsurgical management of mandibular condylar fractures.

Materials and Methods: Ten adult patients between the age group of 20 years to 50 years were included in this study. All the patients were subjected to routine blood investigation, radiographs such as OPG and Skull P.A. The study consisted of two groups of 5 patients each group. Open reduction was carried out in one group with unilateral condylar fractures and closed reduction was done in another group 5 patients with maxillo mandibular fixation and arch bars under local anaesthesia. 2mm thickness titanium plates with titanium screws 2x6mm used.

Results: Functional recovery after non-surgical and surgical treatment showed satisfactory results. Clicking of the temporomandibular joint on mouth opening was absent in both groups. Lateral and excursive movements were normal in both groups. No malocclusions were noticed in both groups. Pain in temporomandibular joint was noticed in 2 patients in the immediate post-operative period (40%) in the surgical group. Three patients treated by closed reduction (60%) had persistent pain in the temporomandibular joint for the first month which later got subsided gradually. Post-operative infection / wound dehiscence and unaesthetic scarring were noted in 1 patient (20%) in the surgical group at the retromandibular incision.

Conclusion: Based on this study there was no significant clinical difference between patients with surgically treated and those with conservatively treated unilateral condylar fractures. After both type of treatments some abnormalities remain. The radiographic examinations did show significantly better position in the surgically reduced condylar process. However satisfactory post operative function and occlusion were achieved for the surgical and non surgical groups.

Key words: Fracture, Temporomandibular, Reduction.

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REHABILITATION OF CLEFT PALATE WITH TOOTH SUPPORTED CLOSED HOLLOW BULB OBTURATOR: A CASE REPORT

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Abstract:

Rehabilitation of congenital cleft palate defects improves the quality of life for the patient as normal as possible. The difficulties of cleft palate patients not only impairs the physical activities such as eating, breathing and speaking, but their psychological well-being is also affected. Thus, it has been recommended that a prosthesis may improve both the physical and psychological performances of patients, as well as their quality of life. In Velopharyngeal defect, hypernasality, regurgitation of food and liquids are the common consequences if left untreated. A maxillary hollow bulb obturator for these defects will prevent fluid leakage through nose, maintains cleanliness, speech resonance,improves physical and psychological health and mastication. This case report describes an edentulous cleft palate patient, which was rehabilitated with tooth supported maxillary hollow bulb obturator

Key words: Cleft Palate; Velopharyngeal defect; Metal coping; Hollow obturator.

Introduction

Maxillary defects can be sourced by congenital malformations or the acquired defects resulting from surgeries, trauma etc. Patients with cleft palate may not been seen regularly in general dental practice, but is a frequent congenital anomaly affects 1 in 800 live births. The two prime objective of maxillofacial-prosthodontist for rehabilitation of the maxillary defects is to restore the functions of mastication, deglutition, and speech and to achieve normal oro-facial appearance.[1] Defect of the maxilla, may be closed with an obturator, which is a disc or plate, natural or artificial. The obturator prosthesis that close these defects and separate the oral and nasal cavities may be constructed in different sizes and shapes, depending on the extent of the defect. Obturators are classified as solid, open hollow and closed hollow as to the nature of their extension into defect site. Both open and closed hollow obturators allow for the fabrication of a lightweight prosthesis that can be tolerated by the patient while effectively extending into the defect.[2, 3] The retention of a complete dentures predominantly comes from the proper border seal and intimate fit of the denture base. Due to loss of teeth and posterior palatal insufficiency, the retention will be compromised. The present case report describes the rehabilitation of a patient with palatal insufficiency prosthodontically with a tooth supported closed hollow bulb obturator to improve the retention and function.

Case Report



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Case Report

Nonsurgical management of a large periapical lesion – A case report

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ABSTRACT

A 14 year child reported with a swelling and mobile upper right lateral incisor and was diagnosed with periapical cyst. the case report deals with the diagnosis, treatment and follow up of the case.

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1. Introduction

Periapical lesions are the result of bacterial infection invading the dental pulp.[1] The finding of this infection is typically accomplished either during assessment of the radiographs or following intense indications or symptoms in a tooth. The vast majority of the periapical injuries (>90%) can be delegated as dental granulomas, radicular growths or abscesses. The incidence of cysts, periapical granulomas and abscesses within periapical lesions ranges between 6 and 55%, 9.3 and 87.1% and 28.7 and 70.07% respectively.[2]

Traditionally, diagnosis of disease of tissues or organs is dependent on clinical and histologic findings. Clinical diagnosis is a provisional diagnosis and uses objective and subjective signs and/or symptoms and all available tests in clinical dental medicine as well as imaging systems. Radiography is designed to detect pathologic changes at the tissue or organ level and not at the cellular level. Histologic examination provides information that makes a definitive and final diagnosis possible at a cellular level.

Periapical cysts, being the most widely recognized odontogenic cysts are inflammatory jaw cysts, generally found at the apices of teeth with contaminated or necrotic pulps.[2,3] However, some huge lesions have been demonstrated to be granulomas. They can't be analyzed clinically and the best way to arrive at an authoritative conclusion is histologic assessment. Be that as it may, a periapical cyst can be distinguished dependent on certain

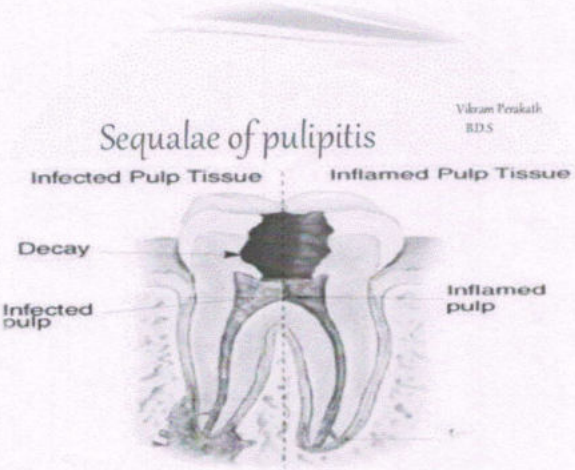


Fig. 1:

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Case Report

Morphologic variations of roots and root canals in maxillary second molar: C ase reports

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ABSTRACT

The importance of potential variations in root canal system in the field of dentistry cannot be ignored. The goal of this case report is to present endodontically treated maxillary second molars with an uncommon morphology of four roots and a single fused root.

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1. Introduction

In multirooted tooth, there are chances in having deviations in root canal number and anatomy and need proper diagnosis and skilful management.[1] For successful endodontic management, dentist must be familiar with these distinctive root canal configurations and their variations.[2] Inability to identify and to negotiate the complexities in root canal system result in uncertainty of the treated tooth. The endodontic treatment of maxillary second molars (MSMs) can consistently be incredibly inconvenient as a result of the perplexed root canal anatomy and variant internal structures. Root canal morphology of the MSM have demonstrated that the most frequently encountered type, considered as standard morphology, has three roots: one mesiobuccal, one distobuccal, and one palatal with a single canal in each root.[3]

Some unusual anatomy of the MSM have been accounted in the literature. Several authors reported MSMs with one mesial and one distal root, which are like mandibular molars and 2 root canals in relation to each root. Zmener et al[4] reported a case of maxillary second molar with three buccal roots and Ozcan et al[5] reported endodontic management of MSM with three canals in the MB(mesiobuccal) root. Kottoor et al[6] showed a case of 5 roots with 5 canals. Double palatal roots were also reported by several authors.[7]

The root canal anatomy and its complexities are genetically determined and are of decisive significance in anthropology there by requiring the identification of root canal morphologies of teeth in different ethnic groups.[8] This case reports presents the endodontic treatment of single rooted MSM with single canal and four rooted MSM with four canals.

2. Case Report 1

(Single rooted maxillary second molar)

A 19-year-old female patient reported to department of conservative dentistry and endodontics with a chief complaint of pain in the upper right back tooth region for the past 3 months and got it severe for the last 3 days. Medical history revealed that she underwent facial reconstructive surgery 8 years ago. Carious right maxillary second molar (tooth #2) detected on clinical examination which was tender on percussion. Based on clinical and

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BLINKING ORBITAL PROSTHESIS

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Abstract:
Physical defects affect one's life beyond its physical essence. An ocular prosthesis is a simulation of human anatomy using prosthetic materials to create the illusion of a perfectly normal healthy eye and surrounding tissues. Conventional ocular prosthesis has limitation of movements such as blinking of eyes and absence of facial expression in contrast to the normal side, may present problems for the patient's social appearance. Recent advancements in human–machine interface technology have enabled the development of multifunctional, primarily orthopedic myoelectric prosthesis. Incorporating recent advancements in technology with conventional method will have a major improvement in the quality of the life of the patient after orbital exenteration. This article aims to review different techniques in fabricating conventional ocular prosthetic eyelid which synchronizes with the blinking motion of its counterpart.

Keywords: Prosthesis, Blinking, Myoelectric potential, Surface EMG

Introduction

The eye is a vital organ, not only in terms of vision, but also being an important component of facial expression. Loss of eye creates a psychological effect on the patient.[1] Hence, prosthesis should be provided as soon as possible for the psychological well being of the patient. For fabrication of artificial eyes several techniques have been used. The most commonly used technique is empirically fitting a stock eye, modifying a stock eye, and the custom eye technique. In the field of cranio-maxillofacial surgery, silicone facial prosthesis are still indicated in patients with large periorbital tissue defects reconstructive treatment [2,3]. Even though there is an exponential advancement in materials used for fabricating ocular prosthesis, the primary function of eye is still lacking. Several researches were conducted with the aim of improving the unnatural appearance of ocular prosthesis. Has the introduction of EMG signals into the orthopaedic fields developed a scope in the field of ocular prosthesis?

Types of Ocular Prosthesis

Artificial Eye: Patients who had either enucleated one of their eyeballs or who have grossly phthisical eyes, are provided with artificial eyes. The artificial eyes that are fitted after simple ation, are inferior in their cosmetic appearance.

Moulded Eye: In some patients, the conventional type of arti¬ficial eyes does not provide a satisfactory fit. In such cases moulded eye that is fitted over the "phthisical eyeball stumps" is suggested as it provides comparatively good motility to the prosthesis and its aesthetic appearance.

Cosmetic scleral Shell: A thin plastic prosthesis that is given to patients who have a normal or nearly normal shape of the eyeball with total corneal opacity, or a disfigured eye where vision is not possible.

Cosmetic Contact Lens: Similar to cosmetic shell except that the pupillary area is left clear for visual purposes and is suitably powered to correct the refractive error. The scleral portion in such cases is also transpar¬ent.[4]

Spectacle Prosthesis: An ocular prosthesis that is attached to a spec¬tacle frame. It is usually indicated in cases where sockets are markedly contracted beyond reasonable repair and cannot retain even the smallest eye or have been subjected to exenteration.

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FERROPTOSIS: A NEOTERIC FOCUS

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Post graduate student, Professor & HOD, Professor, Reader, Senior lecturer, Senior lecturer

Abstract

Ferroptosis, an iron dependent, non-apoptotic cell death is associated with multiple metabolic disorders and disrupted homeostasis. This process is characterized by the accumulation of lipid peroxidation products and lethal reactive oxygen species (ROS) derived from iron metabolism that induce distinct changes in mitochondrial morphology and integrity. Ferroptosis is regulated by several pathways like trans-sulfuration and mevalonate pathway.

Misregulated ferroptosis has been implicated in various diseases such as lymphoma, leukemia, multiple myeloma and cancer. The lethal metabolic imbalance in this process results from inactivation of the key enzyme glutathione peroxidase (GPX-4) which functions in executing ferroptosis within the cancer cell. These evidences have highlighted the role of ferroptosis in cancer which may create a new insight for diagnosis and therapeutic intervention in the future. This article provides a brief overview on the mechanism of ferroptosis, the role of ferroptosis in human diseases and its therapeutic strategies

Key words: Ferroptosis, cancer cell, reactive oxygen species, glutathione peroxidase-4 (GPX-4)

Introduction

Cell death is an unavoidable and central link in the process of life and marks the end of life of a cell. Traditionally, cell death has been divided into necrosis and apoptosis. Recent studies have included ferroptosis as a new mode of programmed cell death. In 2012, Dixon first proposed the concept of ferroptosis, an iron-dependent, non-apoptotic regulated cell death. [1,2] This process is characterized by the accumulation of lipid peroxides and lethal reactive oxygen species (ROS) derived from iron metabolism that induce distinct changes in mitochondrial morphology and integrity.[3] Ferroptosis plays an important regulatory role in the occurrence and development of multiple diseases, such as cancers and neurological diseases.[4] Ferroptosis is regulated by several

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Mononeuritis Multiplex: A Rare Case Report of the Extra-glandular Manifestation of Sjogren syndrome

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

The neurologic symptoms of Sjogren Syndrome are often ignored. Mononeuritis multiplex is a peripheral motor neuropathy that is not rare with primary Sjogren Syndrome, but is less reported in literature. Early diagnosis of neurological symptoms can help prevent the progression of disease and thereby improve the patient's quality of life. Here, we present a case report where the patient was under neurological consultation for mononeuritis multiplex with no reduction in symptoms for the past one year. She visited us with a complaint of recurrent parotid abscess, after clinical and laboratory examination, diagnosis of Sjogren syndrome was made. Identification of the relationship between Sjogren Syndrome and mononeuritis multiplex was the key to delivering proper treatment to this patient

Keywords: Mononeuritis multiplex, Sogren Syndrome, Parotid abcess,

Introduction

Sjogren's syndrome (SS) is an autoimmune inflammatory disorder characterized by lymphocytic infiltration of exocrine glands, mainly the lacrimal and salivary glands leading to a chronic sicca syndrome. Extra glandular organ systems may frequently be involved, including both the central and peripheral nervous systems. However there is limited mention in the literature, it is commonly acknowledged that about 20% of pSS (primary Sjogren's Syndrome) patients will present neurological manifestations.[1] Treating the neurological condition alone

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"A SMALL LEAK WILL SINK A GREAT SHIP" STEREOMICROSCOPIC EVALUATION OF MICROLEAKAGE IN RESTORATIONS USING DIFFERENT COMPOSITE INSERTION TECHNIQUE AND LINER PLACEMENT: AN INVITRO STUDY

*Dr.Nimmy Kurian, **Dr. Ravi S V, ***Dr.Ramesh Kumar M,****Dr.Elsy P Simon

Abstract

Aim : To evaluate microleakage in restorations when resin composite is placed by three different insertion techniques and also to judge the effects of liners on microleakage. **Materials and methods**: Standard class 1 cavities were prepared in 18 caries free premolars. The teeth were randomly assigned to three groups corresponding to three different insertion techniques (1)oblique incremental insertion, (2) horizontal incremental insertion, (3) bulk fill insertion and subdivided into 3 groups depending on the type of liner used (1) no liner used (2) GIC liner(3) Flowable composite liner. The preparations were etched and restored with an adhesive, liner(except for the no liner group) and composite. Specimens were isolated with nail varnish except for 2mm wide rim around the restoration. All the teeth were then immersed in 2%methylene blue dye for 48 hours. Teeth were then sectioned bucco-lingually with a diamond disc and the sections were evaluated under a stereomicroscope to evaluate the amount of dye penetration. **Result and conclusion:** Within the limitation of this in-vitro study,the use of the oblique insertion technique and use of an intermediate liner of flowable composite resin showed least microleakage among the other materials used.

Key words: microleakage, resin composite, insertion techniques, liners

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Introduction

The main goal of operative dentistry is to restore normal form and function of the tooth. To achieve this goal the restorative material should have good esthetics, biocompatibility, marginal seal, adhesion and less polimerisation shrinkage. Amalgam was the material of choice worldwide for class 1 and class 2 restorations for more than a century.[1] Resin composite restorations have gained popularity because they match the shade of the natural teeth, are mercury-free and thermally non-conductive,[2] and they bond to the tooth structure with the use of adhesive agents.[3] Although composites are now the material of choice for most restoration, their polymerization shrinkage remains a problem.

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MAGNIFICATION IN ENDODONTICS: A REVIEW

*Dr Deepa Jayaraj, **Dr Elsy P Simon, ***Dr M Ramesh Kumar, ****Dr Ravi S V

Abstract

Conventional endodontics has been based on feel not sight. Endodontic therapy has always been very dependent from the tactile sensation of the operator and its anatomic knowledge. With the recent advances of magnification devices with increased magnification and illumination there is improved technical accuracy and performance. This review paper, highlights about the various magnification systems with its added advantages in endodontics.

Key words: loupe, dental operating microscope, endoscope, oroscope.

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Introduction

Magnification is an apparent increase in size especially by the use of lenses. History of the Magnification dates back to 1694 when Anton van Leewenhook constructed first compound lens microscope. Optical magnification has broadened the horizons of dentistry in general, and Restorative dentistry Endodontics, and Periodontology in particular.

Introduction of Dental Loupes & Surgical Operating Microscope endoscopes and orascope enable the clinician to magnify and view an object beyond that perceived by human eye. Magnification used in dentistry for diagnosis, esthetic restorations, routine endodontic procedures, non- surgical periodontal procedures, periodontal plastic microsurgeries, implant dentistry etc. for better visualization, improved treatment quality and ideal treatment ergonomics enhancing motor skills to improve surgical ability by maintaining the right posture. Minimally invasive dental procedures with ease and precision are possible today with the use of magnification in dental practice.

History[1,2]

2,800 years ago: simple glass meniscus lenses in Egypt.

In the first century: Romans noted that objects viewed through glass appeared larger.

1590: Hans and Zacharias Janssen (1580-1638) father and son, Dutch spectacle makers, produced the first compound microscope. The magnification ranged from 3 to 9x.

1609: Galileo Galilei mounted a convex and concave lens and created the compound microscope

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ASSESSMENT OF ORAL HYGIENE PRACTICES AND ITS PREVALENCE IN RELATION TO DENTAL CARIES AMONG THE CHILDREN ATTENDING ANGANWADIS OF KUTTYATTOOR, KANNUR DISTRICT-A CROSS-SECTIONAL STUDY

Amith Adyanthaya, Prathyusha P, Karthik S Nair, Rasna K, Risana K
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ABSTRACT

Background and objectives:Dental caries is a disease that begins at a very young age.Children of disadvantage subpopulation regardless of race,ethnicity or culture have been found to be the most vulnerable. The aim of the study was to assess the relationship between caries and oral hygiene practices and to assess the prevalence of the dental caries among anganwadi children in kuttyattoor, in Kannur district.

Methods: This was a cross-sectional study conducted in 240 children aged 3-6 yrs. attending anganwadis in Kuttyattoor panchayath, Kannur district. Data were collected from mothers of the children using a structured questionnaire. The children were examined for caries using WHO diagnostic criteria and recorded as deft indices. The association between the risk factors and dental caries was analysed statistically.

Results: The prevalence of dental caries was found as 88.75%. Statistically significant association was found between frequency of brushing,medium of brushing.

Conclusion: The caries prevalence was found to be high in this study population.Anganwadis should be addressed routinely on effective oral health promoting strategies which must include monitoring and intervening of children below 6 yrs,generating awareness about risk factors of dental caries and promoting education of parents.Keywords: Dental caries; prevalence; Risk factors; Kerala.

INTRODUCTION

Dental caries is the most common disease of the early childhood. Its increased prevalence in children have been predictive of oral health problems in future affecting their oral health and development leading to severe morbid conditions of oral and general health. Incidence and prevalence of dental caries in children of rural areas is highly influenced by a number of risk factors such as age, gender, socioeconomic status, diet and oral hygiene practices.1

Generally, dental problems in preschool children are neglected by their parents as the deciduous teeth are going to shed off and considered to be of no importance. In fact, decay in the primary dentition is the best predictor for decay in the secondary dentition.2

The Anganwadis were started by the Government of India in 1975 as a part of integrated child development scheme (ICDS) program to combat child hunger and malnutrition. The key function of Anganwadi is to provide supplementary nutrition to the children below 6 years of age and to nursing and pregnant mothers from low income families.3Children attending anganwadis mostly belong to area with marked lower level of socioeconomic strata,poor feeding practice and dietary patterns.

The aim of the study is to estimate the prevalence and risk factors associated with dental caries among preschool children in Kutyattoor panchayath,Kannur, Kerala.

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ANTONI CIESZYŃSKI: A TRIBUTE TO A SAVANT

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ABSTRACT

The first quarter of the twentieth century, following the discovery of X-rays, was a promising time for radiology. It was a time of experimentation and laid the foundations for the science that brought about a radical change in healthcare. Professor Antoni Cieszyński, a Polish physician, dentist, and surgeon, who worked at the University of Lvov during this period, continues to be remembered for his contribution to dentistry as a whole and oral radiology in particular. The professor, accomplished much during a period that was ridden with strife, in a region that was prone to war, between people of different ethnic origins. Despite the odds, he went on to propose several techniques, across fields as varied as oral radiology, periodontology, and oral and maxillofacial surgery, with some of these techniques still being relevant today. As we pass through a century since the 'interbellum', the period between the two world wars, when most of the professor's works were published, we cannot but forget his contributions to dentistry. This tribute serves as an introduction to his early life, his career achievements, and social activities – an inspiration for all of us to emulate, as the science passes through an era of three-dimensional imaging.

KEY WORDS: radiography, dental; history, 20th century; Europe, eastern.

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INTRODUCTION

Few dentists have their names permanently engraved in the annals of dentistry, that have lived on into this modern age. One name that comes to mind is that of Professor Antoni Cieszyński, a Polish physician, dentist, and surgeon, who worked at the University of Lvov. Professor Cieszyński is best known for his contribution to radiology, and is credited with the formulation of the rule of isometry, which forms the basis of the bisecting angle technique. His other achievements include the development of an extra-oral technique for anaesthetizing the mandibular nerve, an injection treatment for trigeminal neuralgia, and a flap technique for periodontal surgery. He was a member of several distinguished scientific societies, including Association Stomatologigue Internationall (ASI) and Federation Dentaire Internationale (FDI), and was the founder of the first Polish dental journal "Polska Dentystyka" [1].

EARLY LIFE

Antoni Cieszyński was born on May 31, 1882 in Oleśnica, Poland to Tomasz Cieszyński and Emilia Chiżyńska. His father, Tomasz, was no little man himself, having authored the Polish-Latin dictionary "Der Polnische Apotheker" ("Polish Apothecary") in 1880. Young Antoni, after finishing high school in Poznan and Bydgoszcz, moved on to Berlin and Munich, where he studied medicine, dentistry, and philosophy. In 1905, he obtained his diploma in dentistry [2], and was under the guidance of Professor Berten from the Department of Surgery, Professor Otto Walkhof from the Department of Con-

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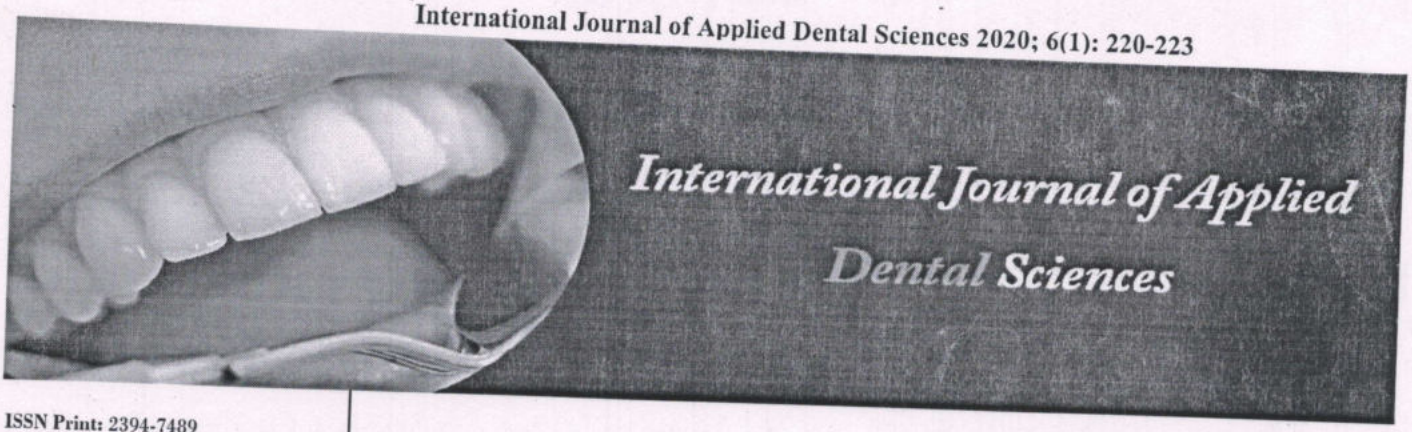
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Simplified technique of iris fabrication and custom made ocular prosthesis for patient with evisceration: A case report

Dr. Shinde Pooja Raosaheb, Dr. Sanjayagouda B Patil, Dr. Lakkappa Shivappa Ganiger, Dr. Nivea T Francis, Dr. Ashmi Sebastian and Dr. Tejaswini A

Abstract
The disorders leading to surgical removal of ocular contents result in ocular defects. The amount of tissue removal and time interval between the surgical procedures and prosthesis fabrication are the important factor for prognosis of ocular prosthesis. Fabrication of a custom made prosthesis gives better tissue adaptation thus the movement of prosthesis is enhanced and also provides esthetics. This case report describes the fabrication of custom made ocular prosthesis where the digital camera was used to fabricate the iris portion of a prosthesis which allowed proper color matching and exact size of the iris. Comfort, movement and retention of a prosthesis, appropriate color and size matching of the iris portion improved the esthetics and patient's self-confidence.

Keywords: Evisceration, ocular prosthesis, ocular defect

Introduction
The eye is considered to be the jewel of the body. Trauma, congenital malformation or surgical removal of various pathologies results in loss of eye causing psychological and physical damage to the patient. The mutilated face can be a stigma for the patient and relatives. This may affect the individual's self-esteem due to difficulty in establishing emotional ties, new life style, insecurity and rejection [1].
Rehabilitation of the ocular defects can be done by ocular prosthesis following an enucleation, evisceration, orbital exenteration, or the phthisis bulbi or a discolored blind eye of near-normal size to improve the cosmetic appearance [2]. Generally used surgical procedures are evisceration which is the removal of the contents of the globe, leaving the sclera and on occasions the cornea in place, and enucleation where the eyeball is completely removed [3].
Ocular prosthesis is commercially available as prosthetic eye shell which is made up of acrylic or glass or it can also be custom made. Custom made ocular prosthesis is always advisable because of its good tissue adaptation, proper fit and it also allows for color and shade matching. Fabrication of iris and sclera portion with proper match of color and size in terms with patient's normal eye is always a big challenge.
This case report describes rehabilitation of the patient with eviscerated eye using custom made ocular prosthesis and simplified technique of iris fabrication using digital camera.

Case report
A 36 Year old female patient reported to Department of Prosthodontics, Sri Hasanamba Dental College and Hospital, Hassan, Karnataka, with the chief complaint of missing left eye causing impaired esthetics. Patient gave history of surgical removal (Evisceration) of the left eye one and half month back due to pain and swelling. Prosthetic stalk eye shell was given to the patient after the surgical procedure by the ophthalmologist. But it was ill fitting causing discomfort to the patient upon wearing. On examination convexity was noted in defect eye as minimal tissues was removed during surgical procedure and loss of folding on upper eyelid was seen due to tissue shrinkage after the surgery (Fig. 1). The remaining ocular tissues were healthy with movement of the tissue bed.

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OSSEODENSIFICATION: A METHOD TO IMPROVE PRIMARY STABILITY

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Abstract:

Osseodensification is a recently introduced interesting technique that enhances the bone density around dental implants and increases the primary stability. It is well established that implant stability is critical for osseointegration. It is directly related to surrounding bone quantity and quality. Maintaining and preserving bone during osteotomy leads to increased primary stability, mechanical properties and bone to implant contact, thereby enhancing secondary stability and healing.

Introduction

Osseointegration is a prerequisite for successful implant treatment. The term Osseointegration was coined by Brånemark (1985).[1] Primary stability of dental implants has been considered as an important factor for achievement of successful osseointegration and thereby secondary stability.[2] Primary stability has a direct relationship with density of bone. Thus maintenance and preservation of bone or the compaction of less dense bone during osteotomy facilitates enhanced primary stability and Bone to Implant Contact (BIC). The main concept of osseodensification technique is that instead of bone excavation, the drill design allows densification of the osteotomy site walls by compaction and autografting of bone tissues in an outwardly expanded direction.[3]

Why implant stability is important?

Dental implant stability is the measure of the anchorage quality of an implant in the alveolar bone. Implant stability can occur at two different stages: primary and secondary. It has been proven to affect the process of osseointegration, the pattern of implant loading, and, finally, the success of an implant.

Primary stability of an implant mostly comes from mechanical engagement with cortical bone. Thus it prevents the formation of a connective tissue layer between implant and bone, ultimately ensuring bone healing.[4] Secondary stability, on the other hand, offers biological stability through bone regeneration and remodeling.[4 HYPERLINK "http://www.jdionline.org/article.asp?issn=0974-6781;year=2012;volume=2;issue=2;spage=103;epage=109;aulast=Rao"]

Degree of implant stability may also depend on the condition of the surrounding tissues. The quantification of implant stability at various time points helps to predict the long-term prognosis.[1] A secure primary stability leads to a predictable secondary stability.

Factors Enhancing Primary Stability of Dental Implants

The key factors in enhancing implant primary stability are bone density, surgical protocol, implant thread type and geometry. Poor bone density is associated with excessive bone resorption and will impair bone healing, therefore considered

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Evaluation for Correlation of Cheiloscopy and Dermatoglyphics in Gender Determination

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Abstract

Background: Identification of the suspect, living or dead with the help of physical charachteristics play a vital role in forensic science. Improved methods of gender determination and personal identification are important in solving criminal cases. Cheiloscopy and dactyloscopy have been proved to be of use in personal identification. The present study aims to evaluate correlation of Cheiloscopy and Dermatoglyphics in gender determination

Materials and Method: The study was carried out from January 2017 to January 2019 on 2112 individuals (1056 males and 1056 females) aged from 15 to 60 years in KMCT Dental College, Calicut. For lip print analysis Suzuki and Tsuchihashi classification was followed. For finger print analysis impression of all the fingers were taken. For analysis, the images were cropped and abode photoshop software was used.

Results: Type 1 and 1' lip groove patterns were found to be predominant among males.Type 4 and Type 5 lip groove patterns were found to be predominant among females. Loop finger print patterns were found to be predominant among males.Whorl finger print patterns were found to be predominant among females. Positive correlation (+0.80) was found between loop finger print pattern and Type 1' lip print pattern in males which is statistically significant (p=0.003).Positive correlation (+0.75) was found between whorl finger print pattern and Type IV lip groove pattern in females which is statistically significant. (p=0.005)

Conclusion: There was definite correlation of Cheiloscopy and Dermatoglyphics in gender determination

Keywords: *Cheiloscopy, Dermatoglyphics, Gender determination.*

Introduction

Forensic science plays a vital role in the identification of the suspected victim or victimizer of a crime, with the help of physical characteristics. Physical evidence is important to solve criminal cases. Improved methods of gender determination and personal identification are gaining importance in recent years.[1,2]

Lip patterns and finger print patterns remain the same throughout life and are uninfluenced by environmental changes and diseases. Cheiloscopy is a forensic investigation technique that deals with identification of humans based on lip traces. A lip print at a crime scene would throw light on many areas of the investigation like the number of people involved, the gender and the behavior pattern of the crime. Edmord locard was the first scientist to recommend the use of lip prints in personal identification.[1]

Dermatoglyphics is the term specified to the scientific study of fingerprints. The term "fingerprint" predominantly means an impression of the epidermal ridges of the fleshy distal portion of a finger. It was first given by Harold Cummins in the year 1926.[3]

Cheiloscopy and dactyloscopy are used in personal identification.[4,5] The present study aims to evaluate

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PERCEIVED SOURCES OF STRESS AMONGST DENTAL STUDENTS IN DENTAL COLLEGE: A CROSS SECTIONAL STUDY

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Abstract

Background: Stress is believed to cause detrimental effects on academic performance of students. Identification of the sources of stress is important in dental education program, as it gives opportunity to takevarious measures to prevent stress in the dental school environment. The rationale of the present study was to identify the various sources ofstress among dental school students in a private dental institution in Kerala, India. **Materials and Methods:** A questionnaire based crosssectional study was conducted among final year students and interns of the dental college. Questionnaire used in the study comprised themodified version of Dental Environmental Stressquestionnaire. A four pointlikert scale was used to record the responsesfrom the subjects. A total of 150 subjects participated in the study. Statistical analysis was done using SPSS package version 20.**Results:** Among the participants, 24.6% (37) were males and 75.4% (113) were females. Major stress factor was academic related (p=0.04), lack of confidence in clinical decision making (p=0.006) and insecurity regarding dental career (p=0.03). Mean stress scores were high for academic related 3.5±1.0, followed by career related 2.9±1.0 questions. **Conclusion:** It is evident that dental studentsencounter high levels of stress. Present study identified that the major stressors were academic related and career relatedrather than personal issues. Our study also focuses the importance of stress management programs to minimize the impact of stress on both academic and personal lives of the students.

Key Words: Dental students, stress, academic, interns

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Introduction

The term stress describes external demands (physical or mental) on an individual's physical and psychological well-being. It is normal for everybody to experience stress to some extent, but too much stress may be harmful. Attending a school, college or university is a rewarding experience but it is also a time of considerable anxiety and stress for students. Students are subjected to different kinds of experiences which makes them vulnerable to undergo a lot of stress.[1]

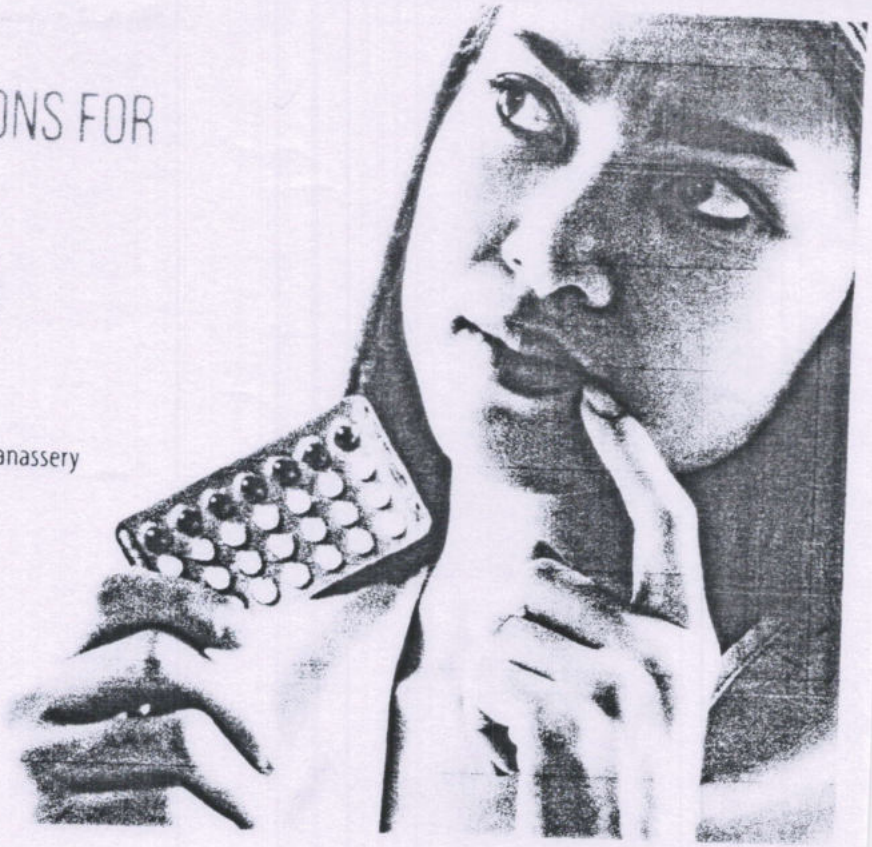
Stress in dental students may be multi-factorial, arising from both the academic and socio-cultural environment, and

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DENTAL CONSIDERATIONS FOR THE WOMEN ON CONTRACEPTIVE PILLS



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Abstract

Oral contraceptives have been used as a means of contraception for a long time by many women. They are used for prevention of pregnancy. They also have noncontraceptive indications like for treating many hormonal imbalances. When first introduced in 1960s and 70s they contained higher dose of estrogen and progesterone and were reported to cause unwanted side effects like gingival inflammation, localized osteitis, gingival melanosis etc in oral tissues. With the advent of new generation formulations of low dose oral contraceptive pills, the effects on oral health is minimized; although further studies are warranted to conclude them as not risk group for developing gingival and periodontal disease. This review briefs the effects of oral contraceptive pills on general health and oral health in particular and controversies surrounding their use.

Keywords: Oral contraceptives, estrogen, progesterone, oral health, adverse effects, side effects

Introduction

For women, natural hormonal changes can impact all areas of the body—including oral health. Estrogen and progesterone hormones can increase blood flow to the gums intraorally, causing them to swell and even bleed. That makes them extra susceptible to plaque and bacteria, increasing the risk for the gum disease gingivitis, which, left untreated, can result in tooth loss.

Oral contraceptives have been used as a means of contraception for a long time. They are used for prevention of pregnancy, also the noncontraceptive uses of OCPs include treatment of polycystic ovary syndrome(PCOS), dysmenorrhea, menorrhagia and hirsutism.[1] Currently available OCPs have low doses of estrogen (0.05mg/day) and progestins (1.5mg/day) compared to the formulations available in the past (20-50μg estrogen and 0.15 - 4mg progesterone). [2]

OCPs are available as two types - one with only progesterone and other with a combination of estrogen and progesterone called as combined oral contraceptive pills (COCs). Emergency contraceptive pills are as well available. [1] The use of oral contraceptives is associated with major risks of thromboembolic and cardiovascular complications [1] and minor side effects, including gingival and/or periodontal disease and other dental problems.[2]

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NANOTECHNOLOGY IN PERIODONTOLOGY : A REVIEW

* Dr. Krishnapriya, **Dr. Harish Kumar VV

Abstract

Nanotechnology is the study of small things. It is the research and development of materia devices, and systems exhibiting physical, chemical, and biological properties that are differe from those found on a larger scale. Thus nanotechnology can be best understood as a bro collection of technologies from diverse fields such as physics, materials science, engineeri chemistry, biochemistry, medicine, and optics each of which may have different characterist and applications. Therefore, the purpose of this review is not only to cover the development nanotechnology in all areas and its impact on periodontal diseases but also it focuses on development of nano materials and their potential to be used in managing periodontal diseas including diagnosis and treatment.

Key Words: Nanotechnology, Physics, Material science, Periodontal disease

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Introduction

Periodontal disease is one of the major dental illnesses that affect millions of people around the globe. Being a chronic inflammatory disorder, it is characterized by inflammation and degeneration of the teeth surrounding structures including gums, alveolar bone, periodontal ligament (PDL) and cementum.[1,2] The disease starts with anaerobic gram-negative bacterial invasion around the gingival sulcus leading to the migration of the gingival epithelium along the tooth surface forming periodontal pockets.[3] This when left untreated can lead to deposition of calculus by the microbes and consequently results in the destruction of the tooth neighboring structures and loss of teeth.[4,5] Delivering drug to the gingival epithelium has been the major challenge for the formulation scientists due to the complexity of the anatomy of the route ar the contours of the lesion which leads to tl drug's poor penetration to the area. The are various proposed local drug deliverir devices which include films, fibers, ge and strips etc., but unfortunately, the approaches were only partially successf due to the difficulty in accessing tl periodontal pockets.

However, the recent nanotechnolo innovations are increasingly providing suitable solution for the treatment of ma dental disorders including periodon disease. Nanotechnology is the engineeri of molecularly precise structures. The te "nanotechnology" was coined by Profess Kerrie E. Drexler, a lecturer and researcl of nanotechnology. The prefix "nan

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METAGENOMICS IN PERIODONTAL PERSPECTIVE : A REVIEW

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Abstract

Metagenomics is the study of genetic material recovered directly from environmer samples.The oral microbiome, the complex ecosystem of microbes inhabiting the human mo harbours several thousands of bacterial types. The proliferation of pathogenic bacteria within mouth gives rise to periodontitis. Metagenomics using next generation sequencing technolo helps to study the roles of pathogenic species and functions of specific genes in oral dise development. Through the sequencing of the 16S rRNA gene and whole community DN glimpse of genetic, metabolic, and ecological changes associated with periodontitis can provided and thepower of whole-metagenome sequencing approaches incharacterizing genomes of key players in the oral microbiome,including an unculturable TM7 organism ca demonstrated. In this review hypotheses regarding the role of bacteria and recent metageno studies aimed at elucidating bacterialroles in periodontitis will be discussed.

Key Words: metagenomics, oral microbiome, periodontitis

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Introduction

In today's world periodontal diseases and tooth decay are the two most prevaling ailments of the oral cavity and are the prime causes of tooth loss.[1] Presently, periodontitis and dental caries are generally diagnosed at late stages of disease, often leading to expensive and invasive dental treatment. Therefore, new diagnostic approaches capable of identifying periodontitis and dental caries at preclinical stages, favoring preventive treatment strategies, have become a requisite in the dental field.

The oral cavity harbors a diverse microbiota comprising more than 700-19,000 species/phylotypes unique bacterial species/phylotypes.[2,3] The microbiota pla a pivotal role in maintenance of o homeostasis, as various oral habitats colonized by characteristic bacter community profiles organized in lo biofilms. However, ecological changes, example in relation to increased su intake, poor oral hygiene or alterations the immune response can induce structu and functional alterations of local c biofilms. Such alterations may in t change the relation between the host the resident microbiota from symbiosis dysbiosis, thereby boosting the initiat and progression of periodontitis.[3]

As development of DNA sequenc technologies have progress metagenomics has become a popu

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MANAGEMENT OF MANDIBULAR FIRST MOLAR WITH MIDDLE MESIAL CANAL: A CASE REPORT

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Abstract

A detailed knowledge of the pulp canal anatomy is necessary to effectively clean and shape the root canal system. Identification of extra canals and their instrumentation together with adequate disinfection can avoid need for future retreatment and surgical intervention. Several studies and case reports reported variations in root canal anatomy associated with the mandibular first molars. This article reports the identification and management of middle mesial canal in mandibular first molar.

Keywords: middle mesial canal, mandibular first molar, extra canal, root canal variations.

Introduction

Disinfection of root canal system is important in endodontic therapy.1 For root canal treatment to be successful, it is necessary to locate all root canals, debride them thoroughly and seal them completely with an inert root filling material. A detailed knowledge of the pulp canal anatomy is necessary to effectively clean and shape the root canal system.

Mandibular permanent first molars are the most frequent tooth to be endodontically treated because it is the first permanent tooth to erupt in oral cavity.2 Normally it is a two rooted tooth with two canals in the mesial root and one or two canals in the distal root. Variations include a separate distolingual root or mesiobuccal root, c-shaped anatomy of the roots and/or canals, an isthmus between the mesiobuccal (MB) and mesiolingual (ML) canals, and a third canal in the mesial root known as the middle mesial canal (MMC).

Middle mesial canal was first reported by Vertucci and Williams as well as Barker et al. in 1974.3,4 The middle mesial canal (MMCs), an occasional entity which lies in the developmental groove between the mesiobuccal(MB) and mesiolingual (ML) canals. It is also referred as the intermediate canal5, mesio-central canal6, third mesial canal7, accessory mesial canal8 and middle mesial canal (MMC)9,10. The term middle mesial canal has found to be the common usage. In the literature, this anatomical variation has been found in a percentage frequency ranging from 0.26% 11 to 46.15%10.

Pomeranz et al classified MM canals into three types namely independent, confluent and fin.9 Goel et al reported the incidence of middle mesial canal in mandibular first molar as 13.3% by radiographic technique.12 Double middle mesial canal (DMMC) was also reported with the prevalence 3.3% in one study13.

This is a clinical case report describing the management of mandibular permanent first molar with confluent middle mesial canal configuration and related literature review.

CASE REPORT

46-year-old female patient reported with complaint of dislodged restoration in relation to lower left back tooth in the last 5 months. Clinical examination revealed partially dislodged class I amalgam restoration and the cavity was wide buccolingually. Radiographic examination revealed radiolucency approximating pulp on distal aspect with radiopacity in relation to pulp chamber and distal root canal. Cold test gave no response, but not reliable because of the presence of pulp chamber calcification. Tooth was evaluated by removing remaining restoration and caries. Endodontic treatment followed by crown was decided.



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Plasma Cell Gingivitis- An Enigma in Diagnosi

Hiba Muhammed[1], Santhosh V.C[2], Mariyam Ashraf[3]

ABSTRACT

Plasma cell gingivitis, which is also called atypical gingivitis or plasma cell gingivostomatitis, is a rare benign inflammatory condition of unknown etiology. It presents clinically as a diffuse, erythematous and papillary lesion of the gingiva, which frequently bleeds, with minimal trauma. Here we have documented a case of plasma cell gingivitis due to the indiscriminate use of a herbal tooth paste. A 39 year old male presented with enlarged and edematous gingiva is treated.

Keywords: Plasma cell gingivitis, atypical gingivitis, herbal tooth paste, management, case report.

Introduction

Plasma cell gingivitis (PCG) is a benign inflammatory condition that is uncommon and of unclear etiology.[1] Other terms that have been used are idiopathic gingivostomatitis[2] atypical gingivostomatitis,[3] allergic gingivostomatitis hypersensitivity,[4] and plasmacytosis. It is characterized by sharply demarcated erythematous and edematous gingiva often extending up to the muco gingival junction, which frequently bleeds on slightest trauma.[5] Gingival ulceration is rare.[6] A localized lesion referred to as plasma cell granuloma has also been described.[7] It is regarded as an immunological reaction to allergens especially mint, cinnamon present in tooth paste and chewing gums.[8] Some herbs such as chili, pepper and cardamom may also be considered as important factors in etiology of plasma cell gingivitis.[9] Other categories of this disease are neoplastic lesions or lesions of unknown causes.[10]

Lesions may mimic that of acute leukemia and histologically imitate multiple myeloma and extramedullary plasmacytoma.[11] Hence, the diagnosis requires hematological screening in addition to clinical and histopathological examinations.[12] The present ca report outlines the case of plasma cell gingivitis, whi is suspected to have occurred following the use herbal tooth paste.

Case report

A 39 year old male, reported to Department Periodontology, KMCT Dental College, Manasse Kozhikode, Kerala with a chief complaint of swelli in his gums in upper front region since 7 months. H also noticed spontaneous bleeding while chewing a increased bleeding during tooth brushing. No pain other symptoms were noticed.

Past medical history was noncontributory. The was no use of any medications which are known cause gingival enlargement. He reported the swelli to be small in size which gradually increased to curre size in 7 months time. Upon detailed history takir it was revealed that patient noticed the changes in h gingiva when he switched on to a new paste. He w using anti hypersensitivity tooth paste for long a had changed to herbal tooth paste of a very worldwi

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Gummy smile - a dilemma

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Abstract
Gummy smile patients have always presented orthodontist with a huge dilemma. Gum tissue visible in the smile line should have balanced, even contour that are in harmony with upper lip. It is for this reason, that many people with a gummy smile /excessive gingival display feel their smile to be unattractive, often times feeling reluctant to smile at all.
Gummy smile is usually characterized by overgrowth of anterior maxillary vertical excess, the outcome may not always be successful with conventional orthodontic therapy alone. In such cases, surgical therapy, lefort impaction/maxillary gingivectomies are often chosen to gain a good smile. However, the patient may not be willing to undergo surgical treatment, an alternative method must be considered to treat the gummy smile. This is a case report on non-surgical treatment for correction of gummy smile using mini-implants in which patient has achieved satisfactory results.

Keywords: Gummy smile, Mini implants.

Introduction

Gummy smile also known as an excessive gingival display is a common unaesthetic clinical condition. It can have a negative effect on the esthetics of your smile. Gummy smile is defined as a continuous band of gingival display of more than 3 mm, during spontaneous smile. Gum tissue visible in the smile line should have balanced, even contours that are in harmony with the upper lip. It is for this reason that many people with a gummy smile or excessive gingival display feel their smile to be unattractive, oftentimes feeling reluctant to smile at all. The causes of gummy smile are all related to the teeth, gums, lips and *jaws, which are the key parts that affect the way we smile.* Gummy smiles exist for a variety of reasons and proper diagnosis is critical. There is often a combination of factors that create the effect of gumminess. There may also be a variety of ways to treat a gummy smile.

The purpose of this article is to contribute to the simplification of orthodontic treatment by preventing side effects while offering an alternative approach to gummy smile correction.

Smile Esthetics1

Smile is one of the most important expression contributing to facial attractiveness. With patients becoming increasingly conscious of a beautiful smile, smile esthetics turns to be an important objective in orthodontic treatment. Often, the main reason people seek orthodontic treatment is to improve dental esthetics.

Smile esthetics are defined by the teeth, framed by the lips and are contoured by the gums. An esthetically pleasing smile is not only dependent on components such as tooth position, size, shape, and color, but also on the amount of gingival display . Precisely, the harmony and symmetry of an aesthetic smile is determined by the extent of exposure of the gingiva when smiling, the arc of the smile, the proportions of the teeth, and the buccal corridors . All of these components are supposed to form a harmonic and symmetric entity

Accordingly, smile line may be of 3 types (Fig. 1). A low smile line which displays <75% of the maxillary anterior teeth, a medium line which exposes 75– 100% of maxillary anterior teeth and a high smile line in which all of the clinical crowns are exposed along with a contiguous band of gingival tissue.

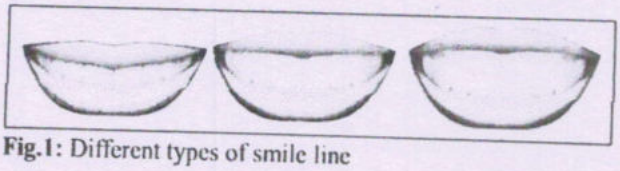


Fig.1: Different types of smile line

Treatment of Gummy Smile

Correcting gummy smile may be an especially complex objective for the orthodontist. Only moderate gummy smile of alveolar origin responds to isolated orthodontic treatment. Several treatment options have been proposed to enhance the smile display and to reduce the gingival exposure.[2] Gummy smile of alveolar origin is generally associated with supra-occlusion limited to the incisor group. In vertically normal gummy smile, intrusion of the maxillary incisors is the treatment of choice.

Treatment can be undertaken at a very early age to prevent onset of supra-occlusion. Once gummy smile has emerged, there are orthodontic mechanisms to improve the relation between upper lip and teeth, reducing gum exposure.

Conventional techniques can be used: e.g., Ricketts' basal arch to achieve superior incisor intrusion. This intrusion, however, is difficult to obtain and is often accompanied by molar extrusion, which may not be desired, especially in hyperdivergent subjects with gummy smile.

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Periodontal ligament stem cells: A review of the past, present and future

Krishnapriya[1], Harish Kumar V.V[2]

ABSTRACT

Teeth has a unique and complex developmental origin making it a fascinating area of study in regenerative medicine. Various types of mesenchymal stem cells have been isolated from the oral cavity and those from the periodontal ligament cells was in 2005. They can be easily recovered by non-invasive procedures and also culture, thus facilitating its use in regeneration.

The present review summarizes themorphofunctional features, surface markers and multilenage capacity of periodontal ligament mesenchymal stem cells. These cells also have an added advantage in possessing angiogenetic, immunoregulatory as well as anti-inflammatory properties, thus widening its use in periodontal regeneration arena.

Keywords: Periodontal ligament stem cells, stem cell markers, multipotency, immunomodulation, periodontal regeneration

Introduction

Rudolf Virchow (1821-1902) postulated that all cells of the human body derive from a single cell and so started regenerative medicine studies. With this concept, the modern medicine, and in particular the regenerative medicine, focused its attention on stem cells located in specific niches.

A stem cell is defined as a cell that can continuously produce unaltered daughter cells and has the ability to generate cells with different and more restricted properties.[1] Stem cells can be categorized into two groups- embryonic and adult. Though embryonic stem cells are totipotent, regulatory issues concerning their procurement and use have caused current attention to be directed toward stem cells derived from adult tissues adult postnatal stem cells. These cells are slow cycling, and are 'self- renewing' cells or can generate large numbers of progeny. They are multipotent and differentiate into intermediate cell types, called precursor or progenitor cells with clonogenic potential[1,2] the differentiating ability into cell types of the tissue in which they reside.[3] Having more restricted differentiation potential than totipotent embryonic stem cells postnatal stem cells can thus be classified depending on their origin and differentiation potential. Common examples are hematopoietic and mesenchymal stem cells [MSC].

Friedenstein et al. 1970[4] first described MSC in bone marrow. They described MSC as fibroblast - like cells with the ability to assume an osteogenic phenotype in diffusion chamber cell suspensions when isotransplanted in to mice. Although MSC have recently been isolated from a variety of adult and embryonic tissues,[5] presently, bone marrow represents the major source of postnaral MSC and is the most studied However, bone marrow aspiration is an invasive procedure and, therefore, the search for alternative source

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GLIDE PATH: THE TRUMP CARD TO ENDODONTIC SUCCESS

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Abstract

What is a glide path? Why is it important? Glide-path is a smooth radicular tunnel from canal orifice to physiologic terminus (foraminal constriction). Its minimal size should be a "super loose No. 10" endodontic file. The Glide path must be discovered if already present in the endodontic anatomy or prepared if it is not present. Glide path creation is essential for prevention of rotary file separation and most effective rotary use. Creating a .02 tapered glide path is critical for the safe and effective use of nickel-titanium rotary shaping instruments. Routine glide path establishment and enlargement with glide path files can increase the lifespan of rotary instruments with a reduced risk of instrument fracture. Aim is to provide information about glide path with which we can maintain the original canal anatomy with less modification of canal curvature and fewer canal aberrations.

Key words: glide path, instrument fracture, rotary file separation

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1. Introduction

In aeronautics, Glide Path is the approach path of an aircraft when landing, usually defined by a radar beam. It's purpose is to establish a tightly controlled horizontal and vertical "corridor" that will take the incoming aircraft to the proper location at the end of the runway. And just as turbulence can cause an aircraft to veer off its Glide Path, in Endodontics the lack of a properly established glide path will often lead to ledge formation, transportation of the natural canal anatomy, and blockage of the canal with dentin debris, or a combination of all three negative consequences. Just as the preparation of the Glide Path lays the groundwork for the proper shaping of the canal, proper access preparation is an essential precursor for identifying the canal orifice (s) and the subsequent preparation of the Glide Path(Barry H,2015).

The surprising fact is that the subject of Glide path has no formal training in the Endodontic curricula of most Dental schools. The purpose of Endodontics is to prevent or heal lesions of endodontic origin (West JD,2010).

Cleaning and shaping of the root canal is the single most important phase of endodontic therapy. The goal of root canal instrumentation is to obtain a continuous tapering funnel flowing with the shape of the original canal from the coronal access to the apex. It is the starting point of radicular preparations. Without it, cleaning and shaping becomes unpredictable or impossible because there is no guide for endodontic mechanics (Dhingra A,2014).

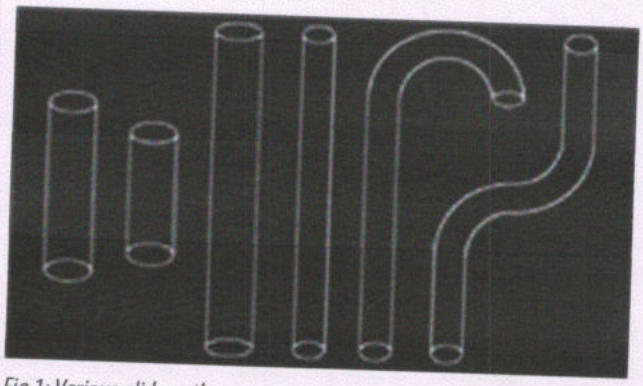


Fig 1: Various glide paths

2.What Is Glidepath?

The endodontic Glidepath is a smooth radicular tunnel from canal orifice to physiologic terminus (foraminal constriction). Its minimal size should be a "super loose No. 10" endondontic file (Fig 1). The Glidepath can be short or long, narrow or wide, essentially straight or curved(Fig 2). Glide path creation is essential for prevention of rotary file separation and most effective rotary use.



Fig 2: Glidepath

3.Why is the endodontic Glidepath Important?

Without the endodontic Glidepath, the rationale of endodontics cannot be achieved. The rationale states that "any endodontically diseased tooth can be predictably saved if the root canal system can be nonsurgically or surgically sealed, the tooth is periodontally sound or can be made so, and the tooth is restorable"(West JD,2010).

Rotary glide path preparation has an advantage of better initial removal of pulp tissue and debris from the canal, allowing the operator to maintain the working length and patency of root canals. This allows for better flow of irrigation solutions to the apical root canal, a significant advantage during the crown-down technique(Berutti E,2004).

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IN VITRO EVALUATION OF PUSH-OUT BOND STRENGTH OF FIBER POSTS CEMENTED USING TWO DIFFERENT ADHESIVE APPROACHES

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ABSTRACT

Objective. : To compare push-out bond strength of fiber-posts luted with two different adhesive approaches to root canal dentin

Materials and methods : Twenty mandibular first premolars were decoronated and endodontically treated. Specimens were randomly distributed into two groups (n = 10) and fiber-posts were inserted using two different luting materials: self-adhesive resin cements (RelyX Unicem, 3M Espe) in group one and a self-etch adhesive/ dual cure resin cement(Para Core , Coltene) in group two. The roots were sectioned into slices of 2mm thickness at the coronal third and middle third and after 24 hours push-out bond strength was investigated.

Key Words: bonding technique, root canal, fiber posts, push-out, self-adhesive resin cements

Introduction

For post-endodontic restorations various luting agents and adhesives systems, respectively, have been proposed to bond fiber-reinforced composite (FRC) posts to root canal dentin. Compared to conventional post cementation adhesive post luting offers less mikroleakage [1,2], improved retention [3,4] and load capability. Thus, a durable bond to root canal dentin to seal the endodontic environment is considered to be the major issue in longevity of postendodontic restoration.[5]

According to the way they interact with the smear layer current adhesives used in this study are attributed to the following bonding strategies/techniques [6]:

(1) Self-etch adhesives include acidic monomers making the smear layer permeable without removing it.

(2) Self-adhesive resin cements, which show a different cement/dentin interface.

Current developments tend to adhesively restore the weakened endodontically treated teeth with fiberpost and composite core in a one-stage core-and-post procedure [7], whereas core build-up will immediately follow post cementation using the same composite material (core-and-post materials). Recently, a new resin-based cement (RelyX Unicem Cement, 3M ESPE, Seefeld, Germany) has combined the use of adhesive and cement in one single application, eliminating the need for pretreatment of both tooth and restoration[8]

Such a procedure could reduce the technique sensitivity, hazards of possible incompatibility of different composites (interface between cement and core material) and the time necessary to complete the core-and-post treatment procedure. Also the the bond strength of fiber posts to root canal dentin may be varied in different regions of the root canal , which may be due to the difficulty of curing light to reach the more apical parts of the root canal and Difficulty of moisture control and adhesive application .[9,10]

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GERIATRIC PERIODONTOLOGY: A REVIEW

* Dr. Sruthi V G, **Dr. Harish Kumar V V

Abstract

Appropriate dental care for an older adult dental patient will begin with a comprehensive healt history, evaluation of health status and risk factors for oral disease, and communication with othe health professionals who are caring for the patient. The severity of periodontitis increases wit increasing age. Another very important consideration in the discussion of dental care for olde adults is the recognized increase in the prevalence of non-communicable chronic diseases tha occurs with age. The aging process may be regulated through low-grade, unresolved subclinica inflammation, with periodontitis as an example of a low-grade chronic inflammatory process.

Keywords: Geriatric Patients, Periodontal Care Review

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Introduction

The proportion of elderly persons is increasing significantly, and the number of individuals losing all or some of their teeth is decreasing. Consequently, the number of teeth in the elderly at risk for developing periodontitis is growing. The prevalence and severity of periodontitis apparently increase with increasing age. These facts have led to the widely held supposition, that periodontitis in elderly people is an ever-increasing burden that society and the dental profession must face.[1]

Periodontal diseases in geriatric persons

In developed countries, a substantial increase in the human lifespan has occurred since 1945. Improvements in care and preventive medicine, in social welfare and in physica and mental activities have had a major impac on this lifespan increase.[2] In the 1950s, th terms "old" and "older" related to a persor 50 years of age and implied an averag lifespan of 65–70 years; correspondingl there was no incentive to study periodonta conditions in individuals> 80 years of age.[3] is predicted that 50% of individuals bor from 2000 onwards may live beyond 1C years of age.[2] In 2010, the estimated numb of people 65 years of age and older was 52 million. By 2050, that number will reach 1. billion.[2] This will have an impact c periodontal treatment needs, with a demar for increased focus on older or geriatr populations.[3]

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ORAL FIELD CANCERIZATION AND ITS CLINICAL RELEVANCE

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***Dr. Mariyam M Ashraf KV, ***Dr. Lakshmi V

Abstract

Oral cancer is a major health problem in the Indian subcontinent, where it ranks among the top three types of cancer. Despite improvements in the management strategies, the 5-year survival rates of oral cancer patients are still below 50% due to high rate of recurrence. The poor prognosis in oral cancer prevention and treatment can be due to the nature of spread of genetically altered cells as fields within the epithelial compartment called as field cancerization. Early identification of these cancer fields will play a vital role in preventing cancer mortality and morbidity. This article emphasizes on the concepts, theories and clinical relevance of field cancerization.

Keywords: Field cancerization, genetically altered patches, oral cancer

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Introduction

The oral cavity is one of the predominant and prevalent sites of development of potential malignant lesions, since it comes into direct contact with many carcinogens. Oral Cancer is one of the most common malignancies in humans. The average 5 year survival rate has not significantly improved during the last two decades. It ranks as the second most common malignancy among males and fourth most common malignancy among females.[1] More than 90% of oral cancers among men can be attributed to tobacco use and most of them develop from precursor lesions. Despite the resection of the tumor from the original site, the overall mortality rate still remains unchanged.[2] This high failure in the treatment of oral cancers is due to delay in the diagnosis and emergence of the second primary tumors (SPTs)[3] and could be explained in part by the concept of field cancerization introduced by Slaughter et al.,[4] The development of recurrences and second primary tumors, even when surgical margins are histopathologically tumor-free corroborates the concept of field cancerization. This article aims in reviewing the concepts of field cancerization, its role in the prognosis of oral cancers and precancers and its clinical relevance.

Field Cancerization

Field cancerization also called field defect or field effect is a well-known process of transformation of an existing precancerous lesion into malignancy. This definition is often used to describe the development of abnormal tissues around a tumorigenic area,

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ORTHOKERATINIZED ODONTOGENIC CYST: A CASE REPORT

*Dr. Preethi K, *Dr. Ashifa MP, **Dr. Rajeesh Mohammed PK, ***Dr. Mayeesh Radhakrishna, ****Dr. Rohit Mohan, *****Dr. Nimisha

Abstract

Orthokeratinized odontogenic cyst (OOC) is a developmental cyst and was initially defined as an uncommon variant of odontogenic keratocyst (OKC) until the world health organization's (WHO) classification in 2005, where it was separated from the keratocystic odontogenic tumor (KCOT). OOC maintained its identity as a distinct entity, when WHO in 2017 reclassified OKC back into cystic category. It is a relatively rare developmental cyst representing 7-17% of all keratinizing jaw cysts. We report a case of OOC occurring in mandibular posterior region with emphasis on its biological characteristics.

Keywords: Orthokeratinized odontogenic cyst, odontogenic keratocyst, keratocystic odontogenic tumor

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Introduction

The orthokeratinized odontogenic cyst (OOC) is a developmental odontogenic cyst relatively rare, representing 7-17% of all keratinizing jaw cysts arising from the cell rests of the dental lamina.[1] It was first described as dermoid cyst by Schultz in 1927. In 1945, Philipsen considered this entity as a variant of the odontogenic keratocyst (OKC).[2] It was in 1981 that OOC gained its individuality, when Wright clearly identified it as an orthokeratinzed variant of OKC owing to its characteristic histopathology and reduced likelihood to recur.

In 1992, WHO defined OOC as an uncommon orthokeratinized type of OKC.[3] Presently, the term OOC is the most accepted terminology coined by Li et al in 1998.[4]

The WHO 2005 edition reclassified the parakeratotic type of OKC as keratocystic odontogenic tumor (KCOT), in view of its intrinsic growth potential and propensity to recur and it stated that cystic jaw lesions that are lined by orthokeratinizing epithelium do not form a part of the spectrum of KCOT.[5] When WHO in 2017 reclassified KCOT back into cystic category, OOC maintained its identity as a distinct entity.[6,7]

Case report

A 27 year old male patient presented with swelling and pain in relation to the lower right posterior jaw since four days. History revealed that patient had swelling and pain along with fever one week back for which he consulted a physician and took medication. Fever

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ATYPICAL PLEOMORPHIC ADENOMA: A CASE REPORT WITH LITERATURE REVIEW

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Abstract

Pleomorphic adenomas (PA) are the most common benign salivary gland tumors, which can affect both major and minor salivary glands. The parotid gland is the most commonly affected major salivary gland, whereas the palate represents the most common site of minor salivary gland involvement. Usually they are found as solitary unilateral, firm and mobile, painless, slow growing mass. The potential risk of the PA becoming malignant is about 6%. Auclair and Ellis noticed the existence of atypical feature in PA, such as hypercellularity, capsule violation, hyalinization, and necrosis and termed it as atypical PA. We report a case of atypical pleomorphic adenoma in a female patient, who sought medical care for a volumetric increase of the hard palate for approximately 5 years.

Keywords: atypical pleomorphic adenoma, salivary gland tumour, case report.

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Introduction

Tumors of the salivary glands, though uncommon, are not that rare and constitute an important field in oral-maxillofacial pathology. Pleomorphic adenoma (PA) is the most commonly found neoplasm amongst tumors of the major and minor salivary glands, originally called a mixed benign tumor in 1866.[1,2] The change of name to "pleomorphic" adenoma was first suggested as recently as 1948, as this term describes the embryological basis for these tumors, which originate in the epithelial and connective tissue. The classical microscopic description was applied in 1874, observing a variety of cell types as the main characteristic of pleomorphic adenoma, not just between the different samples examined but also in different parts of the same sample.[1,3] Even though it has an origin which is exclusive to epithelial tissue, the variety of components accords it a mesenchymal appearance as a result of the products from the tumor cells themselves.[3]

The term pleomorphic adenoma was suggested by Willis. In earlier years, it was referred by names such as enclavoma, branchioma, endothe-lioma, and enchondroma.[4] PA makes up approximately 90% of all benign lesions of the salivary glands, accounting for 50%-70% of cases of parotid tumors, 40%-60% submandibular tumors, and 10% minor salivary gland

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Original Research Paper

Ayurveda

CYTOKINES – AS A DIAGNOSTIC MARKER OF PULPAL INFLAMMATION

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ABSTRACT Considering the management of the decayed teeths'certain clinical signs, sensitivity tests, and radiographic findings do not provide accurate information about pulpal status. There can be a possibility of diagnosing pulpal pathological status using the cytokines that are released during the inflammation process in healthy as well as infected tooth pulp as a marker. This article emphasizes on the importance of cytokines level estimation in puplal blood that may help in the diagnosis of pulpal inflammation.

KEYWORDS : Cytokinese, Pulpal inflammation, ELISA

INTRODUCTION

Pulpotomy is a common procedure for the treatment of deep dentin caries in primary molars with no evidence of radicular pathosis[1]. It is indicated for primary teeth with asymptomatic deep dentin caries, either mechanical or carious exposure of vital pulp, no clinical or radiographic evidence suggesting irreversible pulpitis or nonvitality, and no radiographic evidence of physiologic root resorption exceeding one-third of the root length[2]. The success of pulpotomy treatment is mainly based on a clinical diagnosis of normal pulp (symptom-free and responsive to vitality testing) and reversible pulpitis (pulp capable of healing).[3]

However, there is a considerable amount of literature reporting that clinical signs, sensitivity tests, and radiographic findings do not provide accurate information about pulpal status[4], and no quantitative marker of primary molar pulp inflammation is currently available.

The possibility has been raised of diagnosing pulpal pathological status using the cytokines that are released during the inflammation process in healthy as well as infected tooth pulp as a markers.[5] Cytokines are small polypeptides secreted by leucocytes and other inflammatory cells[6] and are known to play important roles in the intensity and duration of the immune response.[7] Pro-inflammatory cytokines (IL-1 , IL-2, IL-6, IL-8, TNF-) are involved in the regulation and development of inflammation, while anti-inflammatory cytokines (IL-4, IL-10, and IL-13) play roles in its suppression. Cytokines are also involved in increasing pulp pressure and providing pulpal hemostasis.[8] Studies have emphasized that infected teeth have higher levels of cytokines than healthy teeth, making it possible to use these inflammatory markers to diagnose the pathological condition of dental pulp tissue.[9] Assessing the cytokines level at the exposure site reflects the level of inflammation at canal orifices of primary teeth with carious pulp exposures. For measuring the level of inflammation, cytokine levels at the exposure sites and canal orifices are used.

PROCEDURE:

Following administration of local anesthesia using a solution that do not contain a vasoconstrictor, teeth are isolated with a rubber dam, a low-speed round bur is used to remove carious tooth structure, and teeth with carious pulp exposures.

To assess inflammatory markers at the canal orifice, access to the pulp chamber is created, and the coronal pulp is removed with a spoon excavator. To assess inflammatory markers at the canal orifices, a blood sample is collected by a sterile cotton pellet, which is placed in the pulp chamber adjacent to all canal orifices for 45 seconds. This is removed, and a damp cotton pellet is placed at the orifice using slight pressure to control hemorrhage.

Primary molars in which homeostasis at the exposure site is achieved in five minutes are only included.

The Primary molars are treated with vital pulpotomy with a calcium-silicate-based material (Biodentine, Septodont, Saint-Maur-des-fossés, France) and restored with stainless steel crowns.

All blood samples are immediately eluted with 0.08 ml phosphate-buffered saline (PBS pH equals 7.2) and stored at -80 degrees Celsius until analysis.

Pulpal blood samples are analyzed for IL-1β, IL-2, IL-6, IL-8, IL-10, TNF-α, and PGE2 levels (pg/ml) using Enzyme Linked-Immuno-Sorbent Assays (**ELISA**). After thawing, the blood samples are centrifuged at 1,500 g for 10 minutes at four degrees Celsius, and the cotton pellets are removed. Cytokine concentrations are measured using an Invitrogen Immunoassay Kit (DIA Source ImmunoAssays, Nivelles, Belgium) with a double-sandwich technique.

DISCUSSION

When deciding whether pulpotomy or direct pulp capping is indicated, the extent of radicular pulp inflammation is particularly hard to determine[10]. During clinical procedures, the only operative criterion available to determine the treatability these teeth is homeostasis, which is a criterion that has not previously been shown to decisively determine the level of inflammation in radicular pulp tissue. Moreover, there is no agreement as to whether homeostasis should be evaluated at the exposure site or at the canal orifice.[11] In an attempt to develop a more objective and accurate criterion for vital pulp treatment, this method may reflect the inflammatory level as determined by cytokine levels of pulp tissue at the canal orifices of primary teeth with carious pulp exposure.

PAINLESS JAW SWELLING : PERPLEXING CASE

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Abstract

The mandibular hyper parathyroid brown tumour is considered a rare metabolic disorder, also known as mandibular osteoclastome. This lesion is triggered by the excess of the production of parathyroid hormone (PTH). PTH are directly linked to mechanisms of control of levels of calcium, phosphorus and vitamin D, which confers the lesions the aspect of numerous osteoclastic cells, circumscribed and richly vascularised which causes their reddish-brown coloration. Individuals affected by this disorder show signs and symptoms of weakness, nausea, fatigue, anorexia, excessive thirst, polyuria, constipation and consequently depression. The purpose of this article is to perform a literature review by describing the case of mandibular brown tumour, explaining the conduct performed according to the case by clinical and radiological image studies that guided the case.

Keywords: hyperparathyroidism; bony swelling; radiolucent jaw lesions

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Introduction

Parathyroid hormone, which is produced by the four parathyroid glands located posterior to the thyroid gland, are responsible for the control of phosphorus (P), calcium (Ca) and vitamin D. The level of calcium present in the blood is considered a triggering factor of the disorder by the release and production of this hormone. "The hyperparathyroidism- HPT is a disease in which there may be a complex, of biochemical anatomic and clinical abnormalities."

Brown tumour, has its determinant a metabolic bone disarray caused by the excess production of PTH. Therefore the Brown Tumour has its histopathological complexity described as multiple adenomas, numerous osteoclastic cells, of cystic format, and separated by a highly vascularized tissue which will confer the lesion a dark red or brownish colouration which characterizes its nickname.

It usually affects young people especially females with varying degrees of aggressiveness and risks of recurrence. It can affect the base of the skull, orbits, paranasal sinuses, spinal column as well femur, tibia, humerus, clavicles and scapula. However, it is relatively rare in the maxilla with a

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Research Article

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Prosthetic Rehabilitation of Severely Resorbed Mandibular Ridge: A Case Report

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ABSTRACT

Background: Severely resorbed mandibular ridge is always challenging to the clinician. It is tackled by either surgical or non surgical procedures. In cases, where surgical procedures are contraindicated or unacceptable for the patients, non surgical means are adopted. Utilizing the neutral zone concept itself will help in improving denture stability. Still retention and support will be compromised. To compensate for these, extension of denture to maximum denture bearing area can be achieved by recording sublingual crescent area. This article describes a case report of prosthetic rehabilitation of a severely resorbed mandibular ridge with complete denture using a combined technique of incorporating the sublingual crescent area and neutral zone concept. This method not only improved retention, stability and support, but also the level of patient satisfaction. This method provides a solution for loose-fitting mandibular denture.

Keywords: Sub crescent area, Severely resorbed mandibular ridge, Neutral zone concept.

INTRODUCTION

The objectives of impression making include, retention, stability, support, esthetics and preservation.[1] Accurate border molding within physiologic boundaries accomplishes the most desirable border seal and thereby retention, support and stability.[2] As a modification of impression technique, Lewis ET in 1958 reported about the anterior sublingual area anatomy and utilization of sublingual crescent space by extending the anterior lingual flange of lower denture into the space for improving the retention of mandibular denture in highly resorbed ridges.[3] Sublingual crescent is the crescent shaped area at the anterior floor of the mouth formed by the lingual wall of the mandible and the adjacent sublingual fold.

To enhance the retention and stability, an additional consideration that can be given is the arrangement of teeth in the neutral zone. Neutral zone is the potential space where forces exerted by lips and cheeks on one side are neutralized by tongue from the other side.[4] The central thesis of the neutral-zone approach to complete denture is to locate that area in the edentulous mouth where the teeth should be positioned so that the forces exerted by muscles will tend to stabilize the denture rather than unseat it. Thus, this technique serves as a guide to arrange the teeth and contour the polished surface of the denture in accordance with the activity of the musculature to ensure optimal stability, retention and facial support.

CASE REPORT

A seventy five year-old female patient reported to the department of Prosthodontics with the chief complaint of difficulty in chewing food due to loose-fitting lower denture for the past 2 years. Patient was a known complete denture wearer for the past 15 years. She had to change the dentures 6 times

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POLYETHER ETHER KETONE – A REVOLUTIONARY MATERIAL IN DENTISTRY

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Abstract

Polyetheretherketone (PEEK) is a semicrystalline biomaterial which can be used in dentistry in many different ways. The review was aimed at summarising the outcome of research conducted for drawing out the dental application of this polymer. The future prospects of PEEK in clinical dentistry are also highlighted. PEEK has been explored on various grounds for its application in clinical dentistry. PEEK is a promising material for a number of removable and fixed prosthesis. PEEK can be used in various areas of dentistry as their mechanical and physical properties are closely similar to bone. Major challenge to overcome is to improve the bioactivity of PEEK dental implants without compromising their mechanical properties. Further modifications and improving the material properties may increase its applications in clinical dentistry.

Key words: Polyetheretherketone, biomaterial, clinical dentistry

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Introduction

Polyether ether ketone(PEEK), a commonly used semi crystalline biomaterial in orthopaedics since many years, is a synthetic tooth coloured polymeric material.[1] The major beneficial property of orthopaedic implant application is its lower Young's modulus being close to human bone.[2] The monomer unit of etheretherketone polymerises via step-growth dialkylation reaction of bis-phenolates to form PEEK. PEEK is commonly synthesised by the reaction between 4, 4'-difluorobenzophenone and disodium salt of hydroquinone in a polar solvent such as diphenyl sulphone at 300°C.

PEEK can be modified either by addition of functionalized monomers (pre-polymerization) or post-polymerization modifications by chemical processes such as sulphonation, amination and nitration.[3] Incorporation of carbon fibres can increase the elastic modulus of PEEK from 4Gpa to 18Gpa.[2] This is comparable to those of cortical bone and dentin exhibiting lesser stress shielding when compared to titanium which has higher modulus when compared to bone resulting in severe stress shielding and failure.[4]

Tensile properties of PEEK are analogous to that of bone, enamel and dentin making it suitable restorative material as far as mechanical properties is considered. Its melting point is around 335°C. In contrast to titanium they have very limited inherent osteoconductive properties.[5] Hence many researches are conducted to improve the

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ESTHETIC REHABILITATION OF A PATIENT WITH BULKY MAXILLARY RIDGE USING GUM FIT DENTURE– A CASE REPORT

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*Dr. Abu Nazar, ***Dr. Anaswara Rose, ****Dr. Amrtha Maria

Abstract

Patients with bulky maxillary ridges can have compromised esthetics. The thickness of labial flange of denture can further worsen the situation by increasing the lip fullness. Though alveoloplasty is advocated in such situations, it can result in patient discomfort and denial of treatment. An esthetic and comfortable alternative is flangeless denture or gum fit denture. This case report portrays the treatment of a lady patient with maxillary ridge which was bulky and had severe undercut who was concerned about her esthetics, but not willing to undergo alveoloplasty, treated with gum fit denture.

Keywords: gum fit denture, flangeless denture, severe undercut

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Introduction

Fabrication of complete denture in patient can be a challenging when the intra oral conditions are less than ideal. Some cases require pre-prosthetic surgery, special impression techniques and special denture fabrication techniques. The main objective of pre-prosthetic surgery is to create an environment to achieve good esthetics, retention, support and stability for the denture.[1,2]

The pre-prosthetic surgery is especially important before denture construction when patient has bulky maxillary ridge with severe undercuts. The further delay in healing and the mental trauma associated with alveoloplasty results in the denial of surgical corrections. In these scenarios the prosthodontists are forced to follow alternate methods such as gum fit denture or flangeless denture to meet the patient needs.

Case report

A forty five year old lady came to the department of prosthodontics with the chief complaint of missing maxillary and mandibular teeth since 3 months. On intraoral examination, satisfactorily healed edentulous maxillary and mandibular ridges were observed (Fig 1 & 2). The maxillary ridge was bulky with severe undercuts from 13 to 23 regions. The madibular ridge was Atwood's order III.[3]

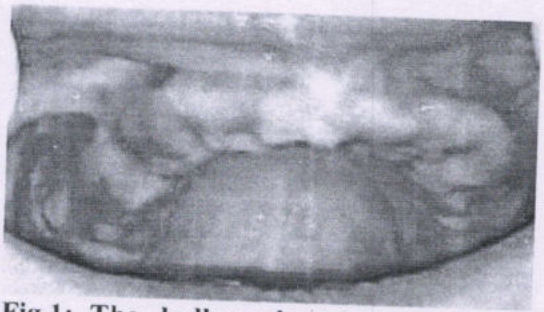


Fig 1: The bulky edentulous maxillary ridge

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Case Report

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JRAD Journal of Research and Advancement in Dentistry

Hollow Bulb Obturator with Cast Titanium Frame Work as a Method for Weight Reduction of Prosthesis in Rehabilitation of Acquired Maxillary Defect: A Case Report

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ABSTRACT

Background: This article describes a case report in which a patient with acquired maxillary defect is rehabilitated using a hollow closed bulb obturator with Titanium framework. A twenty eight year old female patient, reported with an acquired maxillary defect due to surgical removal of chondrosarcoma in the maxillary arch. The pre-existing acrylic obturator was heavier and uncomfortable and the patient discontinued its use. Hence weightless obturator to achieve good retention and comfort was indicated. A hollow closed bulb obturator with Titanium framework was planned and inserted. Post-insertion, the patient was very much satisfied with the esthetics, retention and comfort. The Cast Titanium framework further reduces the weight of hollow bulb obturator and increases patient satisfaction. Prosthodontists should always try to establish the best treatment plan to meet the functional and esthetic demands of the patient.

Keywords: Obturator prosthesis, Acquired Maxillary defects, Hollow bulb obturator, Titanium framework obturator.

INTRODUCTION

The rehabilitation of maxillofacial defects are always challenging to prosthodontists. The challenge varies from esthetics to retention. When a maxillary defect, either acquired or congenital in origin is rehabilitated, weight of the obturator will affect the retention of the prosthesis. Incorporation of Titanium framework instead of Co-Cr frameworks will aid in retention and further reduction of weight if used along with hollow bulb obturator. This case report describes the rehabilitation of an acquired maxillary defect due to surgical removal of neoplasm, using hollow bulb obturator with Titanium cast framework to improve the patient comfort and quality of life by providing good retention, stability, support, esthetics and weightlessness for the denture.[1,2]

CASE REPORT

A twenty eight year old lady patient came to the department of Prosthodontics, with the chief complaint of difficulty in mastication, fluid leakage into nasal cavity and nasal tone while speaking since three years. The medical history and past dental history revealed, subtotal maxillectomy for the treatment of Chondrosarcoma four years back followed by acrylic obturator. She discontinued the obturator due to its heaviness, discomfort and pain within one year itself. On clinical examination, Aramany Class IV defect with only 24, 25, 26, 27 and 28 were present.[3,4] 24 was periodontally week and lingually inclined while 28 was grossly decayed. Patient was not willing for further extractions. Fig1

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Case Report

Case report on low dose of Cilnidipine: A fourth-generation calcium channel blocker-induced gingival overgrowth

Sameera Gopinath, Vadakkedath Venugopal Harishkumar, Vediyera Chandroth Santhosh, Sreekanth Puthalath

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Abstract:

Drug-induced gingival overgrowth is a frequently observed adverse effect of antihypertensive drug calcium channel blockers (CCBs). Gingival enlargements are more common with the dihydropyridine class of CCBs. The fourth-generation dihydropyridine CCB Cilnidipine was introduced in 1995 and is used as an antihypertensive agent for patients in the Indian subcontinent. This is the first report in literature to document an isolated case of generalized gingival overgrowth induced by the long-term use of low dose of cilnidipine in an elderly female patient who is under antihypertensive therapy. Gingival overgrowth is an adverse drug reaction of new-generation CCB Cilnidipine when administered even as low-dose antihypertensive therapy agent. Physicians and dentists should identify such late changes in susceptible individuals.

Key words:

Adverse drug reaction, calcium channel blocker, cilnidipine, dihydropyridine, gingival overgrowth

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INTRODUCTION

Drug-induced gingival overgrowth (DIGO) is an adverse effect of anticonvulsants, immunosuppressants, and calcium channel blockers (CCBs).[1,2] CCBs are a class of widely used antihypertensive agents. DIGO is more common with the dihydropyridine class of CCB. The first- and second-generation dihydropyridines (nifedipine, verapamil, diltiazem, and amlodipine) are associated with DIGO.[3,4] The prevalence of nifedipine-induced gingival overgrowth ranges from 20% to 83%, while for other CCBs such as diltiazem, amlodipine, and verapamil, the prevalence is around 74%, 3.3%, and 21%, respectively.[3,4]

The fourth-generation dihydropyridine CCBs are now in common use as antihypertensive agents. Cilnidipine is a promising fourth-generation CCB that came into market in 1995 and is widely used as an antihypertensive agent in India. So far, only one case of fourth-generation dihydropyridine-induced gingival overgrowth has been reported in literature.[4] It was a report of a Japanese patient who had a combination therapy of Cyclosporin A and Cilnidipine. Interestingly, DIGO is a known adverse effect of the immunosuppressant Cyclosporin A.[1] Our case report could be the first report in literature to document the gingival overgrowth as an adverse effect of the long-term use of low-dose Cilnidipine alone.

CASE REPORT

A 55-year-old female patient, taking once-daily dosage of Cilnidipine – 5 mg, was referred by her physician to the Periodontics division of our Dental College, for improving her oral hygiene [Figure 1a-c]. She was under antihypertensive treatment for 6 years. She gave a history of slowly progressing enlargements on her gums for 1 year. She also reported discomfort while brushing the teeth due to bleeding from gums in the last 6 months after which the size of the swelling enlarged rapidly.

Intraorally, the gingiva was enlarged in relation to maxillary and mandibular teeth, and it was firm, diffuse, and lobulated and characteristically appears to project from beneath the gingival

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NANOTECHNOLOGY IN PERIODONTOLOGY

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**Dr. Harishkumar VV, ***Dr. Santhosh VC

Abstract

Delivering drug to the gingival epithelium has been the major challenge for the formulation scientists due to the complexity of the anatomy of the route and the contours of the lesion which leads to the drug's poor penetration to the area. However, the recent nanotechnology innovations are increasingly providing a suitable solution for the treatment of many dental disorders including periodontal disease.

Keywords: Nanotechnology, Periodontitis, Management

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Introduction

Periodontal disease is one of the major dental illnesses that affect millions of people around the globe. Being a chronic inflammatory disorder, it is characterized by inflammation and degeneration of the teeth surrounding structures including gums, alveolar bone, periodontal ligament (PDL) and cementum.[1,2] The disease starts with anaerobic gram-negative bacterial invasion around the gingival sulcus [3] leading to the migration of the gingival epithelium along the tooth surface forming periodontal pockets. This when left untreated can lead to deposition of calculus by the microbes and consequently results in the destruction of the tooth neighboring structures and loss of teeth.[4,5] Delivering drug to the gingival epithelium has been the major challenge for the formulation scientists due to the complexity of the anatomy of the route and the contours of the lesion which leads to the drug's poor penetration to the area. There are various proposed local drug delivering devices which include films, fibers, gels and strips etc., but unfortunately, these approaches were only partially successful due to the difficulty in accessing the periodontal pockets.

However, the recent nanotechnology innovations are increasingly providing a suitable solution for the treatment of many dental disorders including periodontal disease. Nanotechnology is the engineering of molecularly precise structures. The term "nanotechnology" was coined by Professor Kerrie E. Drexler, a lecturer and researcher of nanotechnology. The prefix "nano" means 10-9 or one billionth of a unit. The Nano scale is approximately 1000 times smaller than a micro scale, which is approximately 1/80000 the diameter of a human hair. These small scientific scales were first revolutionized by Richard Feynman at his famous speech at the Annual Meeting of the American Physical

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Epigenetics: Retracing Periodontal Infections

* Hiba Muhammed, **Harish Kumar V.V

Abstract

Epigenetics is the study of heritable changes in gene expression that occur without changes in DNA sequence. They are reversible unlike genetic changes and are influenced by environmental factors. Epigenetic modifications include DNA methylation, modifications of histone protein structure and posttranslational repression by micro-RNA which contribute to alterations in gene expression. Epigenetics has found to be having a potential role in pathogenesis of complex multifactorial disease in humans including periodontitis. This article aims to review the possible role of epigenetic modifications in periodontal disease pathogenesis.

Keywords: Periodontitis, Epigenetics, DNA methylation, Histone modification, Epidrugs.

KDJ 2019 | Vol. 42 | No. 3 | Pg 159-162

Introduction

Periodontitis is an infectious disease characterized by chronic inflammation in the gingival tissues in response to bacteria colonizing the tooth surface, ultimately leading to tissue destruction with loss of alveolar bone and connective tissue.[1] Although periodontitis has a microbial etiology, its progression can be influenced by several factors such as systemic diseases, environmental factors, and genetic factors.[2]

Genetics explains phenotypic trait in an organism through presence or absence of specific nucleotide sequence of DNA. Epigenetics is the study of heritable changes in gene expression that occur without changes in DNA sequence.[3] An increasing number of recent studies have focused on the role of epigenetic events in the development of various diseases.[4,5,6] It provides an understanding of the role of gene environment interactions on disease phenotype especially in complex multifactorial diseases including Periodontitis.

This review aims at discussing the epigenetic alterations which could help in understanding the mechanisms relating to periodontal disease activity.

Epigenetics

Epigenome refers to "epi" meaning outside the "genom The term epigenetics was coined by Conrad H. Waddington 1940s.[7] The modern definition of epigenetics is "changes in g expression that are not encoded in the DNA sequence, includ chemical alterations of DNA and its associated proteins, lead to remodeling of the chromatin and activation or inactivat of a gene".[8]

The major difference between epigenetics and genetic that epigenetic changes occur more frequently than gen changes. The epigenetic changes are reversible by treatm with pharmacological agents. It is through epigenetic marks t environmental factors like diet, stress and prenatal nutrition make an imprint on genes that is passed from one generat to the next.[9]

Epigenetic mechanisms

Recent evidence suggests that epigenetic alterations possibly triggered by the host microbiota and environme cues. These epigenetic alternations (DNA methylation histone modifications) can have long-term effect on ho immune homeostasis.[10]

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Salivary biomarkers and periodontal diseases: A review

Sijina K.K[1], Harish Kumar V.V[2]

ABSTRACT

Saliva is a secretion of the salivary and mucous glands and is of major importance in the maintenance of oral health. For detecting caries, periodontal diseases, oral cancers and many other systemic diseases the use of saliva as a diagnostic fluid is increasing today. Easy handling, testing and non- invasive collecting method make saliva a more preferable diagnostic method. Saliva is widely regarded as a microbial reservoir and can serve as a carrier for bacterial transmission. Gingival crevicular fluid biomarker transit in to the saliva making it a more relevant biomarker for monitoring the periodontal diseases. Whole saliva can be collected by individuals with modest training, including patients. Analysis of saliva can offer a cost-effective approach for the screening of large populations.

Key words: saliva, biomarker, gingival diseases, periodontal diseases

Introduction

Saliva is an exocrine secretion from minor and major salivary glands and having many functions. The various components of saliva and the changes in their levels has been investigated in periodontal diseases. Periodontal disease is a chronic infectious-inflammatory disease characterized by connective tissue breakdown, and alveolar bone destruction.[1] Periodontal pocket depth, attachment level, plaque index, bleeding on probing and radiographic assessment of alveolar bone loss are the traditional diagnostic methods for assessing the disease severity.[2]

An upcoming new biomarker in dentistry is the biochemical analysis of saliva. Locally produced proteins of host and bacterial origin (enzymes, immunoglobulins and cytokines), genetic / genomic biomarkers such as DNA and mRNA of host origin, bacteria and bacterial products, ions, steroid hormones and volatile compounds are the potential diagnostic salivary biomarkers for periodontal diseases.[3]

(A) Specific Salivary Biomarkers:

1.Immunoglobulins

The predominant immunoglobulin present in saliva is IgA. IgG and IgM are present in trace amounts. IgA is secreted by the plasma cells of the salivary glands. There are two subclasses of IgA: IgA1 and IgA2. IgA1 is predominant in serum while IgA2 is found in higher concentrations in external secretions, that is, tears, saliva, and milk.[4] Lehner in 1969 proposed the concept of the 'salivary domain' to emphasize the protective effect of IgA antibodies against supragingival plaque bacteria.[5] Since then, salivary immunoglobulins have been extensively investigated for their protective activity against various oral pathogens. There are strong evidences that immunoglobulins contribute to the inhibition of bacterial adherence and colonization, enhance bacterial phagocytosis, and help detoxify bacterial toxins. Thus, they play a major role in the defence against bacterial infections. Several studies showed increased level of IgA in periodontitis patients.[6,7]

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Pouch and tunnel technique for management of gingival recessiondefects

* Prajula Mithwin, *Harish kumar.V.V., ***Santhosh.V.C., ***Sreekanth P., **** Sameera G. Nath,

Abstract

Over the years desire for improved esthetics has increased tremendously. Periodontal plastic surgery deals with regenerative procedures designed to restore form, function and enhance esthetics. The aim of the case report was to evaluate the effectiveness of subepithelial connective tissue graft using pouch and tunnel technique as root coverage procedure. Patient were followed up for a period of 6 months. Gingival recession is a common occurrence and its prevalence increases with age. It can lead to clinical problems, diminished cosmetic appeal and hence esthetic concern. There are various techniques for root coverage. Subepithelial connective tissue graft has shown the best predictability (95%) of root coverage in Millers class I & II cases. This technique preserves the intermediate papilla, accelerates the initial wound healing & also applies less traction. Due to minimal trauma at the recipient site, this procedure may be advantageous in treatment of recession as compared to other treatment modalities.

Key words: Gingival recession, periodontal plastic surgery, subepithelial connective tissue graft

KDJ 2019 | Vol. 42 | No. 3 | Pg 168-171

▸ Introduction

Periodontal plastic surgery is defined as the surgical procedures performed to correct or eliminate anatomic, developmental or traumatic deformities of the gingiva or alveolar mucosa.[1] Gingival recession is defined as the displacement of the gingival margin apical to the cemento-enamel junction (CEJ) with the loss of periodontal connective tissue fibers along with root cementum and alveolar bone.[2] Studies by Murray and Gorman et al. have shown that recession increases with increasing age. A survey revealed that 88% of people above 65 years of age and 50% of people between 18 and 64 years of age have one or more sites with recession (Serino G, Wennstrom JL, Lindhe J, Eneroth L).[3] Indications for root coverage procedure are esthetic demands, root hypersensitivity, root caries lesions and cervical abrasions. Thus, it is essential to carry out root coverage surgery for the aforementioned conditions.[4] Marginal gingival recession, therefore should not be viewed as merely a soft tissue defect, but as thedestruction of both the soft and hard tissue.[5]

▸ Causes of gingival recession

Predisposing factors:

- Minimal attached gingiva
- Aberrant frenal pull
- Tooth malposition (fenestration and dehiscence).

Precipitating factors:

- Inflammation related to plaque
- Improper tooth brushing
- Iatrogenic factors such as crown preparations extendir subgingivally, impression techniques involving gingiv retraction
- Poor orthodontic treatment where the teeth are move outside the labial or lingual plate
- Anatomical factors include abnormal tooth position the arch, aberrant path of eruption, individual tooth shape
- Pathological factors such as bone resorption due periodontal disease.[6]

Accepted procedures for multiple root coverage inclu

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Two conventional root coverage procedures for isolated gingival recessions: A case series

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Abstract

The evolution of periodontal plastic procedures has allowed the clinician to meet the desired expectations and the aesthetic demands of the patient. Various techniques have evolved to treat the exposed root surface. Techniques such as a coronally repositioned flap, lateral pedicle flap, double papilla flap, and semilunar flap in combination with sub epithelial connective tissue graft (SCTG) can be employed to treat gingival recession. This article illustrates cases with encouraging results, treated with sub epithelial connective tissue graft (SCTG) and another case with lateral pedicle flap.

Key words: Sub epithelial connective tissue graft, lateral pedicle flap, gingival recession, root coverage

KDJ 2019 | Vol. 42 | No. 3 | Pg 175-178

Introduction

The loss of attachment caused by periodontal disease is clinically represented either as periodontal pocket or gingival recession (GR). GR is the exposure of the root surface by a shift in the gingival margin apical to the cementoenamel junction (CEJ)[1]. Several etiological factors that account for the recession appearance are traumatic toothbrushing, tooth malpositioning, periodontal disease, aberrant frenal attachment, occlusal trauma, orthodontic tooth movement, iatrogenic factors and bone dehiscences[2]. Marginal tissue recessions may result in compromised periodontal health, aesthetic, and comfort of the patient. The gingival recession is very common clinical condition and may be localized or generalized can be a result of bacterial action combined with predisposing factors. According to some authors[3], the lower incisors were the teeth that showed higher frequency of recessions.

Numerous techniques have been proposed for root coverage procedures including lateral pedicle flap, coronally advanced flap, guided tissue regeneration, free soft tissue autografts, and subepithelial connective tissue graft (SCTG). The root coverage procedure using SCTG is a predictable and versatile technique[4]. It creates a bilaminar vascular environment to nourish t graft. It was first introduced by in Langer and Langer in 198 to increase the width of keratinized gingiva later on modifi by Nelson in 1987 which was used to treat gingival recessio

This article brings forward two cases with single gingiv recession in the mandibular arch treated with subepithel connective tissue graft (SCTG) and lateral pedicle flap wi successful outcome.

CASE 1

A 22 year old male patient reported at the Department Periodontology of KMCT Dental College, Mukkam, Calic with the chief complaint of receding gums in the lower fro tooth region. On clinical examination, there was Miller's cla II gingival recession in the lower left central incisor (31) wi recession depth of 5mm and width of 3mm (Fig. 1).

Phase I therapy was done and patient was recalled re-evaluate gingival and oral hygiene status.

Clinical Procedure

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Case Report

Maxillary incisor impaction: A case report

Binu Purushothaman[1], Pooja Sanal[2*], Sudhi Krishnan[3], Anju Ramachandran[4], Shoma Renjith[5]

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Abstract

Missing/Impacted anterior teeth can have very adverse impact on dental and facial esthetics which might cause an effect on self-esteem & general social interaction, hence it is important to detect and manage the problem as early as possible.

Although impaction of permanent tooth usually take time to get diagnosed during the mixed dentition period. An impacted central incisor is usually diagnosed accurately when there is a delay in the eruption of juxtaposed tooth.

This case report is on Impacted Incisor which was brought into its proper position after surgical exposure and orthodontic traction, after which it showed good stability results.

Keywords: Impacted Incisor, Surgical Exposure, Orthodontic Traction.

Introduction

The maxillary incisors are inevitable among the 'social six', are the most prominent teeth in an individual's smile. They have the maximum visibility during speech in most individuals.[2] Central incisors are very crucial for facial esthetics and during pronunciation of certain words. Premature loss of the primary maxillary incisor appears to have long-term effect on the speech development.[3] Even its missing can lead to psychological trauma. So it is very important to detect missing incisors and manage it as soon as soon as possible Careful planning is required for maintaining or achieving space for orthodontic traction or prosthetic rehabilitation. Impacted teeth can be properly positioned by orthodontic traction after confirmation of its position using radiographs.

Incidence/Prevalence

The incidence of unerupted maxillary central incisor is comparatively less when compared to canines. About .13% in the age group between 5–12 year has been reported In a referred population the prevalence has been estimated as 2.6%

If there is a change in normal eruption pattern it should be taken into consideration as early as possible, which usually might indirectly effect psychosocial behavior of a child for e.g. lateral incisors erupting prior to the central incisor.

Causes of delayed eruption

Delayed eruption can be classified into two groups.

1. Hereditary: like in case of Odontomes, Supernumerary teeth, cleft lip and palate.

2 Environmental: Trauma, early loss of deciduous teeth (with or without space loss), retained deciduous teeth, cystic formation, and endocrinal problems usually thyroid related.

Treatment alternatives for an impacted central incisor includes

1. Removal of impacted central incisor if it is in an unfavorable position latter on going for a restoration with a removable partial denture or an implant.
2. Missing central incisor can be substituted by the lateral after a composite recontouring.
3. Surgical exposure and traction of the impacted central incisor into proper position according to availability of space,

Case Report

This case report of Interdisciplinary Management of Incisor Impaction associated with Odotomes.

A 14-year-old male patient came to the department of orthodontics, KMCT (Calicut) Kerala with chief complaint of missing upper right anterior teeth. There was no relevant medical history. Past dental history revealed he had been diagnosed with compound Odontomes which seems to be a common cause of failure of eruption of teeth adjacent to it.

Extra oral examination (Fig.1) revealed no facial asymmetry. Straight facial profile and presence of good facial proportions was seen.



Fig.1: Extra oral examination Photos

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Case Report

A Scope for Advancement

Binu Purushothaman[1], Nevin Abraham[2], Anju Ramachandran[3*], Pooja Sanal[4], Shoma Renjith[5]

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Keywords: Class II malocclusion, Non-Extraction, Power scope appliance.

Abstract

Skeletal Class II malocclusion may be due to maxillary prognathism, mandibular retrognathism or a combination of both. Among these, mandibular retrusion is one of the most common characteristics in Skeletal Class II patients.

Early screening and diagnosis help in preventing and intercepting the severity of the malocclusion. Mostly, Class II Skeletal discrepancies with mandibular deficiency during active growth are usually treated by myofunctional appliances. Recently, fixed functional appliance therapy has been gaining popularity as a treatment modality of skeletal class II malocclusion.

This case report demonstrates the effectiveness of Power Scope in correction of skeletal Class II with mandibular deficiency in a growing patient treated by a non-extraction approach. This case was treated initially with MBT 0.022" prescription followed by Power Scope Appliance. Results were improvement in facial profile, skeletal jaw relationship, and overall esthetic appearance of the patient.

Introduction

According to McNamara, the most common characteristic of Class II malocclusion is mandibular retrusion, rather than maxillary prognathism.[3]

A functional appliance treatment for mandibular advancement is often advocated in Class II malocclusion due to mandibular retrusion. Fixed functional appliance therapy has recently been gaining immense popularity as a means to noncompliant correction of skeletal class II malocclusion.[4]

Power Scope (Fig. 1) is the latest innovation in Class II correction which is a direct derivative of the Herbst Type II appliance.[1,2] Dr. Andy Hayes worked in conjunction with American Orthodontics to develop Power Scope. Its unique features are patient-friendly design, ready to use one piece with no laboratory setup and no assembly. It has a simple attachment system with durable telescopic mechanism, a Ni–Ti internal spring system which reduces the treatment time compared to the other Class II correctors and a ball and socket joint system which maximizes lateral movement for patient comfort.

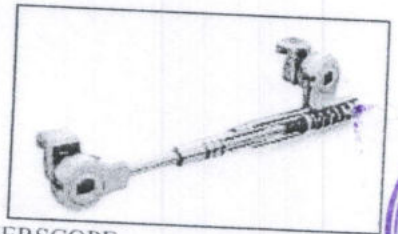


Fig 1: POWERSCOPE

Case Report

A 14-year-old female patient came to the department of orthodontics, KMCT (Calicut) Kerala with chief complaint of forwardly placed upper front teeth.

Extra oral examination (Fig. 2) revealed a slight convex profile with posterior divergence, and lip incompetency.



Fig. 2: Extra oral photographs

Intraoral examination (Fig. 3) revealed a Class II, Division 1 malocclusion with an overjet of 8 mm and an overbite of 5mm, with a coinciding upper and lower dental and skeletal midline.

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ORIGINAL RESEARCH PAPER

Dental Science

RESIN INFILTERATION- A NOVEL APPROACH FOR THE MANAGEMENT OF WHITE SPOT LESIONS

KEY WORDS: Resin infiltrant, white spot lesion, non-invasive procedures.

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ABSTRACT

The earliest evidence of demineralization on the enamel surface of a crown is known as a white spot lesion. The conventional treatment for these include noninvasive measures involving fluoridation, dietary control, and oral hygiene instruction, as well as invasive restorative methods, The following article illustrates the use of a novel approach to treat the noncavitated white spot lesions with low-viscosity light curing resins called resin infiltrants.

INTRODUCTION

Dental caries is one of the most common human diseases that affect a vast majority of individuals as a result of cyclic demineralization and remineralization of enamel due to altered pH levels.[1]

The earliest evidence of demineralization on the smooth enamel surface of a crown is a "white spot lesion." These classical areas of white spot lesions lose their translucency because of the extensive subsurface porosity caused by demineralization and should be distinguished from developmental white spot hypocalcifications of enamel.[2] *These early lesions are amenable to remineralization or arrest but if the demineralization process is not stopped, the intact enamel surface eventually collapses and cavitates.*[3] *The conventional treatment of these white spot lesions includes topical fluoride application, improving the oral hygiene, and use of remineralizing agents like ACP-CPP.*

If these lesions persist for a long time, they represent a severe esthetic problem and are frequently called as enamel scars.[4] *The treatment of these white spot lesions should aim upon both the prevention of caries progression and simultaneously on improving esthetics, by diminishing the opacity.*[5]

Infiltration Concept is a relatively new method which improves the retention and prevents caries on smooth surfaces, but not for pit and fissure surfaces [6]. Resin infiltration is a micro-invasive method that fills the incipient lesion pores via capillary action [7], which blocks further diffusion of the bacteria by creating barriers and stops lesion development, restoring the tooth without anaesthesia and drilling to preserve the natural anatomy of the tooth form [8].

CONCEPT OFWHITE SPOT LESION

Sound enamel has a refractive index (RI) of 1.62 while demineralized WSLs have many pores filled with water (RI = 1.33) or air (RI = 1.00). The difference in RIs between the enamel crystals and medium inside the porosities affects the light scattering and gives these lesions a whitish appearance, especially when desiccated. When the micropores of WSLs were infiltrated by resin (RI = 1.46), which has a similar RI as enamel and cannot evaporate, the difference in RIs between porosities and enamel was decreased to a negligible level, and the WSLs regains its translucency, appearing similar to that of the surrounding sound enamel.[9]

THETECHNIQUE OF RESIN INFILTRATION

Caries infiltration or resin infiltration technology is a micro-invasive technology that reinforces, fills and stabilizes demineralized enamel without drilling on sacrificing the healthy tooth structure; the micro invasive infiltration can be used to treat the proximal and smooth surface carious lesion up to the one third of dentin. It prevents the progression of lesion and life expectancy of a tooth will be increased. It provides an alternative to microabrasion and other restorative treatments for white spot lesions which are cariogenic. Once infiltrated by the resin, white spot lesion takes on the appearance of the surrounding healthy enamel. It is a novel technology that seems to bridge the gap between minimally invasion and noninvasive treatment of initial dental caries, postponing as long as possible the need for a restoration. Charite Berlin and the University of Kiel developed the concept of caries infiltration for the first time, as a micro invasive approach for the management of proximal and smooth surface non-cavitated caries lesions (Kugel, 2009; CRG, 2012)

Procedure

Step:1- For the purpose of infiltration, initially rubber dam is placed on the tooth to provide a dry working field and to ensure the best treatment results. Then, prophylaxis is performed on the teeth to be treated (Fig1)

Step:2- Application of Etchant-. 5% hydrochloric acid for 2 min- The etchant gel is stirred with a micro-brush to achieve a homogenous etching pattern. (Fig2)

Step:3-The left out etchant is rinsed away with water for at least 30 seconds

Step:4- Application of Ethanol for drying- If after rinsing and drying, the etched enamel did not have a chalky white appearance, the process of application of etchant and drying agent is repeated. (Fig 3)

Step 5 : Application of resin infiltrant-, the low-viscosity infiltrant is applied and is left to for 3 minutes for its penetration (Fig 4)

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Oral Health Literacy among Caregivers in Bangalore City, India

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ABSTRACT

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

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RECENT ADVANCES IN DIAGNOSIS OF DENTAL CARIES

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ABSTRACT

Dental caries is one of the most common chronic diseases of modern times. It is now known that dental caries is multifactorial in etiology with bacteria, susceptible tooth surfaces and diet playing a major role. It presents with a wide range of clinical features affecting all age groups and all surfaces of teeth. Although it is a challenge to diagnose and treat carious lesions successfully it is even important to assess the carious risk of an individual and provide appropriate dental care. In this Review article recent advances in caries detection is elaborated with help of some important methods.

KEYWORDS-Diagnosis, Dental caries

INTRODUCTION

Diagnosis:

Diagnosis can be defined as: The art of identifying a disease or a condition by its signs and symptoms (Webster's dictionary).

Caries

The term caries is derived from the Latin word meaning "rot" or decay.

Definition: An infectious microbial disease that results in localized dissolution and destruction of calcified tissues (Sturdevant).

Caries causes damage by demineralization and dissolution of tooth structure. This in turn, results from episodes of highly localized drop in pH at the plaque-tooth interface. Thus, a constant cycle of demineralization followed by remineralization takes place on the tooth surface, with continual fluctuations in intraoral pH levels. Such frequent episodes of lowered pH in the oral environment are followed by normal healthy ion exchange. Nature accommodates these fluctuations, and over time, there is a net gain in mineralization, and maturation of the tooth surface. Thus, it can also be stated that "Dental caries is a ubiquitous physiological process, ever present in the oral cavity"(Fejerskov, 2004).If the factor disturbing the homeostasis is strong, intense and long-lasting, demineralization prevails.

According to the demineralization and remineralization cycle for enamel caries (Mount & Hume, 2005)The critical pH of hydroxyapatite is 5.5 and that of fluorapatite is 4.5.

Methods to detect dental caries

"Detection" versus "Diagnosis"

Diagnosis is a decision process that rests with the clinician. It has 2 components:

- detection of a lesion
- assessment of the patient's caries risk

Detection systems are aimed at augmenting the diagnostic process by facilitating either:

- earlier detection of the disease
- quantification of the disease

Pitts in 2001 gave the concept of the 'iceberg' of caries and the influence of detection system .From his model it can be seen that as the sensitivity of the detection device increases, so does the number of lesions detected. It can also be seen that the new detection tools are required to identify those lesions that would be amenable to demineralising therapies.

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SMART MATERIALS IN CONSERVATIVE DENTISTRY

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ABSTRACT
There is no single material in dentistry that is ideal in nature and fulfils all the requirements of an ideal material. As the quest for an "ideal restorative material" continues, a newer generation of materials was introduced. These are termed as "smart". The use of smart materials has brought a great revolution in dentistry. These materials can be altered in a controlled manner by various stimuli such as stress, temperature, moisture, pH and electric or magnetic field. This review focuses on some of the smart dental materials used in Conservative Dentistry such as resin modified glass ionomers, amorphous calcium phosphate releasing pit and fissure sealants, smart composites, smart ceramics, smart burs. These materials will potentially allow new and ground breaking dental therapies with significantly enhanced clinical outcomes of treatments.

KEYWORDS Smart materials, Responsive materials, Biosmart Dentistry

INTRODUCTION

Smart materials have been around for many years and they have found a large number of applications1. The use of the terms 'smart' and 'intelligent' to describe materials and systems came from the United States and started in the 1980's. Many of these smart materials were developed by the government agencies working on military and aerospace projects but in recent years their use has been transferred into the civil sector for applications in various areas. The first smart material application started with magnetostrictive technologies that involved the use of nickel as a sonar source during World War I to find German U-boats by Allied forces.

By definition, smart materials are materials that have properties that may be altered in a controlled fashion by stimuli, such as stress, temperature, moisture, pH, and electric or magnetic fields. They are highly responsive and have the inherent capability to sense and react according to changes in the environment, hence they are called "responsive materials".

Smart behavior generally occurs when a material senses some stimulus from the environment and reacts to it in a useful, reliable, reproducible, and usually reversible manner. The most important key feature of smart behavior includes its ability to return to original state even after the stimulus has been removed. These properties have a beneficial application in various fields including dentistry.

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Case Report

Cone Beam Computed Tomography - See the Unseen: A Case Report

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Abstract

Conventional radiographs are being used for routine investigations in the diagnosis of intra oral lesions. However with the introduction of CBCT in dentistry, the interpretation and diagnosis of intra oral radiology is being revolutionarized. Here with, is a case presented of a 12yr old child reported with delayed eruption of the 31,32 with the provisional diagnosis of complex odontomas confirmed with IOPA and RVG. A detailed history and intra oral examination including palpation and timely interdisciplinary approach with oral radiology, a CBCT scan was advised. A final radiological diagnosis of complex odontoma associated with dentigerous cyst was established. As a pedodontics, role of interdisciplinary dentistry proves to be a boon in diagnosing various intra oral lesions and treatment plan in a child.

Keywords: CBCT; Dentigerous Cyst; Odontome; Odontome on Dentigerous Cyst; Odontogenic Lesions

Introduction

Dentistry has witnessed tremendous advances in all its branches over the past three decades. With these advances, the need for more precise diagnostic tools, specially imaging methods, have become mandatory [1]. Imaging is the most important and most frequently used diagnostictool in dentistry [2]. From the simple intra-oral periapical X-rays, to advanced imaging techniques like computed tomography, cone-beam computed tomography, magnetic resonance imaging and ultrasound have also found place in modern dentistry. Cone-beam computed tomography (CBCT) is a new diagnostic tool that has revolutionized diagnosis and treatment planning in the dental field [3]. Advantages of CBCT includes X ray beam reduction, image accuracy, rapid scan time, reduced dose of radiation and reduced image artifacts [4]. The three-dimensional imaging has made the complex cranio-facial structures more accessible for examination and early and accurate diagnosis of deep seated lesions.

This imaging modality is capable of providing sub-millimeter resolution (2 line pair/mm) image of higher diagnostic quality, with shorter scanning times (~60 s). Radiation exposure dose from CBCT is 10 times less than from conventional CT scans during naxillo facial exposure and also it has got great dimensional accuracy (only about 2% magnification) [5].

Odontogenic lesions are common pathologies encountered in the jaw. Dentigerous cyst can be defined as an odontogenic cyst that surrounds the crown of an impacted tooth; caused by fluid accumulation between the reduced enamel epithelium and the enamel surface, resulting in a cyst in which the crown is located within the lumen [6]. From a clinical point of view, dentigerous cysts are generally asymptomatic, slow-growing, associated with the crown of an impacted or unerupted permanent tooth, and characterized by retarded eruption of the tooth. However they may grow large enough to cause destruction of the cortical bone, resulting in fluctuation, spontaneous pain, exudation, and rapid development of the pathology, which are signs of acute inflammation round the margins of the cyst [7].

The Odontoma is a ectomesenchymal tumor of unknown origin, may be related to the presence of impacted teeth, trauma, local in-

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HOST MODULATION IN PERIODONTOLOGY: A REVIEW

* Dr. S. Hima, **Dr. Harish Kumar V. V.

Abstract

Historically, periodontal disease (gingivitis and periodontitis) has been recognized as being primarily of bacterial origin. But recent evidence indicates that though the bacteria are necessary for disease development they are not sufficient for the clinical manifestation of periodontal disease. It is becoming increasingly apparent that it is the host inflammatory response to the subgingival bacteria that is responsible for the tissue damage and, most likely, progression of the disease. We explore the concept that it is the subgingival microenvironment modified by the inflammatory response that leads to a change from a commensal to pathogenic microbiota. In this review, we examine the evidence for the emerging paradigm supporting the central role of inflammation rather than specific microbiota in the pathogenesis of periodontitis, and that by controlling the inflammation, it is possible to control the infection.

Key words: periodontitis, host modulation, review

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Introduction

Historically, periodontal disease (gingivitis and periodontitis) has been recognized as being primarily of bacterial origin. However, recent evidence indicates that while bacteria are necessary for disease development but they are not sufficient for the clinical manifestation of the many and varied forms of periodontal disease.[1] So periodontitis can no longer be considered a simple bacterial infection that leads to periodontal destruction.[2] Rather, it represents a collection of complex diseases involving interactions between the host inflammatory immune systems, sub-gingival microbiota and modifying environmental factors.

It is also recognized that the periodontal microbiota is generally of a commensal nature and its relationship to the host is usually in a state of homeostasis. However, 'pathologic' shifts in the microbiota may occur by the overgrowth of organisms which are normally present in low numbers, creating 'dysbiosis' of the periodontal subgingival microbiota.[3] So there is requirement for a suitable environment and a 'susceptible' host for periodontitis to manifest clinically.

Another way to consider the periodontal diseases is that they are 'eco-genetic diseases' whereby patients are rendered susceptible by genetic or environmental factors such as polymorphisms in the gene for interleukin-1, cigarette smoking, chronic (hyper)-inflammation and diabetes. This will

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MISSING POSTERIOR TEETH AND TEMPOROMANDIBULAR JOINT

Dr. Sheejith M,**Dr. Sruthi Viswanath,Dr. Swapna C, ****Dr. Abu Nazar**

ABSTRACT

It has been accepted for past many decades that there is an association between missing posterior teeth and temporomandibular joint disorder (TMD). Many systematic review and clinical trials have been conducted by many researchers based on this topic. This paper explores systematic reviews and clinical trial from a time period of 1985 to 2018 year. Many researchers came to a conclusion that TMD and missing posterior teeth have an association between them. But still, there is a question that, whether restoring the missing posterior teeth alone can cure the TMD.

Keywords: Missing posterior teeth, temporomandibular disorder, prosthodontic treatment

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Introduction

Temporomandibular disorders (TMD) is a collective term that includes a number of clinical problems that which involves the masticatory musculature, TMJ associated structures. To eliminate the pain associated with TMD restoration of posterior teeth has been suggested. Thereby there will be stabilization of occlusion, redistribution of occlusal forces and reduction of joint loading. Prevalence of TMD are not seem to be decreased by the restoration of missing teeth and mixed results have been reported for the effect of restoration on masticatory function. However, missing posterior teeth may accelerate the development of degenerative joint disease.

The association between tooth loss and TMD remains controversial. Loss of posterior teeth causes drifting and tipping of the remaining teeth. This drifting and tipping causes secondary changés in occlusal contact, called tightly locked occlusion. A single causal factor is not sufficient to cause TMD. In general population TMD is 2 to 5 times more prevalent in women than men.[1] So a literature review was conducted to know the association between missing posterior teeth and TMD.

Aim

To find out the association between missing posterior teeth and temporomandibular joint disorder.

Results

P. Kirveskari and P. Alanen found that maxillary first premolars have shown to

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DENTAL IMPLANTS IN DIABETIC PATIENTS

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Abstract

Dental implants have shown long term success rate in the rehabilitation of missing teeth. Certain adverse conditions like bleeding disorders, cardiovascular diseases, endocrine disorders, and bone diseases, immunologic conditions like cancer therapy, immunosuppressive or antiresorptive medication, smoking, alcoholism can cause marginal bone loss, increase the failure rate and post-operative complication, ultimately affecting the peri-implant health. Diabetes is one such metabolic disorder which delays wound healing and increases the risk of infection due to altered immune response. Therefore the success of implant therapy in diabetics is questionable. This article aims to review whether dental implants is indicated in diabetic patients.

Keywords: dental implants, diabetes mellitus, type 2 diabetes mellitus, osseointegration, glycosylated hemoglobin (HbA1c), peri-implantitis, implant survival, risk factor

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Introduction

Rehabilitation of completely or partially edentulous patients with dental implants has become a standardized treatment protocol in the past few years. Various modifications in implant design, surface characteristics and surgical protocols has improved the survival rate to more than 95%. Osseointegration is a presumptuous criterion for survival of dental implants. Any difference in its structural and functional correction can adversely affect the treatment outcomes. However, its use is limited because of various risk factors such as age, smoking, systemic conditions and type of bone. Diabetes mellitus is one such medically compromised condition with multifarious side effects. Hyperglycemia can indirectly affect osseointegration and bone healing. Even though the number of diabetic patients is increasing dramatically, they are denied of implant therapy depending upon glycemic control. This articles evaluates whether dental implants cause any deleterious effects on diabetic patients.

Diabetes Mellitus

The term "diabetes mellitus" describes a group of metabolic disorders with multiple etiology characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The effects of diabetes mellitus include

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Clinical Manifestations of Bell's palsy: A Case Report

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Abstract

Bell's palsy is a peripheral palsy of the facial nerve resulting in abrupt unilateral muscular weakness of the face. Its idiopathic etiology leads to the inflammation and compression of the facial nerve at the geniculate ganglionic site, ultimately leading to the paralysis of the facial muscles. In this article, a case report of a 42-year-old male patient is discussed with a special emphasis on clinical features, diagnosis and various treatment modalities of Bell's palsy.

Key words: Bell's palsy, Facial nerve palsy, Bell's phenomenon

Introduction

Bell's palsy is an idiopathic, peripheral-nerve palsy involving the facial nerve, resulting in an inability to control the facial expression muscles on the affected side. This condition was named after the famous Scottish surgeon Sir Charles Bell. Bell's palsy occurs in patients of all ages, with peak incidence noted in their 40s, without any sex predilection. The common predisposing factors are diabetes and pregnancy.[1] Because of the emotional and psychological impact of facial disfigurement along with physical limitations associated with speaking, drinking, eating and facial expression, socialization of such patients is limited.[2]

The etiology of Bell's palsy is still a mystery. Potential causes include herpes simplex virus (HSV-1) infection, varicella zoster virus (VZV) infection, diabetes, arteriosclerosis, hypertension, HIV infection, Lyme disease and Ramsey Hunt Syndrome.[3, 4, 5] Factors associated with a poor prognosis include advanced age, hypertension, impairment of taste, pain other than in the ear and complete facial weakness.[6-10]

Case report

A 42-year-old male reported to our out-patient wing, with a characteristic facial asymmetry with various facial expressions. History revealed that he had a similar facial expression for the past 12 years. No other contributory history was revealed by the patient. On clinical examination, there was an obvious disfiguring facial asymmetry with facial expressions. Cranial nerves were assessed and reduced wrinkling on frowning was noticed on the right side of the forehead [Figure. 1]. Bell's phenomenon, with an attempt to right eye closure was noticed. He was unable to close his right eye completely, with epiphora from his right eye [Figure. 2]. The tip of the nose was drawn to the unaffected side. On smiling and puffing the face, there was a decreased activity of the muscles on the right side of the face compared to that of the left, and there was a deviation of angle of the mouth towards the opposite side [Figure 3]. Drooling of saliva was noticed from the affected side. No altered sensation or paresthesia, xerostomia, xeropthalmia was noticed. There was no associated pain over ears and face. The patient had normal hearing and his speech was normal.

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ENDODONTIC MANAGEMENT OF MANDIBULAR FIRST MOLAR WITH MIDDLE MESIAL CANAL – A CASE REPORT

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Abstract

The main objective of root canal treatment is the thorough mechanical and chemical cleansing of the entire pulp space followed by complete obturation with inert filling material. Knowledge of the internal anatomy of tooth is of prime importance, for the success of endodontic treatment. Numerous reason for endodontic failures are missed canals, incomplete instrumentation, inadequate cleaning and shaping of the root canal system, and subsequently defective obturation of root canal system.[1] Anatomical characteristics of the different types of teeth and their possible variations are the challenges routinely faced by practitioners while performing endodontic treatment.

Keywords: Endodontic management, Mandibular molar, Case report

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Introduction

Proper access into the pulp chamber, which allows access to the orifices of the root canals and an optimal view of the chamber floor, is a fundamental step in endodontic therapy. Numerous reason for endodontic failures are missed canals, incomplete instrumentation, inadequate cleaning and shaping of the root canal system, and subsequently defective obturation of root canal system.[1] Proper access into the pulp chamber enables the identification of any variation in the number and position of root canals.[2]

Vertucci [3] and Cunningham [4] observed that substantial number of treatment failures could be attributed to anatomical variations, such as the presence of extra canals which are not usually detected.

Currently, magnification is one of the major factor in accurate identification of the canals and therefore the outcome of endodontic treatment.[3,4] Dental operating microscope, surgical loupes are few of them which help in identifying and locating canals accurately.

The present case describes left mandibular first molar with extra canals, three mesial, and two distal canals. The third canal of the mesial root is called mid-mesial canal. Current case is intended to review related literature, describe the clinical case, and make considerations about how dentists

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STEM CELL- A PROMISING TOOL FOR TISSUE REGENERATION
A REVIEW

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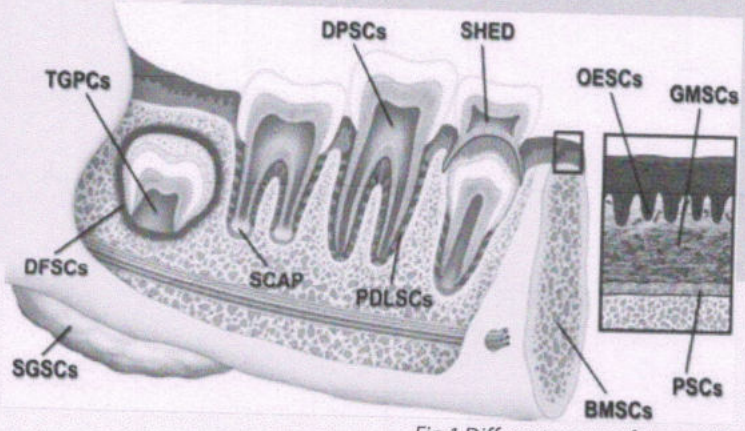


Fig:1 Different group of stem cells

ABSTRACT

When maintenance of tooth in a vital condition is no longer possible, the traditional treatment philosophy advocates endodontic treatment to retain it in a functional state. Immature teeth are susceptible to infections due to trauma, anatomic anomalies, and caries. Traditional endodontic therapies for immature teeth, such as apexification procedures, promote resolution of the disease and prevent future infections. However, these procedures fail to promote continued root development, leaving teeth susceptible to fractures. Regenerative endodontic procedures (REPs) have evolved in the past decade, are being incorporated into endodontic practice and becoming a viable treatment alternative for immature teeth.

With advancements in molecular science and tissue engineering, the approach is becoming refined with higher success rates. This review article will detail some of the methods of regeneration and the challenges to achieve success in these procedures.

KEYWORDS: Pulp regeneration; revascularization; pulp stem cells; tissue engineering; scaffolds; pulp vitality; triple antibiotic paste; calcium hydroxide.

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EDENTULOUS AREA- LATERAL PEDICAL GRAFT: A CASE REPORT

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Abstract

Gingival recession is a multifaceted problem, for which several treatment options are available. Lateral sliding flap offer most predictable solution for the treatment of gingival recession due to disrupted blood supply to the graft tissue. The case report involves a 45 year old female with Miller's class II recession on 17 along with mesio-occlusal caries indicated for root canal treatment. There were missing 16 and 15. After phase I therapy patient had undergone root canal treatment and lateral sliding flap from adjacent edentulous area and crown placement.

Key words: Lateral sliding flap, edentulous area, gingival recession

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Introduction

Gingival recession is defined as the location of the gingival margin apical to cemento-enamel junction.[1] Clinical findings of the gingival recession includes increased root sensitivity, cervical abrasion and cervical caries.[2] It also causes aesthetic concern to the patient; usually in the anterior regions of the mouth.[3] The periodontal literature is replete with the techniques for the correction of the gingival recession.[4] Various factors to be considered before root coverage are the extent of the recession [Miller's classify-cation], the width of the attached gingival at the site, the position of the tooth in the arch and some patient characteristics like smoking and oral hygiene.[5]

The aim of this case report is to demonstrate lateral sliding flap taken from an adjacent edentulous site to obtain root coverage on a posterior tooth.

Case report

A 45- year old female reported to the department with a chief complaint of decayed tooth in her upper right back tooth region. Patient desires to save that tooth since the teeth adjacent to it were missing. She was systemically healthy.

Examination of the area of chief complaint revealed that 16 had deep dental mesio-occlusal caries which was indicated for root canal treatment. A Miller's class II recession was noted on buccal surface which need correction prior to the crown placement due to inadequate width of attached gingival. [Figure 1]

Clinical procedures consist of phase I therapy followed by a maintenance period, root canal treatment and root coverage procedures.

Phase I therapy was initiated four weeks prior to the root coverage procedure. It consists of

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Biodentine-A Novel Dentin Substitute: A Review

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Abstract: ***Dentin substitutes are cements, which have dentin like mechanical properties and can be used as dentin replacements in the tooth crown and root region. There are a wide variety of materials that have been used as dentin substitutes. An ideal dental repair material should possess certain exclusive properties such as adequate adhesive ability, insolubility, dimensional stability, biocompatibility, bioactivity etc. New materials claiming better performance are continuously being introduced in the market to optimize the care of dental patients. Biodentine has been recently introduced as the "the first all-in-one, bioactive and biocompatible material for damaged dentin replacement". This review briefly describes about properties, advantages and clinical application of biodentine and is also aimed to compare the properties of biodentine with MTA.***

Keywords: Biodentine, dentin substitute, physical properties, indications, advantages over MTA

1. Introduction

The main objective of pulpal healing process is to form a barrier of mineralized tissue to protect the underlying pulp from bacterial or toxin leakage. Clinically, the objectives of treatments such as direct pulp capping, Cvek pulpotomy, or the stepwise technique are to seal the pulp wound, induce odontoblast-like cell differentiation, and stimulate dentin secretion and mineralization in order to build a dentin bridge[1].

An ideal biomaterial should stimulate and modulate the healing process to properly seal the pulp wound to prevent bacterial leakage. So far, several materials have been investigated for their potential to stimulate tertiary dentinogenesis. Calcium hydroxide has been the gold standard as a pulp-capping material for a long time. Histologically, newly secreted dentin is generally porous and the gap between this barrier and the dentinal wall is considered responsible for bacterial leakage, leading to pulp inflammation and/or necrosis.[2]

Biodentine™ is a new bioactive cement with dentine like mechanical properties, which was developed by ***Septodont, St.Maur-des-Fosses, France***, which can be used as a dentine substitute on crown and roots, has positive effect on vital pulp cells and stimulates tertiary dentin formation.[3]

2. Composition

Biodentine is principally composed of a highly purified tri-calcium silicate powder. It comes in the form of a capsule containing the powder (0.7 g) and an ampule with the liquid(0.18 ml). For mixing purposes, a premeasured dose of liquid is dropped into the capsule and then mixed with an amalgamator.

Powder	*Function*
Tri-calcium Silicate	Main core material
Di-calcium Silicate	Second core material
Calcium Carbonate and Oxide	Filler material
Iron Oxide	Shade
Zirconium Oxide	Radio opacifier

Liquid	Function
Calcium chloride	Accelerator
Hydrosoluble polymer	Water reducing agent, keep a good flowability with a low water/solid ratio

3. Properties of Biodentine

1) Setting time

The setting time of Biodentine was determined as 6-12 minutes. This short setting time was attributed to the addition of calcium chloride to the mixing liquid. Another method used to assess the setting time is the impedance spectroscopy that assesses the changes in electrical resistivity. Impedance values were stabilized after 5 days for the glass ionomer cement while at least 14 days were necessary for the calcium silicate based cement. This is due to the higher porosity for Biodentine cement, characterizing higher capacity of ion exchanges between the material and its environment [5].

2) Compressive strength

Compressive strength is considered as one of the main physical characteristics of hydraulic cements. It is essential that the cement has the capacity to withstand masticatory forces, in other words, sufficient compressive strength to resist external impacts [6]. A specific feature of Biodentine™ is its capacity to continue improving with time in terms of strength over several days until reaching 300 MPa after one month. During the setting of Biodentine, the compressive strength increases 100 MPa in the first hour and 200 MPa at 24th hour and it continues to improve with time over several days until reaching 300 MPa after one month which is comparable to the compressive strength of natural dentine i.e 297 MPa[7]. Biodentine showed highest compressive strength

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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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Mpacted Anterior Teeth Localisation: Cognition over Radiation

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Type of Publication: Review Paper
Conflicts of Interest: Nil

Abstract

Impacted anterior teeth are an impediment to treatment planning in Dentistry. Therefore, proper localisation of the impacted tooth is imperative. CBCT is the gold standard of imaging such teeth; however, poor availability of such devices in rural areas and the economic costs involved often deter patients. Additionally, the high radiation from such devices cannot be ignored. As technology advances and we move towards a 'smart world', we need to retrospect on whether we are foregoing our cognitive skills at the expense of patient radiation. Previous studies have proven that plain film radiographs are highly sensitive and specific at anterior impacted teeth localisation. Here we review different localisation techniques that can enable us to identify correct tooth position using plain films.

Keywords: Localisation, Impacted, Maxillary anterior teeth, Conventional Radiography, CBCT.

Introduction

Impacted tooth is the one that fails to erupt into dental arch within the expected developmental period. Localization is determination of the site or place of any process or lesion.

Impacted anterior teeth can be localised by three methods – visual inspection, palpation & radiography. Clinically, impaction of anterior teeth is determined by the lack of a bulge in the buccal sulcus at the age of 10 years, prolonged retention of a primary teeth, delayed eruption of the permanent teeth, asymmetry in the exfoliation of primary canines and eruption of the right and left permanent canines, loss of vitality and increased mobility of a permanent incisor.

But, radiographic examination is the best method for the determination of position of an impacted canine.

Accurate localization in three planes of space normally requires the use of more than one film. Precise localization is crucial for predicting the direction of subsequent orthodontic forces and planning the means of surgical access to the impacted teeth. Currently, there are accurate radiographic methods that can be used to localize an impacted teeth: horizontal tube shift, vertical tube shift, right angle technique, stereoscopy, panoramic radiography, cone beam computed tomography. Of these,

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Impacted Anterior Teeth Localisation: Cognition over Radiation

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Assessment of Relationship Between Insulin-Like Growth Factor- 1 Levels And Mp3 Radiographs in Determining Skeletal Maturity

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ABSTRACT

Context:

The clinical importance of evaluating skeletal maturation has long been recognized by the health professions. Skeletal maturation is an integral part of individual patterns of growth and development.

With many orthodontic patients, pubertal growth needs to be factored into the diagnostic equation.

Accurate prediction of the timing of the pubertal growth spurt and the amount of remaining growth affects the treatment decisions in orthodontics, orthognathic surgery and dental implantology.

IGF-1 mirrors growth hormone levels. Thus, IGF-I might be a good indicator of residual mandibular growth.

Aims:

1. To establish a relationship between IGF-1 levels evaluated from blood samples and MP3 stages of skeletal maturity.
2. To investigate the relationship between the IGF-1 and the skeletal age.

Methods and Material:

The sample size consisted of 40 subjects between the age group of 5 – 25 including both the sexes. The periapical radiographs for MP3 and blood sample for IGF-1 was collected. Sample was sent to the lab to determine IGF-1 valtes.

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Original Research Paper

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Dental Science

SMART BIOMATERIAL IN DENTISTRY, SAP P11-4 (SELF ASSEMBLING PEPTIDE): A REVIEW

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ABSTRACT Self-assembling peptides (SAP) have been effectively utilized to design novel biomimetic nanomaterials which have tremendous applications in many of the fields including dentistry. SAP P11-4 was introduced to remineralize enamel by providing matrix mediated mineralization. These short chain peptides have the property of assembling into a three dimensional structure on the surface of the tooth resembling the extracellular matrix, thereby promote regeneration. Hence, the aim of this review is to expound on the remineralisation potential of SAP P11-4.

KEYWORDS : self assembling peptide, SAP P11-4, matrix mediated mineralization, biomimetic, extracellular matrix

INTRODUCTION

Self assembly is the autonomous organization of individual components into patterns or structures without human intervention. Self-assembly has been defined as "the noncovalent interaction of two or more molecular subunits to form an aggregate whose novel structure and properties are determined by the nature and positioning of the individual components."[1] It is the inherent ability of numerous multimeric biological structures to assemble from their component parts through random movements of molecules and formation of weak chemical bonds between surfaces with complementary shapes.

Proteins are the fundamental components and building blocks of all living cells. They are composed of one or more chains of amino acids. Two or more amino acids linked by a peptide bond form a peptide molecule. Large numbers of peptide molecules arrange themselves in different fashions to make up different kinds of proteins (Fig: 1). The self-assembly process is highly dependent on the peptide sequence, concentration, pH, presence of salts, and time or kinetics.[2] Self-assembling peptides (SAP) have been effectively utilized to design novel biomimetic nanomaterials which have tremendous applications in many of the fields including dentistry.[3]

USES OF SAP

1. In the treatment of early dental carious lesions.[4,5,9,10,11]
2. To improve remineralisation of erosive lesions of enamel.[5]
3. Can be used as a scaffold for bone formation in periodontal tissue regeneration.[6]
4. Can act as a as a scaffold for dental stem cells for engineering both soft and mineralized matrices in dental tissue regeneration.[7,8]
5. Self-assembled peptides have been used to enhance various types of cell growth and differentiation, including bone, cartilage, vessel, heart, and neural systems.[9,10] For example, the self-assembled peptide scaffolds made of RADA16-I and RADA16-II peptides have been used to enhance neural cell attachment, differentiation, and neurite outgrowth during in vitro studies, as well as to promote active synapse formation during in vivo studies.[11]



Fig 1; Self-assembled peptide amphiphile nanofibers.

The tooth enamel is the most highly mineralised and uniquely organized outermost covering of the tooth. During enamel development, enamel matrix proteins, themselves known to form self assembling supramolecular structures, which is believed to control the morphology of the hydroxyapatite crystals, ultimately determining the physico-mechanical properties of the mature tissue.[12,13]

This enamel is constantly subjected to numerous challenges within the oral environment However, unlike other skeletal structures mature enamel cannot be regenerated due to lack of functional capacity of ameloblasts.[14] With this inherent limitation any drop in pH below the critical value initiates the demineralization process. Caries occurs due to an imbalance of the remineralization and demineralization equilibrium. Once the demineralisation exceeds 30% it causes irreversible damage to the enamel.[3] Hence early detection and management of these reversible incipient lesions using non-invasive methods are recommended.

Various remineralizing agents are available for non-invasive management of these incipient lesions. The most important and extremely effective are fluorides, whose local efficacy has been thoroughly investigated. In recent years, several materials have been introduced which penetrate an initial lesion as liquid resin (ICON caries infiltrant) or can promote remineralization by releasing calcium and phosphate (e.g, casein phosphopeptide- amorphous calcium phosphate, CPP-ACP complex). Furthermore, products based on nanohydroxyl apatite (e.g, BioRepair) have been proposed for "repairing" enamel.[15] However, these agents failed to achieve matrix mediated mineralization similar to the natural process. To surpass this situation, self assembling peptide (SAP) P11-4 was introduced to regenerate enamel by providing matrix mediated mineralization. These short chain peptides have the property of assembling into a three dimensional structure on the surface of the tooth resembling the extracellular matrix, thereby promote regeneration.[16,17] SAP P11-4 has been developed and patented by The University of Leeds, (UK). The Swiss company Credentis has licensed the peptide technology and markets it under the registered trademark CUROLOX® TECHNOLOGY.

MECHANISM OF ACTION OF SAP P11-4

Proteins of the developing enamel ECM – themselves known to form self-assembling supramolecular structures have long been thought to control initial mineral deposition ('nucleation') and subsequent crystal growth.[18] The self-assembling peptide P11-4 consists of the natural occurring amino acids Glutamine, Glutamic acid, Phenylalanine, Tryptophan, Serine and Arginine; is designed to form fibrils at a low pH and to be monomeric in solutions with higher pH. The dissolved Ca^{2+} is attracted by the negative charged surfaces and phosphorylated erine residues in the peptide.

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Original Research Paper

Endocrinology

A HORMONAL IMBALANCE- ITS IMPACT ON ERUPTION AND EXFOLIATION: A CASE REPORT

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ABSTRACT Delayed tooth eruption is the emergence of a tooth into the oral cavity at a time that deviates significantly from norms established for different race, ethnicity, and gender. It may be due to many local and systemic reasons, eruption delay of more than two years should be definitely investigated.

Certain endocrinal hormonal imbalances that occur in infancy or early childhood can lead to many clinical manifestations like short stature, delayed tooth eruption and delay in major developmental milestones. The possibility of hormonal disturbances should be suspected when evaluating teenagers and adolescents with the complaint of delayed eruption, both physician and dentist should be aware of this clinical manifestation. This is a case report on delayed eruption of teeth in a teenager with undiagnosed hormonal imbalance who visited our department, a watchful eye and timely investigation led to the diagnosis of underlying organic problem.

KEYWORDS : Delayed Eruption, Hormone.

INTRODUCTION

Eruption of deciduous teeth, their exfoliation followed by eruption of permanent dentition is an orderly sequential and age specific event[1].The stages of eruption include pre eruptive movements, intraosseous stage, mucosal penetration, preocclusal and post occlusal stages[2]. Most parents are anxious about the variation in the timing of the eruption, which is considered as an important milestone during child's development. Racial, ethnic, sexual, and individual factors can influence eruption and are usually considered in determining the standards for normal eruption.[2,3] Delayed tooth eruption (DTE) is the deviation most commonly encountered in terms of normal eruption time. DTE might be the primary or sole manifestation of local or systemic pathology.[4]

Certain hormones plays a vital role in the process of eruption, and also have a structural impact on developing teeth. Even though the regulatory effects of thyroid hormones on bone development and metabolism have been known for a long time, the mechanisms of thyroid hormone action on the skeleton are still a matter of debate [5-7]. Along this line, even though there are reports of delayed tooth eruption in the literature, this condition will unlikely be the patient complaint and is seldom recorded during clinical examination, possibly because physicians generally have difficulty making this assessment, or because it is not seen as a sign of severe disease. However, the possibility of thyroid hormonal imbalance should be suspected when evaluating adolescents with delayed dentition, and both physicians and dentists should be aware of its clinical manifestation.

This case reports an undiagnosed hormonal imbalance in a female who complained of delayed tooth eruption[8], who sought treatment for the same in our clinic.

CASE REPORT

A female teenager aged 15-years and 4 months reported to the Department of Pedodontics and Preventive dentistry, K.M.C.T Dental College, Calicut, Kerala with a chief complaint of retained upper deciduous teeth which bothered her because she was aesthetically concerned . The parents also expressed their concern about the delayed eruption of permanent teeth. General examination was carried to rule out the presence of any syndrome. Medical and family histories were non-contributory.

On extra oral examination an ill-defined oedematous bilateral swelling in the neck was observed (Figure 1), which neither child nor parents were unaware. Intraoral examination revealed midline diastema, retained deciduous maxillary right and left primary canine, primary first and second molars.

Teeth present:

17	16	55	54	53	12	11	21	22	63	64	65	26	27
47	46	45	44	43	42	41	31	32	33	34	35	36	37

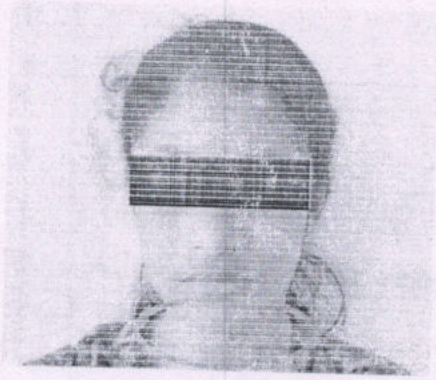


Figure 1



Figure. 2

Orthopantamograph(OPG) examination revealed maxillary right and left primary canine and molars were retained and permanent

ORIGINAL RESEARCH

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Knowledge and Experience about Medical Emergencies among Dental Interns in Bangalore City

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ABSTRACT

INTRODUCTION: Medical emergencies are very frequent in dental setting. It is imperative to judiciously manage these situation in clinical setting. Having correct knowledge about the medical emergencies and the management methods are crucial successful clinical practice.

AIM: To assess the knowledge and experience about medical Emergencies among Dental interns in Bangalore City.

MATERIALS AND METHODS: A cross sectional study was conducted among 350 dental interns from sixteen dental colleges in Bangalore City using a structured questionnaire consisting of 14 item questions.

RESULTS: Syncope being the most commonly encountered medical emergency (79.14%), followed by hypoglycaemia(17.14%). About 49.71% respondents considered medical emergency training was moderate. 98% of them think that medical emergencies training is important. Knowledge of the presence of drugs and equipments in the emergency drug kit and the confidence with regard to using them was not satisfactory.

CONCLUSION: Dental graduates had a superficial knowledge of management of medical emergencies and use of drugs and equipments.

KEYWORDS: Dental Interns, Medical Emergencies, Knowledge

INTRODUCTION

A medical emergency can be described as any situation in which the patient's life may be at risk due to a failure of an effective oxygenated circulation to the vital organs. The dentist has the responsibility to identify the medical emergencies and initiate the management procedures at the earliest.[1] An elaborate history of the patient enable the dentist to anticipate the potential adverse events that may precipitate during the treatment.[2]

Some drugs like anaesthetics, some procedures and the mere thought of dental treatment can cause stress and anxiety in the patients, these in turn can lead to a life threatening situation.[3] Effective and successful management of life-threatening situations includes adequate education of the dentist, presence of emergency drug kit, education of the chair side assistant and provision for referral to the nearby healthcare facility.[4]

A dental graduate is expected to identify the medical problems in a patient during history recording, and they should be confident enough to provide basic life support, including positioning, airway maintenance, and circulation. They should be familiar with resuscitation drugs and emergency equipment (both modified for dental practice).

It's the prime duty of dentist to manage an emergency situation in the dental office with utmost care and responsibility. Insufficient training and lack of sufficient knowledge can lead to tragic consequences and sometimes even fatal.[5]

Keeping in mind the risk associated with dental treatment, it becomes important for the dental interns to have a thorough knowledge about medical emergencies and to take appropriate steps for the prevention and management of such emergencies in the dental clinic. The aim of this study is to assess the knowledge and experiences about medical emergencies among dental interns of various dental colleges in Bangalore City.

MATERIALS AND METHODS

The present study is a descriptive, cross-sectional questionnaire survey. Permission to conduct the study was obtained from the Principals of the respective dental colleges where the study was conducted. The study proposal was submitted for approval and clearance was obtained from the ethical review board of Oxford Dental College, Hospital and Research Center – Bangalore.

All the dental interns from 16 dental colleges in

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Prosthetic Rehabilitation of a Patient with Apert Syndrome: A Case Report

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Abstract: *Apert syndrome is a rare, congenital, developmental disorder characterized by craniosynostosis, cone shaped calvarium, midface hypoplasia, ocular manifestations and symmetric syndactyly of hands and feet. These incapacities emphasize the imperative of multidisciplinary approaches, considered invariably at a very early stage including pedodontic and orthodontic management. A prosthetic management of the condition is arguably more economical than complex surgical treatments when the patient's demand is more on esthetic correction, especially in the advanced stage. The present case study is a detailed report of the treatment of a patient diagnosed with Apert syndrome distinguished with a deformity in the upper anterior region using removable prostheses.*

Keywords: *Apert syndrome; Craniosynostosis; Removable prostheses; Telescopic overdenture.*

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I. Introduction

Apert syndrome or Acrocephalosyndactyly is a rare congenital condition usually inherited as an autosomal dominant trait.[1]Craniosynostosis, cone shaped calvaria, acrocephaly, pharyngeal attenuation, symmetric syndactyly of the hands and feet, exophthalmia, ocular hypertelorism and hypoplastic midface with Class III malocclusion and systemic alterations are characteristic of this disorder.[2] As early as 1842, Baumgartner pioneered in the diagnosis of this syndrome and was followed by Wheaton in 1894. But the eponymous Eugene Apert, a French Pediatrician, was given the honour in 1906, as he described a series of 9 cases with similar attributes of the syndrome.[3]

Apert syndrome is estimated to affect 1 in 160,000 live births. It is most frequently caused by a de novo mutation in the male gameter. Two missense mutations in the fibroblast growth factor receptor 2 (FGFR2) gene on chromosome 10, have been found to account for the disorder in approximately 98% of patients.[4]Prosthodontic rehabilitation of the condition currently confronts a serious relapse as the preponderance of investigations reported on Apert syndrome concern the orthodontic, pedodontic or surgical management of the disorder. The present study proposes to discuss in detail the prosthetic rehabilitation of Apert syndrome identified on a patient with the aim of aesthetically reclaiming the dental deformation in the upper anterior region.

II. Case Report

An 18-year-old male patient reported to the Department of Prosthodontics, KMCT Dental College, Calicut, Kerala with the chief complaint of a lack of aesthetics in the upper front tooth region. Patient was a known case of Apert syndrome as seen in Figure 1a &b.Detailed history revealed that he was the first child of an apparently normal mother. No history of consanguineous marriage of his parents was reported. Patient's parents and 11yr old sibling did not manifest any related findings. The patient had normal development with minimal signs of mental retardation. His speech was found to be slightly incoherent. Patient had a history of bilateral cleft for which he had undergone surgery 2 years back. Clinical, extra oral, and intraoral examination revealed all abnormal features which where characteristic of Apert syndrome. In addition to that patient had missing teeth in relation to maxillary right and left central and lateral incisors which was extracted $1^{1/2}$ years back due to caries as seen in Figure2.



Fig 1a: Extraoral view : Frontal **Fig 1b: Extraoral view : Lateral**

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ORIGINAL RESEARCH PAPER

Medical Science

THE POINT OF A HUNDRED DISEASES, ACUPUNCTURE FOR GAG REFLEX IN CHILDREN- A REVIEW

KEY WORDS: Acupuncture, Clinical trial, Gag reflex

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ABSTRACT

Traditional acupuncture has been introduced more than 2500 years ago which provides an alternative and complementary option during clinical practices. Its main mechanism is based on stimulating the nerves by altering the processes and perception of pain transmitters. It facilitates releasing natural pain relievers such as endorphins and serotonin. its success for various dental procedures has been proved. However, its effects on controlling the gag reflex seem to be overlooked. The gag reflex is recognized as a protective reaction for stopping the entrance of any foreign bodies into the oropharynx. Pronounced gag reflexes can have negative impacts on the quality of dental procedures especially in children. Many techniques have been suggested for managing this reflex and acupuncturing is one of those which seems to be overlooked recently. This paper reviews the published researches about the efficacy of this technique for eliminating the gag reflex during dental procedures.

INTRODUCTION

Gagging is a reflex act produced by the transmission of afferent impulses to the center and outflow as efferent impulses to the musculature of the oropharynx.[1] The gag reflex sometimes has an undesirable impact on the efficacy of dental procedures such as intraoral examination, making dental impressions and many other clinical dental procedures in children.[2,3] It has been stated that the responsible stimuli for the gagging might differ from person to person. In some children, the gagging is only limited to the stimulation of the surrounding tissues of oropharynx, while others might show the gagging reflex with some other stimuli except physical ones such as the sight, taste, smell of certain objects.[4]

Etiology of Gagging

The causes of gag reflex can be either psychogenic or somatogenic.

Psychogenic causes

The stimuli which cause gagging have its origin in the mind. Psychic stimuli resulting from fear, anxiety and apprehension can predispose to gagging. Child's emotional factors such as appreciable mental strain and depression also have an influence as one of the causes of gag reflex.

Somatogenic causes

It is due to the presence of definite physical stimuli which acts locally. The presence of irritating foreign objects in the mouth or oropharynx may excite gag reflex. Physical stimuli may have their action either directly or indirectly.[5]

Management of Gag Reflex

Various methods have been proposed to manage the gag reflex in children.

They include

- Relaxation
- Distraction
- Desensitization Techniques
- Psychological And Behavioral Therapies
- Local Anesthesia
- Conscious Sedation
- General Anesthesia Techniques
- Complementary Medicine Therapies Like Hypnosis

Acupuncture is another modality which has been reported to control gag reflex. It is defined as the insertion of fine solid needles into specific parts of the human body for disease prevention, therapy, or the maintenance of health.

The basic theories of acupuncturing can be summarized in three below mechanisms:

- Acupuncture needles can stimulate the afferent nerves (Type I and II) or A-delta fibers which send impulses to the upper centers. At the spinal cord, enkephalin and dynorphin are mostly involved in blockage of pain in the spinothalamic tract.
- Acupuncture stimulates midbrain structures by activating cells in the periaqueductal gray matter and the raphe nucleus. In response, they send descending signals through the dorsolateral tract, causing the release of the monoamines norepinephrine and serotonin in the spinal cord. These neurotransmitters inhibit pain presynaptically and postsynaptically by reducing transmission of signals through the spinothalamic tract.
- Stimulation of pituitary-hypothalamic complex provokes the systemic release of beta-endorphin into the blood which can result is the release of adrenocorticotropic hormone.[6]

Acupuncture points on the body are stimulated by needles, pressure (acupressure), vacuum (cupping), laser, or electrical stimulus. The use of needle acupuncture in children is a very difficult procedure since it is an invasive technique. To overcome this difficulty, laser acupuncture and acupressure were developed. These are not only painless, but also help in achieving better patient compliance. According to ancient Chinese Medicine, energy flows in the human body along 14 meridians. On these meridians lie certain points **Qi** (energy) which when stimulated, produce specific effects on the body.

Various anti-gagging points have been recognized, such as **PC6** (Pericardium 6), **LI4** (Liver4), and **CV24** (Conception Vessel24). Stimulating these points activate mechanisms that inhibit the muscle activity of gag reflex.



Figure 1 CV24 Acupuncture Point

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Evaluation of variation in root canal circumference, after using three different Nickel-Titanium rotary systems & conventional K files by Cone-Beam Computed Tomography: An in-vitro study

Anup P T [1], Ramesh Kumar M[2], Elsy P Simon[3], Chandini Raveendran[4]

Abstract

Aim and objectives: Aim of this study was to compare and evaluate the circumferential area of root canals with conventional K file, Protaper, Protaper Next and Mtwo rotary systems using cone beam computed tomography (CBCT).

Materials and methodology: One hundred and twenty human extracted mandibular premolars were selected and equally divided into four groups. Pre CBCT images were taken and surface area were measured at 3mm, 5mm and 7mm from the apical level. Instrumentation was carried out with four different file systems and post instrumentation CBCT images were taken at same level and the dentin removal was obtained using a mathematical formula.

Results: It was found that there is no statistically significant difference among the surface area of dentin removed at 3mm from the apical level (P-0.295), being slightly higher for Protaper and Protaper next files. But there was statistically significant difference at 5mm (P-0.000) and 7 mm (P-0.000) from the apical level. Surface area of dentin removed was higher for protaper Next and Protaper files followed by Mtwo files and K files. K files removed least area of dentin among the 4 file systems.

Conclusion: Within the limitations of this invitro study, it can be concluded that irrespective of taper all the file systems removed similar amount of dentin at apical level. But at middle and coronal level dentin removal was influenced by the taper of files.

Keywords: CBCT, Protaper Next files

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INTRODUCTION

The objective of root canal preparation is to clean and shape the canal system to eliminate necrotic material, microorganisms, and canal irregularities, and to facilitate the placement of a permanent root filling[1]. The ideal preparation for the root canal is a continuously tapered funnel shape with smallest diameter at the apex and the widest diameter at the canal orifice[2]. The shape can be achieved either by hand or by mechanical preparation and is readily produced in straight canals. Various instrumentation techniques and endodontic instruments have been introduced in attempt to reduce these problems aiming to provide the optimum shaped preparation[3].

While doing all this mechanical cleaning and shaping procedures, residual dentin thickness is a major factor to be considered. Residual dentin thickness indicates the mechanical limits of instrumentation, to enlarge the diameter of the root canal, to approximately determined values that would not significantly weaken the dentin walls. The thickness of the dentinal wall at the root circumference is critical parameter, and there is a direct correlation between the root thickness and ability of the tooth to resist lateral forces and avoid fracture[4].

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ADHESIVE-RESINS IN OBTURATION

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ABSTRACT

Gutta-percha has been in use for many decades as an obturation material matched with various sealers, but its drawbacks have long been recognized. Coronal leakage has become a growing concern in the long-term success of endodontics. Gutta-percha cannot be bonded with any sealer and, therefore, it can provide a bacterial pathway to reinfection of the tooth's apical region. Science and technology have advanced obturation in recent years to provide better seals with greater coronal leakage prevention. . This review article goals to deliver an ephemeral synopsis of this obturating system with adhesive resins with a reference of the studies associated with it.

Key words: obturation, gutta-percha, resin adhesives

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Introduction

Root canal filling typically involves the use of a core material, as gutta-percha does not bond to root dentine and therefore must be used in association with a sealer to provide a bond between the core material and the root canal wall, along with filling any gaps, lateral accessory canals and irregularities at the root canal wall.[1] Recently, adhesive dentistry has been introduced to the field of endodontics with a specific focus on obtaining a 'monoblock' in which the core material, sealing agent, and the root canal dentine form a single cohesive unit.[2] Very little has been published on the use of adhesion in filling root canals. It stands to reason that adhesive resins could serve to seal dentinal walls after smear layer removal. If it can be made to adhere to other filling materials such as gutta-percha and if it can be made radio-opaque without ruining it's setting and adhesive qualities, one would think that adhesives might have a bright future in endodontics.[3,4]

Epoxy resin-based sealers

Epoxy resin-based sealers like AH 26 are a mixture of epoxy amines which have been available as root canal sealers for many years. They are generally placed in the canal without any dentine surface treatment or dentine adhesive and can be used with any obturation technique.[5] These sealers have a hydrophobic nature which are thought to be able to react with any exposed amino groups in collagen to form covalent bonds between the resin and collagen when the epoxide ring opens.[6] They have been shown to achieve high bond strengths to both dentine (2.06 MPa) and gutta-percha (2.93 MPa).[7]

Their drawbacks include cytotoxicity to primary human oral fibroblasts arising from

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ANTIBIOTIC PROPHYLAXIS : AN UPDATE

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ABSTRACT

This paper is designed to provide scientifically based guidance to clinicians regarding the use of antibiotics in dental treatment based on the 2017 American Heart Association(AHA) and American College of Cardiology focused update of the 2014 AHA/ADA Guideline for Management of Patients with Valvular Disease and cited by the American Dental Association(ADA). The guidance in this article is not intended to substitute for a clinician's independent judgment in light of the conditions and needs of a specific patient.

Key words: antibiotic prophylaxis, 2017 update, patient management

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Endocarditis Prophylaxis and Recommendations

These recommendations are taken from 2017 American Heart Association and American College of Cardiology focused update of the 2014 AHA/ADA Guideline for Management of Patients with Valvular Disease and cited by the ADA.[1,2]

Prophylaxis against infective endocarditis is reasonable before dental procedures that involve manipulation of gingival tissue, manipulation of the periapical region of teeth, or perforation of the oral mucosa in patients with the following:

In 2017, the AHA and American College of Cardiology (ACC) published a focused update[3] to their previous guidelines on the management of valvular heart disease. This reinforced their previous recommendations that AP is reasonable for the subset of patients at increased risk of developing IE and at high risk of experiencing adverse outcomes from IE.[3] Their key recommendations were:

1. Prosthetic cardiac valves, including transcatheter-implanted prostheses and homografts.
2. Prosthetic material used for cardiac valve repair, such as annuloplasty rings and chords.
3. Previous IE.
4. Unrepaired cyanotic congenital heart disease or repaired congenital heart disease, with residual shunts or valvular regurgitation at the site of or adjacent to the site of a prosthetic patch or prosthetic device.
5. Cardiac transplant with valve regurgitation due to a structurally abnormal valve.

The ADA and AHA have a downloadable wallet card available to providers at no cost to educate patients who may be at risk for IC.

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SELF-LIGATING BRACKETS: FORGET THE TWISTS AND TIES

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**Dr. Aishwarya Jayachandran K, **Dr. Nevin Abraham

ABSTRACT

Self-ligating bracket system is known as the future of Orthodontics. The basic design of bracket evolved dramatically from Angle's edgewise bracket to self- ligating brackets.They allow the Orthodontist to choose the type of wire and ideal force levels that will be most efficient in the early stages of a patient's treatment, most notably for levelling and aligning as well as correcting rotations. Concept of self -ligating brackets was not new to Orthodontics. It was existing for a surprisingly long time. But newer designs of these brackets have continue to appear even today. This continued popularity of self-ligating brackets attracted more than a small percentage of consumers. This review deals with the differences of self-ligating brackets from conventional brackets, its features, advantages, disadvantages, and clinical applications of self-ligating brackets.

Key words: orthodontics, self ligating brackets, patient management

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Introduction

Self-ligating brackets are ligature-less bracket systems that has a mechanical device built into the bracket to close off the edgewise slot. The cap holds the arch wire in the bracket slot and replaces the elastomeric ligature. They are known as low friction brackets with utilising lighter forces to move teeth because there is much less friction in the system to overcome.[1] The design of self-ligating bracket is based on the principle that the force used to reposition *teeth should not overwhelm the specialised* tissues surrounding and supporting the teeth.[2]

Self-ligating brackets place enough force on the tooth to stimulate tooth movement without completely disrupting the vascular supply. This makes the tooth movement more effective and physiologic. The design in the passive self-ligating brackets enables the teeth to move in the pathway of least resistance.[3]

Classification[4]

a) On the basis of action of the slide
- Active
- Passive

b) *On the basis of design*
- Single self – ligating system
- Twin self-ligating system

c) On the basis of position of clip
- Cap type

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ENUCLEATION OF MULTIPLE GIANT RADICULAR CYST OF MAXILLA AND RECONSTRUCTION WITH NATIVE CORTICOCANCELLOUS BONE

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Abstract

Radicular cysts are inflammatory odontogenic cysts of tooth bearing areas of the jaws. Most of these lesions involve the apex of offending tooth and appear as well-defined radiolucencies. Owing to its clinical characteristics similar to other more commonly occurring lesions in the oral cavity, differential diagnosis should include dentigerous cyst, ameloblastoma, odontogenic keratocyst, periapical cementoma and Pindborg tumour. The present case report documents a massive radicular cyst crossing the midline of the palate. Based on clinical, radiographical and histopathological findings, the present case was diagnosed as an infected radicular cyst. The clinical characteristics of this cyst could be considered as an interesting and unusual due to its giant nature. The lesion was surgically enucleated along with the extraction of the associated tooth; the defect formed is reconstructed using native cortico-cancellous bone.

Key words: Enucleation, Radicular cyst, Reconstruction, Cortico-cancellous bone

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Introduction

Odontogenic cysts are a group of jaw cysts that are formed from tissues involved in odontogenesis (tooth development). They can be broadly divided into developmental and inflammatory types based on their aetiology. Inflammatory odontogenic cysts include the radicular cysts and the lateral periodontal cysts. Radicular cysts (apical periodontal cyst, dental root end cyst) are the most common inflammatory odontogenic cysts of tooth bearing areas of the jaws.[1] They originate from an epithelial rest of Malassez in periodontal ligaments secondary to inflammation.[2] They are most frequently found at the apices of the involved teeth with infected or necrotic pulps; however, they may also be found on the lateral aspects of the roots in relation to accessory root canals.[3]

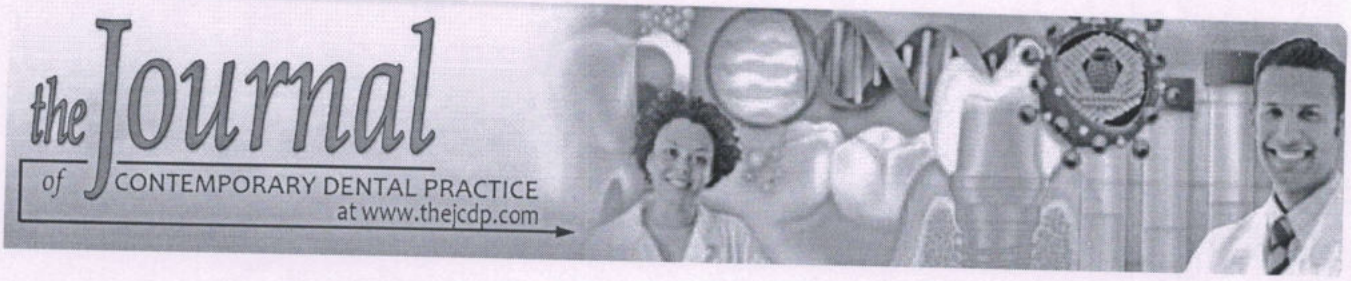
Most commonly, radicular cysts occur between the third and the sixth decade of life with male predominance. Clinically, the lesion is usually small, asymptomatic but may sometimes exhibit mild pain and sensitivity to percussion. The affected tooth is usually non-vital and the surrounding mucosa may exhibit bluish discolouration.[4] Histopathologically, the radicular cyst is a chronic inflammatory lesion with a closed pathological cavity. It is lined either partially

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ORIGINAL ARTICLE

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An *In Vitro* Comparative Evaluation of Shear Bond Strengths of Veneering Porcelain and Different Core Materials

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ABSTRACT

Aim: The aim of the present study was to evaluate and compare the bond strengths of different core structures to veneering porcelain.

Materials and methods: Sixty specimens were divided into 4 groups of 15 each. Specimen fabrication was done according to the International Organization for Standardization (ISO) specifications 9693:1999. Group 1 comprised core structure made of cast alloy, group 2 from sintered metal, group 3 from milled zirconia and group 4 milled zirconia without liner at the interface. The shear bond strengths were recorded and the values obtained were statistically examined.

Results: Highest values were recorded in group 3 and there were significant differences between groups 1 and 3 while groups 3 and 4 were not statistically different. This led us to imply that zirconia as a core structure provided maximum strengths and laser sintered metal came second. The results also pointed out that the role of the zirconia liner is not that crucial to attaining adequate strength.

Conclusion: The present study concluded that zirconia and laser sintered metal are excellent core materials and feasible alternatives to cast alloy. We also concluded from our study that a zirconia liner did not affect the bond strength significantly and is not absolutely essential.

Clinical significance: This study helps us to understand the role of materials used as core structures in enhancing the shear bond strength to veneer porcelains and also clarifies the role of a zirconia liner in the process.

Keywords: Laser sintered metal, Metal ceramic interface, Shear bond strengths, Veneering porcelain, Zirconia liner.

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INTRODUCTION

Metal ceramics and all ceramics in different forms dominate the field of esthetic restorations and prosthesis currently. Historically, the lost wax process has been used to make metal ceramic frameworks but with advances in technology, core substructures for ceramic restorations are increasingly being made with direct metal laser sintering and crassulacean acid metabolism (CAM). The process is vastly simpler and less prone to errors by the technician. The only hindrance remains the cost of the procedure due to expensive armamentarium and that too is coming down rapidly as with any technological advance. The success of the ceramic prosthesis partly depends on the bonding between the esthetic veneering porcelain and the core structure.[1]

Bonding failures in porcelain fused to metal prosthesis have been reported at 2.3 to 8%.[2-4] Chipping of veneering porcelain has been observed in posterior zirconia-based restorations at 6 to 25% within a 5 year period,[5] improving the bond strength between the core structure and the veneering porcelain can reduce costly remakes and repairs.

A number of mechanical tests are available to evaluate the bond strength at the interface but the Schwickerath crack initiation test first proposed by Lenz et al.[6] is a reliable gold standard and has been described in ISO specifications 9693:1999 to determine bond strengths. The bond strengths of porcelain to cast Cr-Co alloy is reliable and well documented, but literature is sparse

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Case Report

Management of Hemifacial Hypertrophy with Extended Corpus Angle V-Line Mandibular Ostectomy

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Abstract

Asymmetry is one of the most unusual and fascinating errors of human reproduction. A subtle asymmetric variation of the contralateral structures of the face occurs commonly in the general population, even in the absence of any local lesion or systemic conditions. Hemihypertrophy, congenital hemihypertrophy, hemimacrosomia, or partial gigantism are the terms used when the association of these changes with time or modifying circumstances such as trauma is missing. Meckel in 1822 gave the initial description, and the first report was by Wagner in 1839. This case report presents the case of a 20-year-old female with hemifacial hypertrophy, treated with "extended corpus angle V-line mandibular ostectomy" with modifications in armamentarium. Corrective procedure performed was in comparison to the contralateral side. Anterior half ostectomy, followed by posterior half ostectomy, was carried out with an oscillating saw, contra-angle handpiece, and curved chisel, respectively. Radiological assessment of the inferior alveolar nerve helped in planning the ostectomy and preservation of the nerve. Single-stage extended mandibular corpus-angle ostectomy has helped in accomplishing an esthetic correction.

Keywords: Corpus angle ostectomy, hemifacial hypertrophy, mandibular ostectomy, V-line ostectomy

Introduction

Asymmetry is one of the most unusual and fascinating errors of human reproduction. A subtle asymmetric variation of the contralateral structures of the face occurs commonly in the general population, even in the absence of any local lesion or condition.[1] Some of these changes, however, may slowly but steadily progress to exhibit asymmetrical development. Hemihypertrophy, congenital hemihypertrophy (CHH), hemimacrosomia, or partial gigantism are the terms used when the association of these changes with time or modifying circumstances, such as trauma, is absent. The first description of this phenomenon was by Meckel in 1822[2] and was first reported by Wagner in 1839.[3] Hemihypertrophy or hemihyperplasia is rarely reported and is often described in the literature as hemihypertrophy rather than hemihyperplasia. It may involve an entire side or an isolated part on one side of the body.[1]

Mandibular angle ostectomy has been popular since Baek *et al.* introduced it in 1989.[4] Ostectomy with an oscillating saw through an intraoral approach has been the standard procedure for correcting prominent mandibular angles. The last two decades saw the rise of various modifications of these techniques.[5,6] Although the procedure provides relatively satisfactory results, the major drawbacks comprised limited access and difficulty in controlling the blind ostectomy.[7] With the modifications in the ostectomy to the body, angle, and symphysis, and with modifications in the armamentarium, near-normal esthetic correction can be achieved by recontouring the gonial angle (GA) and the mandibular plane angle in relation to the Frankfort horizontal plane.

Case Report

We report the successful surgical management of a 20-year-old female patient who presented with the chief complaint of asymmetry near the lower third of face for 5 years [Figure 1].

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BeyondAesthetics:BotoxinDentistry-ALiteratureReview

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Abstract: *Botox is primarily considered as a cosmetic treatment for lines and wrinkles on the face,but the botulinum toxin that Botox is derived from has a long history of therapeutic uses such as in cervical dystonia, hyperhidrosis, strabismus and blepharospasm.Now, as dental professionals its high time we think out of the box and introduce the miracles of Botox into our field, taking into consideration the therapeutic uses it has in the treatment of certain oral conditions.The purpose of this article is to review the general information of botulinum toxin-especially in the field of dentistry-its mechanism of action,uses,contraindications and side effects.A search of Medline and Pubmed databases were performed targeting papers in English on the topic Botox in dentistry between 1976-2018,aiming at recognizing the therapeutic effects Botox has in treating oral conditions.Research and previous studies from a total of 63 articles provided evidence that the neurotoxin Botox gave positive results in both the medical and dental field and indeed provides a justifiable alternative to other more invasive procedures and thus we as dental professionals should encourage its use for treatment.Further clinical studies and research are needed to achieve and gain more knowledge about the neurotoxin and its effects.With current evidences available a narrative review has been put forward.*

Keywords*-Botox, mechanism, uses, contradictions*

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I. Introduction

"Mirror mirror on the wall ,who is the…….?".Since time immemorial a billion men and women would have looked at the mirror and asked themselves the same question .No answers were forthcoming,atleast not until 1987 ,when Dr Alan Scott ,the Canadian eye doctor figured out that his injections could erase wrinkles.[1] Since then, the magic of Botox has transformed many lives..And yes,we as dentists are theperfect professionals to work with botox for treatments beyond aesthetics.

A smile involves more than just the teeth. The perioral tissues are areas that can contribute to making people appear older than they are. "Its just time to think outside the mouth".

Surely the dentist is better prepared , better trained and has more experience in the perioral and facial arena than other specialities .

What is Botox?

Botox is derived from the latin word "Botulus" meaning sausage and botulinum was originally called "sausage poisoning" because it occurred after ingestion of poorly prepared blood sausage.It is a neurotoxin which is prepared from the bacterium Clostridium Botulinum.It was Justinus Kerner (1786-1862),who first conceived a therapeutic use of botulinum toxin and coined the name "Botox".[2] Clostridium botulinum was first identified in 1897,in Belgium, by Professor Emile van Ermengem.In the same year ,an antiserum for botulism was made.[3]

In 1949,Burgen was the first to discover that the toxin was able to block neuromuscular transmission .[4] Dr Alan Scott,an Ophthalmologist from the Smith-Kettlewell Eye Research Foundation performed the first clinical tests on humans in 1978.Dr Michael Kane ,a plastic surgeon has been performing Botulinum toxin injections for excesive ginginval show since 1992. [5] Niamtu has been performing Botulinum toxin injections for excessive gingival show 1999.In 2005 Mario Polo used botulinum toxin for the treatment of gummy smile.Injection with botulinum toxin type A at preselected sites is a novel,cosmetically effective, minimally invasive alternative for temporary improvement of gummy smiles caused by hyperfunctional upper lip elevator muscles.[6]

Scott et al proved this fact by experimentally administering the Type A strain in monkeys.In the year 2000,Botox was approved for use in treating cervical dystonia and 2 years later for the temporary improvement of moderate to severe frown lines between the eyebrows. Botox is a purified exotoxin of the anaerobic bacteria, Clostridium botulinum. Seven types of botox toxin have been isolated; but only 2 types type A and type B have been made commercially available .[7] The FDA (USA) has approved botulinum type A for treatment of severe

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WORLD JOURNAL OF ADVANCED SCIENTIFIC RESEARCH

Management of Pyogenic Granuloma "Fibre and Sabre" Approach A Case series

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Abstract:

Pyogenic Granuloma is nonspecific conditioned gingival enlargement which commonly involves gingiva. Although the etiology is not clearly known, the most probable reason attributable to pyogenic granuloma is the response of tissues to minor trauma or irritation. Pyogenic granuloma can cause discomfort for some but in many cases it could impede with mastication and can out-turn esthetic problems especially when present in maxillary anterior region. This case series elucidates the disposition of pyogenic granuloma in maxillary anterior region which was managed with tetracycline fibres and followed by excision of the lesion.

Key Words: Pyogenic granuloma, Maxillary Anteriors, Tetracycline fibres, Excision

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Review Article

SMALL THINGS HAVE A BIG IMPACT: NEW TRENDS IN IMPLANT DENTISTRY

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Nanodentistry, nanotechnology, implant surface modifications, nanosensors, nanotubes.

ABSTRACT:

In the twenty first century, nanotechnology has already offered numerous possibilities in implant dentistry. One nano step for man has resulted in a giant leap in implant dentistry. The advent of nanotechnology had created an opportunity for the engineering of new dental implant materials. This technology has also been used to enhance osseointegration by surface modifications of dental implants. Nanometre-controlled surfaces have ultimately directed the nature of peril-implant tissues and improved the clinical success rate of implant therapy. The possibilities introduced by nanotechnology now permit the tailoring of implant chemistry and structure. Nanotechnology in dental implantology has emerged as a frontier research area of interest in this decade. Long thought to be commercially uninhabitable, the once-barren nanotechnology landscape suddenly looks fertile. With the support of some brightest minds in science and engineering, this emerging field of super small is now firmly on the shortlist of technologies poised to produce big things in implant dentistry. In this article, we have made an attempt to review the current trends and future prospects on the impact of nanotechnology in implant dentistry.

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الملخص العربي

الأشياء الصغيرة لها تأثير كبير: اتجاهات جديدة في زراعة الأسنان

انجل ماري جوزيف، سجى جوزيف، نيكولاس ماثيو، أشوين توماس كوشي

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في القرن الحادي والعشرين، عرضت تكنولوجيا النانو بالفعل العديد من الآفاق في زراعة الأسنان. لقد أدت خطوة واحدة لنانو قام بها رجل الى قفزة عملاقة في زراعة الأسنان. لقد خلق ظهور تكنولوجيا النانو فرصة لهندسة مواد زراعة الأسنان الجديدة. وقد استخدمت هذه التكنولوجيا أيضا لتعزيز الاندماج العظمي عن طريق التعديلات السطحية لزرعات الأسنان. الاسطح التي يتم معالجتها بالنانومتر توجه طبيعة الأنسجة المزروعة وتحسن معدل النجاح السريري لزراعة الاسنان. الإمكانيات التي أدخلتها تكنولوجيا النانو تسمح الأن بتكييف كيمياء زرعات الاسنان وتركيباتها. برزت تكنولوجيا النانو في زراعة الأسنان كمجال بحثي هام في هذا العقد. من المعتقد منذ فترة طويلة أن تكون غير صالحة تجارياً، منظر تكنولوجيا النانو الذي كان عقيمًا في السابق، يبدو فجأة خصباً. بدعم من بعض العقول النيرة في مجال العلوم والهندسة، فإن هذا المجال الصاعد والمتناهي في الصغر هو الآن بقوة على قائمة الاولويات للتقنيات التي تستعد لإنتاج أشياء كبيرة في مجال زراعة الأسنان. في هذه المقالة، قمنا بمحاولة لمراجعة الاتجاهات الحالية والآفاق المستقبلية على تأثير تكنولوجيا النانو في زراعة الأسنان.

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Evolution of Denture Base Materials from Past to New Era

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Abstract
Computer-aided technology is an emerging method for fabricating complete dentures. Consolidated information about historical background, current status, and scope for the future is lacking. The purpose of this literature review was to analyze the existing literature on denture base materials for fabricating complete dentures and provide the reader with a historical background, current status, and future perspectives on the emerging technology. The review of different denture base materials provides a clear picture about the various developments that have taken place in this field. The polymers, especially acrylic resins after entering this field for more than 70 years seem to be undergoing constant change and are the materials of choice
Key words: *- Acrylicresin, Methyl methacrylate, Flexible denture, Fiber-reinforced resin*

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I. Introduction

Dentistry as a speciality is believed to have begun about 3000 BC in Egypt. [1] As civilization progressed there has been continued refinement of both the quantity and quality of useful materials making it biologically simple to manipulate and technically controlled to develop a prosthesis that is functionally effective and pleasing in appearance. [2 - 4]The discovery of denture base materials has revolutionized the dental material sciences. [5]

History

Skillfully designed dentures were made as early as 700 BC and 'Talmud' a collection of books of Hebrews in 352-407 AD mentioned that teeth were made of gold, silver, andwood. The first dental prosthesis is believed to have been constructed in Egypt about 2500 BC.During medieval times dentures were seldom considered, when installed they were hand carved and tied in place with silk threads. Those wearing full denture had to remove them before eating. Upper and lower teeth fit poorly and were held together by steel springs

Materials before the 18th century

By the 8th century the Japanese carved wooden dentures from sweetsmelling species like cherry and natural teethwere fixed with the help of screws. George Washington, former American presidentalso had a set of dentures made from wood. Thedrawback was that they were hygiene challenging due to moisture. [6] Pierre Fauchard (1678-1761) fabricated dentures by measuring individual arches with a compass developed and used human teeth or teeth made from hippopotamus or elephant ivory in the denture. It had better dimensional stability than wood; however, esthetic and hygienic concerns remained. According to Guerini, Pfaff (1756), Frederick the Great's dentist, developed a more effective impression technique. [2] Tomes described a patented machine of his own invention which he claimed obviated the use of pigment. [7] Ivory denture bases and prosthetic teeth were relatively stable in the oral environment, offered esthetic and hygienic advantages compared to wood or bone. [1]

Materials used in the 18th century

It was Etienne Bourdet who made the first reference to the use of a gold base punctuated with small holes much like the sockets of teeth. [8] In 1794 AD, John Greenwood began to use gold bases for dentures. 18 to 20 carat gold was usually alloyed with silver and teeth were fitted to it. [1] Alexis Duchateau (1774) was the first to fabricate porcelain dentures. In 1788 AD, a French dentist, Nicholas Dubois de Chemant, made a baked-porcelaincomplete denture in a single block. The advantages were that it could be shaped easily, ensured intimate contact with the underlying tissues, was stable, had minimal water sorption, smooth surfaces after glazing, less porosity, low solubility and could be tinted but its drawbacks were brittleness and difficulty in grinding and polishing. [1]

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EMERGING TECHNOLOGY TRENDS IN PROSTHODONTICS

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ABSTRACT

Prosthodontics is a well-defined and broad dental specialty delivering a wide range of oral rehabilitative treatment requirements. It deals mainly through prosthetic replacement. With the rapid improvement in oral health and the reduction of edentulism, more number of people are retaining teeth in the later stages of their lives. Gradually, the main focus in prosthodontics has shifted from removable dentures to fixed prostheses, while implant-supported restorations have attracted intense interest in the dental community. Another factor increasingly influencing prosthodontic practice is patient's awareness of newer technologies in esthetic dentistry as well as the other aspects of prosthetic rehabilitation. This review attempts to provide a glimpse into the current techniques in the discipline of Prosthodontics.

Key words: emerging trends, prosthodontics, patient management

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Introduction

The goal of prosthodontic care has been defined as the improvement of oral function and the resolution of esthetic problems. The goal of prosthodontic care that we seek today is to enrich the quality of life of each patient by solving problems caused by disturbances of occlusion, chewing, swallowing, and appearance. To ensure these goals, the value of prosthodontics is to be enhanced by dispensing evidence-based clinical care, evolving creative prosthodontics, strategic planning etc. The future prospects of our discipline can be examined and understood only in the context of current trends and prospects.[1] The purpose of this review is to illustrate the enormous advancements that has taken place in various techniques in the field of prosthodontics in the last few years.

Technology and Prosthodontics

Modern technologies applied to the field of prosthodontics are:(1) CAD/CAM,(2) Clinical microscopy and magnification,(3) Robotics: (Patient care, laboratory),(4) Imaging:(a) Radiography-(i) In office volumetric radiography,(ii) Interactive computer softwares etc; (b) Clinical Dentistry - (i) Intraoral impressions, (ii) Cast duplication, (iii) Restoration fabrication, (iv) Custom dental implants, abutments, and restorations, (v) Guided implant surgery, (5) Occlusion: Analysis. Eg. Tekscan, Cardiax compact, (6) Electronic shade matching, (7) Lasers-soft and hard tissue, (8) Nano technology, (9) Genetics, (10) Information management systems, (11) Rapid proto typing, (12) Virtual articulators, (13) CBCT, (14) Swept-Source Optical Coherence

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CENTION N: A REVIEW

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Abstract

Cention N is a resin based esthetic direct restorative material manufactured by Ivoclar Vivadent (Schaan, Liechtenstein). It contains an alkaline glass filler which releases hydroxide, calcium and fluoride ions and hence it is named as "Alkasite". The hydroxide ions regulate p^H during acid attacks and thus prevent demineralization. The release of large number of fluoride and calcium ions form the basis of remineralization. It is being proposed for bulk placement without adhesive in retentive preparations and with adhesive in non-retentive preparations. It can be used as pediatric restorative material and class I,II and V restoration in permanent dentition.

Key words: Cention N, alkasite, restorative material

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Introduction

Dental amalgam, one of the most versatile restorative material has been efficaciously used by dental clinicians as a low cost strong direct restoration for the last two centuries compared to other relatively new materials.[1] However, with the ongoing concerns about environment and health implications of mercury, it is showing decline in its use globally.[2-5]

Dental amalgam represents the most common form of human exposure to mercury and along with its use in lab and medical devices comprises to 53% of total global mercury emission (WHO 2005).[6] Around 340 tons of mercury is used per year in dentistry, of which about 70-100 tons (20-30%) enters the solid waste stream (UNEP 2013).[7] In recent years, development and interest in esthetic dentistry has increased and there is a considerable demand for alternative filling materials.[8]

Cention N is a new resin based direct restorative material introduced by Ivoclar Vivadent; Schaan, Liechtenstein in 2016. It is tooth-colored esthetics material with high flexural strength. It belongs to the alkasite group, a sub group of composites like compomer or ormocer. This new category includes an alkaline filler, capable of releasing acid-neutralizing ions. It is named alkasite as it contains an alkaline filler in its composition. The word Cention came from the Latin word "*centum*" meaning hundred and "cention" means hundred ions.[9]

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OBSTRUCTIVE SLEEP APNOEA: THE ORTHODONTIST'S DOMINION

Binu Purushothaman[1], Sudhi Krishnan[2], Aishwarya Jayachandran K[2], Nevin Abraham[2]

Abstract

Obstructive sleep apnoea (OSA) is a major health problem that may sometimes go undiagnosed or untreated. Even though OSA affects an increasing number of individuals, the role of dental practitioners in recognition, screening and management has not developed accordingly. Most dental curricula do not provide adequate content for sleep apnoea. After diagnosis, the dental team, specifically Orthodontists can aid in the patient's treatment of OSA and play a crucial role in helping people who suffer from it. The aim of this literature review is to know the life style habits resulting OSA and to assess the role of orthodontists in its diagnosis and management.

Key words: obstructive sleep apnoea, orthodontist, oral appliances

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1. Introduction

Obstructive sleep apnoea (OSA) is the most commonly undiagnosed sleep disorder and is gaining more recognition in dentistry. It is defined as a condition characterised by repeated episodes of partial or complete obstruction of the respiratory passages during sleep. Body's response to obstructed breathing leads to arousal of brain, sympathetic activation, and oxygen desaturation in blood (Pretto JJ,2010).

Many patients may not recognise or appreciate the role of dentistry in OSA. Therefore, patients may fail to report their signs and symptoms associated with this disorder or knowledge of their diagnosis to their dental practitioner. However, dental practitioners have the opportunity to inquire about the possibility of OSA and to examine the entrance to the nasopharyngeal area in addition to routine investigation of oro-dental hard and soft tissues.

Precise estimates of OSA prevalence are hampered by the poor correlation between physiological and subjective markers, meaning that OSA can be undiagnosed in asymptomatic individuals (Stradling JR,2004). Nevertheless, epidemiological evidence indicates that it is a condition which affects around 4% of middle-aged men and 2% of middle-aged women (Young T,1993).

The prevalence of OSA, as defined by an apnoea-hypopnea index (AHI) ≥ 5 and without inclusion of a daytime sleepiness criterion, was reported as 24% for men and 9% for women under the age of 65 years; addition of a daytime sleepiness criterion reduced these estimates to 4% for men and 2% for women (American Academy of Sleep Medicine,2005).

Studies have shown that OSA is a predictive risk factor for a variety of cardiovascular diseases, such as stroke and hypertension (Eckert DJ,2008). However, coexisting risk factors in people with OSA, such as high body mass index (BMI) and being of middle age, could also contribute to cardiovascular disease (Stradling JR,2004).

OSA has become a major public health hazard due to the associated morbidity and mortality particularly in high income countries. Its high disease burden is related to both the health care costs attributable to OSA alone and to its contribution as an independent risk factor for cardiovascular, metabolic, and psychiatric disorders such as hypertension, stroke, diabetes, and depression which are global health priorities. The reported prevalence of OSA has increased over time, in part due to increasing rates of obesity and alcoholism. The aim of this review is to assess the effect of life style habits in the prevalence of OSA, how it affect the daily life and what dentist can do to relieve this issue.

2. Pathophysiology of obstructive sleep apnoea

The human upper airway is a unique multipurpose structure involved in performing functional tasks such as speech, swallowing of food/liquids, and the passage of air for breathing. The anatomy and neural control of the upper airway have evolved to enable these various functions. The airway, therefore, is com-posed of numerous muscles and soft tissue but lacks rigid or bony support. Most notably, it contains a collapsible portion that extends from the hard palate to the larynx(-Fig. 1). Although the ability of the upper airway to change shape and momentarily close is essential for speech and swallowing during wakefulness, this feature also provides the opportunity for collapse at inopportune times such as during sleep (Deegan PC,1995).

Primary defect in OSA is an anatomically small or collapsible pharyngeal airway. During wakefulness, neuromuscular compensatory systems function to increase the activity of the pharyngeal dilator muscles, thus preserving airway patency. However, this reflex driven augmented muscle activity is lost at sleep onset, and collapse of the pharyngeal airway occurs. The associated hypoxaemia and hypercapnia drive increasing respiratory effort, and ultimately arousal from sleep occurs, thus re-establishing airway patency and ventilation.

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UNIFIED ORTHODONTICS: A MULTIFACETED APPROACH TO DIAGNOSIS AND TREATMENT PLANNING

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Aishwarya Jayachandran[2], Sudhi Krishnan[2]

Abstract

Orthodontists treat patients with orofacial anomalies, including malocclusions, by applying mechanical forces to the crowns of teeth. Like any other tissues and organs in the human body, dental tissues and cells are controlled by the nervous, immune, vascular, and endocrine systems, as well as by factors such as psychological stress, nutrition, medications, and local and systemic diseases. Therefore, when specific pathologies are identified, an interaction with the appropriate healthcare provider who is treating the patient should occur, or a referral made to another specialist. The focus on this expanding scope is derived from the notion that biology plays a pivotal role in orthodontics, and that pertinent information regarding the health status of individual candidates for orthodontic treatment might have long-lasting effects on the course and outcomes of orthodontic treatment.

Key words: integrated orthodontics, multidisciplinary approach, personalised orthodontics, artificial intelligence

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1. Introduction

The image of Orthodontics as merely an exercise in wire bending, has been cultivated and nurtured by many members of the orthodontic specialty, because it simplifies their lives by highlighting the known fact that teeth move when subjected to mechanical forces (Kiyak HA,2008).This outlook is deeply embedded in the curricula of the majority of the Orthodontic educational/training programs around the world. Orthodontic residents are made to believe, at least subconsciously, that correcting a malocclusion in a human being is just as easy as moving metallic teeth through the warm, soft wax of a typodont. Moreover, this attitude has encouraged general dentists to engage in the practice of Orthodontics without obtaining proper education that would qualify them for this task.

Presently, Orthodontics is viewed by the general population as a field occupied mainly by concerns about facial aesthetics, and limited to the application of 'braces' to crooked teeth.

The goal of Orthodontics is to correct or minimize deviations from accepted normal characteristics of dental occlusion, orofacial function, and aesthetics.

We tend to focus on these deviations from normalcy as the main target of our specialty, while keeping other health-related issues far in the background, sometimes behind the horizon, as if a malocclusion exists in a vacuum, detached from the rest of the body. Maintenance of this outlook may, however, jeopardize the quality of orthodontic diagnosis, treatment plan, outcome, and long-term maintenance of the corrected malocclusion.

What is required for attainment of optimal results in orthodontics is broadening of its scope, to include other specialties, dental and medical, that may expose etiological factors, and biological processes that could determine the nature of the cellular/tissue response to mechanotherapy.

"We should not treat a malocclusion, but rather a person with a malocclusion"
-Cartwright FS, McCoy JD,1941

2. Information technology and Orthodontics

Over the past several decades, computer systems and information technology have pervaded all aspects of dentistry, successfully progressing towards a 'service provider–consumer' format.

2.1. Practice management systems

Traditionally PMS was limited to administrative tasks, and the electronic medical record (EMR) system was meant for maintaining patient medical records.

However, the current versions of PMS available for orthodontic use have integrated EMRs and track appointments, billing, clinical information, and aids in patient communication, helping orthodontists to manage everyday tasks more efficiently than ever. A PMS also tracks referrals with generation of new referral reports, while managing incoming referrals from other specialists. The different practise management software includes EdocsAPP, Practo, Librae etc.

2.2. Computer aided diagnosis and treatment planning

2.2.a. Cephalometric software

Softwares such as Nemoceph, Dolphin are digital cephalometric softwares which help an orthodontist in diagnosis.

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WILCKODONTICS: A BARCODE TO ACCELERATE TOOTH MOVEMENT

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Abstract

Increased societal demands have led patients to request shorter orthodontic treatments, yet their expectations for outstanding final results remain high. Accelerating orthodontic tooth movement can significantly reduce treatment duration and risks of side effects. Corticotomy surgery provides for a periodontal ligament-mediated acceleration in tooth movement as a result of a stimulated regional acceleratory phenomenon in conjunction with the proper morphologic situation of a thin layer of bone in the direction of movement. The periodontally accelerated osteogenic orthodontics procedure is gaining in popularity with patients and doctors because of the much shorter treatment times and the increased range of treatment capabilities and possibilities. Many misunderstandings and misconceptions about this procedure are being dispelled as knowledge of the technique and results are becoming better known. Over time, it has been transformed into a successful treatment option for many orthodontic problems when used properly, including complicated cases that require a multidisciplinary approach between dental specialties

Key words: wilckodontics, periodontally accelerated osteogenic orthodontics (PAOO), orthodontic tooth movement.

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1. Introduction

'Wilckodontics', also known as Periodontally Accelerated Osteogenic Orthodontics (PAOO) or Alveolar Osteogenic Orthodontics, is a relatively new treatment in the dental realm. It is a clinical procedure that combines selective alveolar corticotomy, particulate bone grafting and the application of orthodontic forces. Basically it is a combination of selective decortication facilitated orthodontic technique and alveolar augmentation. Dr. William Wilcko and Dr. Thomas Wilcko developed the phrase Accelerated Osteogenic Orthodontics(AOO) and more recently as Periodontally Accelerated Osteogenic Orthodontics (PAOO) based on Frost's (1983) bone healing pattern known as Regional Acceleratory Phenomenon(RAP).This technique allows teeth to be moved 2-3 times further in 1/3rd to 1/4th the time required for traditional orthodontic treatment(Wilcko WM,2001). This procedure is theoretically based on the bone healing pattern known as the regional acceleratory phenomenon (RAP).

Orthodontic tooth movement is a biological process characterized by PDL and alveolar bone remodeling in response to an orthodontic force which will promote extensive cellular and molecular changes in the periodontium. Orthodontic treatment time ranges between 21-27 and 25-35 months for nonextraction and extraction therapies, respectively(Skidmore KJ,2006; Frost HM,1983).The best way to shorten treatment time is to speed up tooth movement, it has been accelerated by local injection of biomodulators, application of laser therapy, mechanical vibration and gene therapy, as well as by corticotomies. Some of these approaches cannot yet be applied clinically; but others, such as corticotomy, laser therapy and vibration are somewhat already part of the therapeutic arsenal.

Alveolar decortications, or "corticotomies", have become a popular means of increasing the rate of tooth movements. With corticotomies, the cortical layer is cut or perforated to the depth of the medullary bone; corticotomies do not create a mobile segment. A corticotomy is defined as a surgical procedure whereby only the cortical bone is cut, perforated, or mechanically altered. The medullary bone is not changed. This is in contrast to an osteotomy, which is defined as a surgical cut through both the cortical and medullary bone. This term is frequently used when describing the creation of bone segments. The surgical preparation of the alveolus permits rapid tooth movement, suggesting that it is the continuity and thickness of the denser layer of cortical bone that offered the most resistance to tooth movement(Skidmore KJ,2006).

2.Historical Review

Corticotomy has roots in orthopedics going back to the early 1900s.Surgical intervention to affect the alveolar housing and tooth movement has been described in various forms for over a hundred years.

In 1892, it was first defined as a linear cutting technique in the cortical plates surrounding the teeth to produce mobilization of the teeth for immediate movement. Heinrich Köle's publication in 1959 was the first to describe modern-day corticotomy-facilitated orthodontics.

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LIP REPOSITIONING: A BOON IN SMILE ESTHETICS

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Abstract

Smile is a harmonious proportion of the teeth, gums and lips. Gingival exposure during smile in normal conditions is about 2-3 mm. Any gingival exposure more than 3 mm is considered as Excessive Gingival Display or EGD. Excessive gingival display, commonly known as the 'gummy smile' can be a source of embarrassment for some patients. Lip repositioning is a simple surgical procedure to treat 'gummy smile'. It is safe and predictable with minimal risk or side effects also with good patient satisfaction. This article aims at reviewing the etiologies, treatment modalities and the outcome of excessive gingival display by lip repositioning procedure.

Key words: excessive gingival display, lip repositioning, smile

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1. Introduction

Smile is an important gestural method of communication (Dayakar MM, 2014; Gaddale R, 2014). An attractive or pleasing smile involves the harmonious interaction of three primary components: the lip position, teeth, and associated gingival architecture. Lip position defines the type of smile(Tjan AH, 1984). Gingival exposure during smile of 2-3mm is considered to be normal. An excessive of gingival to lip distance of 4mm is classified as unattractive by lay people and general dentist(Simon Z, 2007). The objective of this article is to introduce review about the etiologies and treatment modalities of Excessive Gingival Display (EGD) for which the surgical technique of "lip repositioning" can be carried out to reduce gingival display.

2. Etiologies

Excessive gingival display (EGD) has four possible etiologies.

1. It may be a result of delayed eruption in which gingiva fail to complete the apical migration over the maxillary teeth to a position that is 1mm coronal to the cement-enamel junction.
2. Compensatory eruption of the maxillary teeth with concomitant coronal migration of the attachment apparatus, which includes the gingival margins.
3. Vertical maxillary excess in which there is an enlarged vertical dimension of the mid face and "incompetent" lips.
4. Patients with short upper lip, measured from sub nasal to inferior border of upper lip. The average length of maxillary lip is 20-22 mm in young adult females and 22-24 mm in young adult males(Peck S, 1992).
5. Hypermobile upper lip which lead to exposure of the dentition and undesired gingiva during smile.
6. Other causes include short clinical crown length, plaque or drug-induced gingival enlargement or a combination of multiple causes(Assenza B, 2011).

3. Management of EGD

Variety of methods have been proposed for management of gummy smile.

- Orthognathic surgery is the treatment of choice to restore normal occlusal relationships and to reduce the gingival display in case of anterior dentoalveolar extrusion and vertical maxillary excess, but this involves hospitalization of the patients(Silberberg N, 2009).
- Orthodontic leveling of the gingival margins of the maxillary teeth may be considered in case of compensatory eruption due to attrition(Kokich VO Jr, 1999).

Periodontal surgery in case of plaque or drug-induced gingival enlargement, altered or delayed passive eruption and short clinical crown length to restore the normal dento gingival relationships. The procedure involves moving the gingival margins apically through soft and possibly hard tissue resection(Lee EA, 1999).

- Restoring the normal dentogingival relationships can be achieved with an esthetic crown lengthening, which is a well-documented treatment modality that is highly effective in treating patients with delayed eruption(Lee EA, 1999).
- In case of hyperactive upper lip, surgical and non-surgical procedures have been suggested to manage EGD. Nonsurgical procedures include the use of botulinum toxin A (Botox), which causes muscle paralysis by inhibiting acetylcholine release at the neuromuscular junction. This results in the inhibition of the exocytosis of acetylcholine, causing a neuromuscular blocking effect. The use of therapeutic doses allows partial paralysis of the muscles. The limitation of this technique is that it is not permanent and needs frequent application every several months(Polo M, 2005).
- Surgical procedures include lip elongation associated with rhinoplasty, detachment of lip muscles, myotomy(Ishida LH, 2010) and lip repositioning.

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ALTERED PASSIVE ERUPTION AND TREATMENT STRATEGY

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Abstract

Passive eruption phase is characterized by apical migration of the soft tissue covering the crown of the tooth. Altered or retarded passive eruption is a situation in which the gingival margin in the adult is located incisal to the cervical convexity of the crown and removed from the cemento–enamel junction of the tooth. The aim of this article is to present a narrative review of the etiology, classification and management of altered passive eruption.

Key words: excessive gingival display, altered passive eruption, treatment

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1. Introduction

Gingival excess has been recognized by the American Academy of Periodontology as a mucogingival deformity around teeth (Armitage GC, 1999). Several conditions may result in the excessive display of gingiva, including pseudopockets caused by gingivitis, drug-induced gingival enlargement and altered passive eruption of teeth which may lead patients to seek treatment to address esthetic and/or functional concerns. The aim of this article is to present a narrative review of the etiology, classification and management of altered passive eruption.

Tooth eruption comprises two phases: an active eruption phase in which the tooth emerges into the oral cavity; and a passive eruption phase that is characterized by apical migration of the soft tissue covering the crown of the tooth (Fig 1).

2. Passive eruption

Passive eruption, a term coined by Gottlieb & Orban in 1933 , is a gradual process by which the epithelial attachment of the gingival tissues migrates apically from the coronal enamel to a stable position just coronal to the cemento–enamel junction with a fibrous connective tissue attachment forming at the base of the gingival sulcus(Gargiulo AW,1961). This phase can be subdivided into four phases depending on the location of the dentogingival junction relative to the cemento–enamel junction. The dentogingival junction may be located on enamel alone, on enamel and cementum or on cementum alone, or both the dentogingival junction and the gingival margin may be apical to the cemento–enamel junction.

The first phase of passive eruption is considered to be physiological, while the remaining three phases are a consequence of pathological periodontal destruction. If passive eruption does not progress, the gingival margin retains a more coronal position covering more tooth enamel.

3. Altered passive eruption

Goldman & Cohen defined altered or retarded passive eruption as a situation in which 'the gingival margin in the adult is located incisal to the cervical convexity of the crown and removed from the cemento–enamel junction of the tooth'. In the literature, this condition is also referred to as 'delayed passive eruption'(Volchansky A,1974) and results from failure of the passive eruption phase to conclude.

Coslet et al. in 1977 classified altered passive eruption into two types based on the location of the mucogingival junction(MGJ) in relation to the alveolar bone crest, and further classified these into two subgroups based on the position of the alveolar bone crest in relation to the cemento–enamel junction(CEJ). The different types and subgroups of altered passive eruption are shown in Fig 2.

Type 1 altered passive eruption is defined by the gingival margin being incisal or occlusal to the CEJ where there is a noticeably wider band of attached gingiva from the gingival margin to the MGJ than the generally accepted mean width of 3.0–4.2 mm in the maxilla and 2.5–2.6 mm in the mandible. The MGJ is usually apical to the alveolar crest in these cases.

Type 2 altered passive eruption is defined by the presence of a band of attached gingiva from the gingival margin to the MGJ which appears to fall within the normal mean width as specified above. However, in this type of altered passive eruption, all the attached gingiva is located on the anatomic crown with the MGJ located at the level of the CEJ.

In altered passive eruption subgroup A, the alveolar crest is the normal distance (1–2 mm apical) from the CEJ, thus allowing the gingival fiber apparatus to be inserted as normal onto cementum.

In altered passive eruption subgroup B, the alveolar crest is at the level of or coronal to the CEJ, thereby impinging on the space for connective tissue fiber attachment. This relationship is frequently observed during the active eruption phase of the transitional dentition.

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A typical odontome causing an atypical impaction – A case report

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Abstract

Odontome is a developmental anomaly where dental tissues are disorganized and laid down in an abnormal pattern. Though several theories have been put forward, the etiology is still unknown. Occasionally an odontome may be associated with an impacted tooth interfering with the latter's eruption into the oral cavity. This is a case report in which a complex odontome lying superior to an impacted third molar not only prevents it from erupting but also pushes it inferiorly towards the lower border of the mandible resulting in a visible bulge affecting patient's esthetics. To make things worse, the close proximity of the inferior alveolar nerve along with a dilaceration of the impacted third molar made treatment planning a difficult task.

Key words: Complex odontome, impacted third molar, inferior alveolar nerve

Clinical presentation: A 17 year old female patient reported to the Oral medicine and radiology OPD with the complaint of swelling in the right lower jaw region. The patient noticed the swelling appear spontaneously in 2 weeks. It remained the same size and she experienced difficulty in opening her mouth, also complained of numbness of the lower lip and lower teeth on the right side since then. She did not have any other difficulties or symptoms. She was apparently normal with no relevant medical, dental or personal history.

On extra-oral examination, there was a well-defined, solitary, round swelling of size approximately 2 cm x 2 cm on the inferior border of the angle of the mandible with normal overlying mucosa and surrounding skin (Figure 1). The swelling was non-tender, stony hard, smooth surfaced, fixed to underlying structures, non-fluctuant, non-reducible, non-compressible, and non-pulsatile. Intraorally, there was obliteration of the mucobuccal fold in

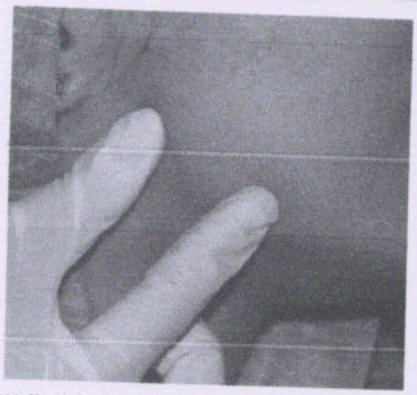


Figure 1: Well defined, solitary, round swelling in the inferior border of angle of mandible

relation to the right mandibular posterior region with expansion of the buccolingual cortical plates more to the buccal side (Figure 2).

A provisional diagnosis of buccally erupting third molar was given and patient was advised an orthopantomogram (OPG). OPG revealed an ill-defined radiopaque mass of size approximately 1.5

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ORIGINAL ARTICLE

Surgical Correction of TMJ Bilateral Dislocation with Eminectomy and Capsulorrhaphy as an Adjuvant: Case Reports

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Abstract

Introduction Anterior excessive movement of the temporomandibular joint (TMJ) is a condition which reduces the quality of life of a person to great extent with the patient always living in the fear of inherent dislocation. Dislocation of the temporomandibular joint represents 3% of all reported joint dislocations.

Case report In this article, we discuss about two cases where the patients with chronic TMJ dislocation were treated with eminectomy and capsulorrhaphy. Both the patients were reviewed over a period of 1 year and did not show any recurrence of the condition with satisfactory controlled increase in mouth opening.

Conclusion The combination has proved to be useful for the better neuromuscular control and psychological aspect, i.e., the fear of dislocation. Future of the technique combination lies in further prospective studies.

Keywords TMJ dislocation · Chronic recurrent dislocation · Eminectomy · Capsulorrhaphy

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Introduction

Individuals having excessive anterior movement of the mandibular condyle, passing the articular eminence during maximal opening, causes them discomfort. The terms "subluxation" and "dislocation" were used to describe the phenomenon. In cases where repeated dislocations occur, the term "chronic," "chronic recurrent" or "habitual" could be used. [1, 2] A dislocation of the temporomandibular joint represents 3% of all reported joint dislocations [3].

Temporomandibular joint dislocation is defined as excessive forward movement of the condyle beyond the articular eminence with complete separation of the articular surfaces and fixation in that position [4, 5]. It is commonly associated with poor development of articular fossa, laxity of temporomandibular ligaments or joint capsule, excessive activity of the lateral pterygoid and infrahyoid muscles due to drug usage or disease [4–6] and to a lesser extent trauma [3]. Precipitating factors are yawning, vomiting, laughing and dental and otolaryngological treatments [1]. Various therapeutic approaches designed to limit the forward excursion in the literature had been applied. This paper reports 2 cases of chronic recurrent dislocation treated using both restricting and relieving procedure, i.e., eminectomy with capsulorrhaphy simultaneously.

Case Report

Both the cases were female patients of age 23–25 years who had attended the emergency department, unable to close their mouth after yawning. Both the patients gave a

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ORIGINAL RESEARCH PAPER

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EVALUATION OF ANTIBACTERIAL EFFICACY OF 0.1%OCTENIDINE HYDROCHLORIDE AND 2% CHLORHEXIDINE GLUCONATE AGAINST *ENTEROCOCCUS FAECALIS* - AN IN VITRO STUDY

Dental Science

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ABSTRACT

Aim: To evaluate and compare the antibacterial efficacy of 2% chlorhexidine and 0.1% Octenidine hydrochloride as root canal irrigants against *E.faecalis*. **Method:** The irrigants tested were concentrations of 0.1% Octendine hydrochloride (OCT) and 2% Chlorhexidine (CHX) with reference bacterial strains of *Enterococcus faecalis* (ATCC: 29212). The antimicrobial activity was determined using agar well diffusion test. *E.faecalis* cultures inoculated onto blood agar. Blood agar plates with three wells having the diameter of 6 mm and depth 4mm were prepared and about 20 µl of 2% CHX and 0.1% OCT was added to corresponding wells followed by plates were inclubated at 37°C for 48hours. Zones of inhibition were measured and recorded were tabulated and analysed statistically with Independent t test. **Results:** Both irrigating solutions were effective against *E.faecalis* and showed high zones of inhibition. Mean values of 2% CHX and 0.1% OCT groups was 2% CHX (16.26mm) and 0.1% OCT (13.95mm) respectively. The difference between the mean values of zones of inhibition (ZOI) were statistically highly significant ($p<0.001$).

KEYWORDS

Chlorhexidine, Irrigation, *E.faecalis*, Octendine hydrochloride

INTRODUCTION

Enterococcus faecalis has been associated with failure in root canals treatments and prevalent ranging from 24% to 77% in deep recess of accessory canals[1]. It can survive harsh environments like extreme alkaline pH (9.6) and suppresses the action of lymphocytes, potentially contributing to endodontic failure[2]. It is very small to invade and live within dentinal tubules and endure prolonged periods of starvation[3].

Chlorhexidine gluconate (CHX) 2% is a widely used antimicrobial root canal irrigant with advantage of substantivity, has emerged as a potential irrigant and inter- appointment medication to be used during the endodontic treatment of teeth[4] but the common side effects of chlorhexidine include discoloration of teeth, increases of tarter formation on the teeth, altered taste problems which may be unacceptable to the children[5].

Hence alternative agents have been looked upon by researchers to overcome the above disadvantages Octenidine dihydrochloride (OCT) is one such product, it has antimicrobial and lower cytotoxicity[7] and prolonged bacterial and anti adhesive activity[8].

Octenidine hydrochloride (OCT) has been shown to be specifically effective against endodontic pathogens and is capable of disinfection of dentin tubules; it has limited pulp dissolution ability[9]. OCT is a recently investigated solution and few studies have recommended it to be used as an alternative irrigant against *E. faecalis* infection[10]. There is paucity of studies on OCT against *E.faecalis*, this study has been undertaken.

AIM: To evaluate and compare the antibacterial efficacy of chlorhexidine and OCT as root canal irrigants against *Enterococcus faecalis*.

OBJECTIVES:

1. To assess the antibacterial efficacy of 2% CHX by measuring the zones of inhibition.
2. To assess the antibacterial efficacy of 0.1% OCT against *E.faecalis* by measuring the zones of inhibition.
3. To compare the antibacterial efficacy of 0.1% OCT with that of 2% CHX against *E.faecalis* by measuring the zones of inhibition.

SUBJECTS AND METHOD

This study was conducted at KMCT Dental College,Calicut, kerala in association with CMS college, kottayam , kerala.

The irrigants tested were concentration of 0.1% OCT (Tokyo Chemical Industry Co.Ltd. Japan) and 2% CHX (PREVEST DenPro). Reference bacterial strains of *E. faecalis* (ATCC: 29212) were obtained commercially from HI-MEDIA and its presence was confirmed through gram staining method.

The *E.faecalis* strain was sub-cultured into 3 test tubes overnight at 37°C in Nutrient broth. The test tubes containing the sterile broth were opened inside a laminar flow. Using a sterile inoculating loop, certain amount of bacterial growth from the primary culture was transferred onto the broth. The infected specimens were incubated at 37 C and microbial growth was checked by changes in turbidity at 24 hours. To adjust the turbidity of broth, 0.5 McFarland standard was used as a reference.

15g of agar was added to 1 liter of nutrient broth and autoclaved at 121°C for 15 min. 10ml of sheep blood was added to this to make it blood agar medium. For every 100ml of the medium, 5 plates with a depth of 5mm were poured under laminar flow. The poured plates were allowed to solidify and refrigerated. For every batch of prepared plates, one plate was kept for sterility check for 48 hrs in the incubator at 37°C.

The antimicrobial sensitivity was performed by agar well diffusion method. 5 µl of *E.faecalis* inoculum from nutrient broth was spread over the blood agar plate using L rod spreader which was used for assessing the anti-bacterial assay. Blood agar plates with two wells having the diameter of 5mm and depth 6mm were prepared with the help of a sterile cork borer. About 20 microliter of each irrigants ie, 2% CHX and 0.1% OCT were added to each of the well. Plates were inclubated at 37°C for 48hours. After 48hrs, microbial zones of inhibition were measured across the diameter in millimeters (mm) with a pair of Vernier Calipers in both the groups.All the values were tabulated and statically analysed.

STATISTICAL ANALYSIS

This study was performed with statistical and presentational system software SPSS 20.0 .A independent t test was conducted on mean

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Lipoma in Soft Palate: Report of a Rare Case

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ABSTRACT

Lipomas are benign soft tissue tumors composed of mature adipocytes, usually surrounded by a thin fibrous capsule. Lipomas are the most common soft tissue tumors in which around 20% of the cases occur in the head and neck region. Various literatures reveals that only 1% to 4% incidence for intraoral lipoma where the cheek is the commonest and palate being rarest. Hereby we are presenting a case report of lipoma in the soft palate, which is extremely rare.

KEYWORDS: Lipoma, Cheek, Floor of mouth, Soft palate

INTRODUCTION

The lipoma is an uncommon lesion of the oral cavity. The reported incidence of intraoral lipomas ranges from 1 percent to 4.4 percent of all benign oral soft-tissue tumors.[1] Lipomas are benign mesenchymal neoplasms composed of mature adipocytes, usually surrounded by a thin fibrous capsule.[2] Although differences concerning the intraoral prevalence of this tumor persist, a soft-palate location is rare.[1] Oral lipomas present as painless, well-circumscribed, slow-growing submucosal or superficial lesions, mainly located in the buccal mucosa.[3] Lipomas may be sessile or pedunculated clinically with soft, spongy, fluctuant, or sometimes firm consistency. The most reported locations in order of frequency were buccal mucosa, tongue, the floor of mouth, lip, palate, and gingiva.[4] Hatziotis' described a lipoma in the soft palate which was pale red.[5] Recurrence or regrowth following surgical treatment and malignant transformation are extremely rare[6]. Diagnosis and delimitation of intraoral lipomas can be also achieved through imaging. Magnetic resonance imaging of a salivary gland lipoma showed hyper-intensity in the T1-weighted image and iso-intensity in the T2-weighted image.[7] It is not possible to distinguish lipomas from normal adipose tissue micro-scopically, which is probably due to high lipo-protein lipase activity in neoplastic lipoma cells.[8] Based on their histopathologic features, lipomas can be classified as simple lipomas, fibrolipomas, angiolipomas, intra-muscular or infiltrating lipomas, pleomorphic lipomas, spindle-cell lipomas, salivary gland lipomas (sialolipomas), myxoid lipomas and atypical lipomas.[9-12] So, our incidence of lipoma in soft palate also justifies the inclusion of lipoma in the differential diagnosis of lesions of soft palate even though it is rare.

CASE REPORT

This is a case report of a 62-year-old male who presented with a complaint of swelling and discomfort while having food for one month (Fig 1). The patient noticed palatal

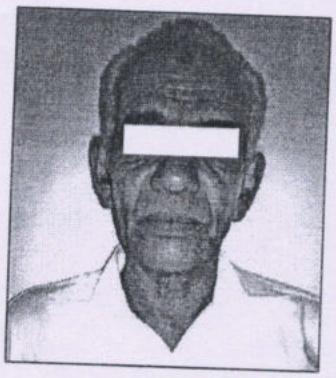


Fig 1

swelling one month back, and the swelling was not progressive in nature and no associated pain, pus discharge. On clinical examination, there was a diffuse solitary intraoral swelling of size 4 cm x 3.5cm on the right soft palate with normal overlying mucosa, with a mild displacement of uvula to left side. Right anterior and posterior tonsillar pillars were obliterated (Fig 2). It was

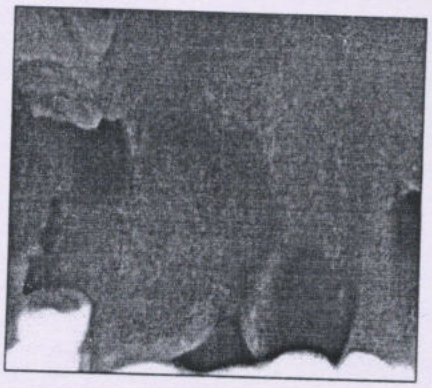


Fig 2

Non-compressible, nonreducible and non-pulsatile, soft to firm swelling with smooth surface and well-defined borders on palpation. Magnetic Resonance Imaging (MRI) was advised which revealed hyper- intense signal intensity on T1, T2 & hypo-intense signal on STIR sequences with thin septations within – Benign Lesion –

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ORIGINAL ARTICLE

WILEY

Topical fluoride use: Knowledge, attitudes and practices of undergraduate dental students of three Dental Colleges in South India

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Abstract

Objectives: For effective utilisation of topical fluorides in caries prevention, dental professionals should have adequate knowledge regarding its appropriate use. The decision regarding preventive treatments like topical fluorides is influenced by knowledge acquired during undergraduate training. The aim of this study was to assess the knowledge, attitudes and practices of undergraduate dental students in the use of topical fluorides.

Methodology: A descriptive cross-sectional questionnaire study was conducted from June to August 2015 following ethical clearance. Three willing Dental Colleges from 3 states of South India participated. Information regarding the knowledge, attitudes and practices of students in the use of topical fluorides was collected using a validated questionnaire.

Results: Nine hundred and seventy-two dental students (79.6% females, 20.4% males) participated. Freshers and preclinical batches had poor overall knowledge of fluorides, which did not show substantial improvement by internship. Self-applied topical fluoride use (fluoridated toothpaste) was seen in more than 90% of interns, and majority had "positive fluoride attitude." Having knowledge of topical fluorides and positive attitudes to topical fluorides did not result in "good oral self-care behaviour" nor appropriate clinical use of topical fluorides. Students who used topical fluorides for persons with history of caries had highest odds of brushing twice a day (OR = 2.7, 95% CI = 1.54, 4.12) and a "positive fluoride attitude" (OR = 1.2, 95% CI = 0.21, 1.57).

Conclusion: Dental students showed deficiencies in their knowledge and understanding of topical fluorides. Dental education in India needs emphasis on topical fluorides across all years, with a special focus on caries risk-based topical fluoride use.

KEYWORDS
attitudes, caries risk, dental education, knowledge, topical fluorides

1 | INTRODUCTION

Dental caries has shown a remarkable decrease since the 1960s in the Western countries.[1] However, it is still a major public health problem amongst the underprivileged communities in both developed and developing countries.[2] Changing dietary habits and inadequate exposure to fluorides have been cited as reasons for the increasing prevalence of dental caries.[3] WHO promotes the effective use of fluorides for the prevention of dental caries and has emphasised the responsibility of national health authorities of each country to ensure exposure to fluorides through feasible fluoride programmes.[2-4]

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TMD GUIDELINES FOR CLINICAL PRACTICE

Tim Peter Thermadam

Abstract

Temporomandibular disorders (TMDs) affect around 33 % of individuals within their life time. Temporomandibular joint itself is a complex entity comprising of muscles, ligaments, vasculature, nerve supply and bone. An alteration in any of the constituent structures or any of the functional distress or damage can be result in TMDs. Management of TMDs can be perplexing and complex due to the multifactorial etiology and dynamic complexity. TMDs are routinely managed by medical and dental practitioners. It is extremely important to diagnose precisely and identify the underlying cause for the disorders in the management of TMDs. Physical therapists may be needed in certain case scenarios for an effective management of TMDs. A clear picture regarding the diagnosis and management of TMDs is essential in determining the prognosis.

Key words: Dentistry, temporomandibular disorders, temporomandibular joint, management

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1. Introduction

Temporomandibular disorders (TMDs) are musculoskeletal disorders within the masticatory system. It is commonly found in middle and older age groups. It is also noticed that not many patients seek treatment for TMDs unless the symptoms are severe and affects the daily activities of an individual (Wright EF, 2005; American Academy of Orofacial Pain, 2008; Okeson JP, 2008).

TMDs are most of the time dealt with self-management instructions., which encourage the patients to rest their masticatory muscles by voluntarily limiting their use, i.e., by avoiding hard or chewy foods and restraining from over usage of masticatory muscles like oral habits, clenching teeth, holding tension in masticatory muscles, chewing gums, yawning etc.(Murphy E,2008).Self-management instructions encourage awareness and helps in the elimination of parafunctional habits. Pain is the common driving force for the patients for treatment of TMDs. However, patients less commonly seek treatment for clicking sounds, masticatory stiffness, and dislocation, limited mandibular range of movements or change in occlusal pattern.

2. Dentist Examination of TMDs

It is important to follow a systematic manner in examination of temporomandibular joint(TMJ).

Firstly a detailed history is to be elicited from the patient regarding the ailment. History of trauma to maxillofacial region, middle ear infection, meningitis, giant cell arteritis, forceps delivery has to be conversed with the patient(Murphy E,2008).

Following which, muscles of mastication is to be examined in detail. Dental practitioners must be aware of the type, onset, duration, aggravating and alleviating factors for pain in myositis of TMJ. If the pain is present only on jaw movements, myositis is to be suspected.

Primary muscles of mastication (Masseter, temporalis, medial and lateral pterygoids) are palpated. Following which TMJ has to be structurally (at rest) evaluated for inspection and palpation (intraauricular and extraauricular).

TMJ is subjected to functional evaluation subsequently for mandibular range of motions in all three planes. The recommended normal minimal mouth opening is 40 mm, 7 mm laterotrusive movements and 6 mm protrusive and retrusive movements(Dawson PE,2007). Mouth opening and closing is assessed for deviation and deflection to either sides on inspection.

If the patient has restricted mouth opening, practitioner may be able to determine its origin by stretching the mouth wider. It is usually performed by placing the index finger over the incisal edges of the mandibular incisors and thumb over the incisal edges of maxillary incisors and pressing the teeth apart by moving the fingers in a scissor type motion. Patient will usually feel tightness or pain at the location of the restriction and the patient is asked to point to this location. The location is confirmed by the practitioner on palpation.

In thorough physical exam, the practitioner will also intensify or reproduce the patient's masticatory pain and then rule out structures outside the masticatory region as sources of the pain.

Thyroid, carotid arteries, suboccipital and postural musculatures need to be palpated to determine whether they cause or contribute to pain of TMJ(Friction JR,1988 ; Abdel-Fattah RA,2008). If they do, referral is indicated.

If patient's pain was not intensified or reproduced with palpatory examination, the practitioner may locate myofascial trigger points or reproduce patient's pain from different locations. The decision varies with practitioner's suspicions and clinical experience. Patient may present with referred pain on account of different foci of origin (Fig 1). While evaluating a patient for pain on TMJ region, local causes has to be evaluated first. Studies confirm that one third of TMD patients have pain that is referred from a cervical spine disorder (CSD). Another mode of investigation of pain is the elimination process in which local factors that lead to TMJ pain is investigated upon first. As a part of clinical examination, it is recommended that dental

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ORIGINAL ARTICLE

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Evaluation of Chemokines in the Gingival Crevicular Fluid of Children with Down Syndrome

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[6]Swapna P Nanga

ABSTRACT

Aim: The goal of the study was to detect the presence of macrophage inflammatory protein (MIP)-1α and MIP-1β and to estimate their levels in gingival crevicular fluid (GCF) of children with Down syndrome.

Materials and methods: MIP-1α and MIP-1β levels were estimated in GCF samples of 20 healthy and 20 Down syndrome individuals. Gingival status was assessed by measuring the gingival index (GI), plaque index (PI), clinical attachment level (CAL), and probing pocket depth (PPD).

The GCF samples were obtained from the subjects and MIP-1α and MIP-1β levels were quantified by enzyme-linked immunosorbent assay (ELISA).

Results: The mean MIP-1α concentrations in healthy and Down syndrome individuals were 209 and 1411 pg/μL respectively, and MIP-1α levels were 342 and 1404 pg/μL respectively.

The levels of MIP-1α and MIP-1β in the GCF of subjects with Down syndrome were significantly higher than in the healthy individual, and statistically significant differences were present among the two groups.

Conclusion: The GCF showed dynamic changes according to the severity of periodontal disease, and the levels of MIP-1α and MIP-1β had a strong relationship with clinical parameters. The MIP-1α and MIP-1β can therefore be considered as novel biomarkers in the biological mechanism underlying the pathogenesis of periodontal disease.

Keywords: Chemokines, Down syndrome, Gingival crevicular fluid, Inflammation, Macrophage inflammatory protein 1α, Macrophage inflammatory protein 1β.

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INTRODUCTION

Down syndrome occurs when there is an extra copy of chromosome 21 and is characterized by the underdevelopment of mid-facial region, malocclusions, such as mandibular protrusion, open bite, and posterior crossbite as a consequence,[1] and increased periodontal disease.

These individuals have more extensive gingival inflammation and earlier signs of alveolar bone loss, which is mainly localized around incisors in the lower front region.[2] The prevalence of periodontal disease in Down syndrome persons varies depending on where they reside, with a higher prevalence in subjects residing in institutions as compared with those residing at home.[3] Individuals with Down syndrome show colonization by various microorganisms that are in association with periodontal disease observed in early childhood.

The resulting altered composition of the subgingival plaque may lead to early initiation of periodontal disease.[4] Of the inflammatory mediators present in diseased periodontium, chemokines, a family of chemotactic cytokines, have been involved in periodontal disease pathogenesis.[5] Chemokines are critical mediators of cell migration and recruitment of their specific leukocytes to the sites of infection during immune surveillance, inflammation, and development.[6] Macrophage inflammatory protein 1α is a cysteine–cysteine (CC) chemokine that was first identified in a lipopolysaccharide (LPS)-treated monocytic cell line.

It attracts monocytes, T lymphocytes, natural killer cells, dendritic cells, and granulocytes at inflammatory sites. The MIP-1α expression is increased in a number of diseases that are characterized by inflammation-induced bone loss.[7] The MIP-1β, which is also a CC chemokine, is the bountiful expressed chemokine in periodontium.

The MIP-1β was initially characterized as a chemoattractant for activated CD4+ cells and has shown to selectively attract Th1 *vs* Th2 and effector cells. This observant selectivity for Th1 cells most likely results from the preferential expression of the MIP-1β receptor (CCR5) on Th1 cells, and suggests a potential role in directing the host responses along the pro-inflammatory pathway

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BDELLOVIBRIO BACTERIOVORUS: A NEW "BIOWEAPON" APPROACH IN PERIODONTAL TREATMENT STRATEGY

Sameera G Nath[1], Ranjith Raveendran[2]

Abstract

Predatory prokaryotes which belong to the genus Bdellovibrio bacteriovorus are Gram-negative bacteria that are well-known for their ability of feeding on other Gram-negative bacteria. B. bacteriovorus is effective in combating biofilms due to its ability to penetrate deep within the biofilms of the prey and terminate them effectively. Currently, the main field of research with B. bacteriovorus is its high potential as a biocontrol agent. Bdellovibrio may soon be considered as living antibiotics or "Biocontrol weapons" for various chronic infectious diseases including periodontitis.

Key words: Bdellovibrio bacteriovorus, BALO, Aggregatibater actinomycetem comitans, bioweapon, predator pathogen, periodontal therapy.

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1. Introduction

Periodontal disease is a multifactorial infection that results in destruction of periodontal structures which include tissues supporting the tooth, alveolar bone and periodontal ligament. The periodontopathogens are usually gram-negative bacteria like Aggregatibacter actinomycetemcomitans, Eikenella corrodens, Fusobacterium nucleatum, Prevotella intermedia, Porphyromonas gingivalis and Tannerella forsythia.

Generally, therapeutic strategies to treat periodontal diseases seek adjunctive use of various systemic and local drug delivery agents and also host modulatory agents along with the conventional non-surgical or surgical periodontal therapy. What if we use a pathogen which can act as a predator for another periodontal pathogen? This could be beneficial for the patient community. Predatory prokaryotes which belong to the genus Bdellovibrio bacteriovorus are Gram-negative bacteria that are well-known for their ability of feeding on other Gram-negative bacteria(Essche MV, 2010).

2. Bdellovibrio bacteriovorus

Bdellovibrios were discovered in 1962 by Stolp and Petzhold, while they were trying to isolate bacteriophage from soil samples (Stolp H, 1963). Stolp and Petzhold observed certain unique plaques in their samples that took several days to develop and continued to grow for over a week. This was in contrast to the growth of plaques caused by bacteriophages that would appear within hours. Under a light microscope it was revealed that these cells that were small, highly motile, and vibrio-shaped. These cells were Bdellovibrios.

B. bacteriovorus have been found in soil samples, rhizosphere of plant roots, rivers, oceans, sewage, feces of birds and mammals, in oyster shells and the gills of crabs. B. bacteriovorus are able to thrive in almost any habitat, and they require oxygen and some other Gram-negative bacteria present in its environment. Its optimal temperature is between 28-30°C, making B.bacteriovorus a mesophile. B. bacteriovorus has also been associated with biofilms.

So,Bdellovibrio-and-like organisms (BALOs) are small, highly motile Gram-negative obligate bacterial predators found in fresh and brackish water, water reservoirs, seawater, soil, sewage and biofilms. They are classified under the order of Bdellovibrionales and cluster in the delta-proteobacteria class. The predatory bacteria form a deep branch in the α-proteobacteria (Sockett RE,2009). Many of the host-independent predatory bacteria or BALOs are pleomorphic, vibrio-to spiral-shaped cells that usually measure across 0.3-0.4μm and 1-10μm width and length-wise respectively (Kadouri D, 2005).

Typically, host-independent (H-I) Bdellovibrios have been found to have a cytochrome a and c component that are sensitive towards both the oxytetracycline and vibriostatic pteridine. These components make most Bdellovibrios resistant or susceptible to a particular antibiotic. B. bacteriovorus are smaller than their prey, in contrast to protists. They are motile and uniflagellated with appendages situated on the non-flagellated pole that help the Bdellovibriobacteriovorus to bond to their prey tightly. These allow the enzymes that are secreted to burrow via their surface in between the outer membrane and the wall of peptidoglycan.

Bdellovibrio can be grown in the laboratory with nutrient broth that is diluted at 1:500 (also known as NB/500) and mixed with hot soft agar. Cultures are grown with E. coli at 30 °C for one week. Bdellovibrio may also be cultured using YPSC (yeast extract, peptone, sodium acetate, calcium chloride). Research has shown that B. bacteriovorus can significantly affect the E. Coli biofilm that is grown on stainless steel.

B. bacteriovorus has proved to be very effective in combating biofilms due to its ability to penetrate deep within the biofilms of the prey and terminate them effectively (Dashiff A,2011a,b). These characteristics make them different from other biological tools such as bacteriophages and protists.

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Prevalence of Periodontal Disease among Fishermen of Marad Unit- Kozhikode, Kerala

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ABSTRACT

Objectives: Periodontal disease, a chronic inflammatory low-grade infectious disease has various risk factors like smoking and tobacco chewing, stressed lifestyles, improper diet, poor oral hygiene, etc. Fishermen are one such group who faces all the above risk factors. So to analyze the disease condition and related risk indicators a prevalence study was conducted among the fishermen in the Marad region, Kozhikode district, Kerala, India. **Methodology:** A total of 100 fishermen were selected for the study through a house to house survey. Detailed information was given about the nature of the study along with written consent. Sociodemographic data were collected using self-prepared questionnaires. Oral examination was carried out using Williams periodontal probe. Gingival index, Simplified oral hygiene index, Clinical attachment loss were assessed. Data comparison was carried out using Chi-square test and independent t-test and a 'p' value of <0.05 was considered as statistically significant. **Results:** 66.3% of the study population suffered from either of the types of periodontal disease. It has been observed that as age advances the severity of periodontitis advances. A significant finding was that 60% of the population suffered from a mild form of periodontitis which was due to the lack of awareness. Even though the disease was seen in its mild form, tobacco chewing showed a hazardous effect causing 42.3% of the total population to suffer. Attrition was noted to be in the present in 52.8% of the diseased population. **Conclusion:** The periodontal health status of the fisherman population was poor mainly due to the lack of oral hygiene awareness excessive usage of tobacco and smoking. A dental education programme targeting proper awareness about the ill-effects due to the usage of tobacco, diet counseling, oral hygiene practices and proper interventional measures has to be executed.

KEYWORDS: Fisherman, periodontitis, stress, tobacco chewing, Marad unit, Kozhikode, Kerala

INTRODUCTION

Oral health, an important aspect in an individual's health is usually ignored.[1] Periodontal diseases and dental caries are two globally leading dental afflictions.[2] Periodontal diseases (periodontitis and gingivitis) are inflammatory conditions which result in the destruction of supporting tooth structures, and may eventually cause tooth loss.

Despite the great efforts adopted by various organizations, there is still a lack of awareness about oral health, especially among the underprivileged communities. Lack of oral health education and deprived of essential dental treatment are commonly seen in a vast majority of the population in our country especially in rural areas.[3] One of the major reasons for this is the lack of epidemiological data to identify areas needing oral health care.

Very few data are available about the oral health status of the general population of Kozhikode region as a whole; and no data in particular of the fishing community. Fishing is an occupation, associated with irregular diet, stress, alcoholism, tobacco consumption and pernicious habits. Fishermen have prolonged hours of continuous work, which are found to be correlated with high cigarette and alcohol consumption. Their diet lacks fruits and vegetables, and meals are eaten at very erratic intervals. Moreover, fishermen are prone to excess ultraviolet radiation due to constant exposure to sun.[4] Marine fishing in Kerala is almost entirely carried out by men, while women's role is confined largely to post-harvest or other shore-based activities.

Marad beach is basically a small fishing village near Kallayi in Kozhikode with very little development and no tourist facilities. People in Marad live in a shanty condition where economic activity is restricted to fishing related areas in spite of the proximity to Kozhikode city.

Hence this study was undertaken on male fishermen of Marad unit, Kozhikode to assess their periodontal health status and associated risk factors. It will also provide a baseline data for planning oral health programmes for fishermen of Kozhikode.

MATERIALS AND METHODS

The study was conducted in Marad unit of Kozhikode between December 2016 to February 2017. Ethical clearance was obtained from the Institutional Ethics Committee of KMCT Dental College, Kozhikode, Kerala.

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BIOPSY

A CLINICO-PATHOLOGICAL ALLIANCE

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Abstract

Biopsy is an important tool for the diagnosis of lesions ranging from simple periapical lesions to malignancies. This paper provides an update on the different biopsy techniques and the handling of specimen to create awareness among general dentists about factors which may influence histopathological diagnosis.

Key words: Biopsy, Fixative, Histopathology

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1. Introduction

Biopsy, the touchstone for definitive diagnosis of hard and soft tissue lesions, is the removal of tissue from the living organism for the purpose of microscopic examination and diagnosis (Kumaraswamy KL,2012). The technique establishes the histopathological characteristics of suspected lesion, their differentiation, extent or spread and an adequate treatment strategy(Mota-Ramirez A,2007).

The term "Biopsy introduced into medical terminology in 1879 by Ernest Besnier is a combination of two Greek words "bios" meaning "life" and "opsis" meaning "vision". Biopsy provides a representative sample for the pathologist to interpret, with minimal preoperative discomfort to the patient. Harvesting a suitable piece of tissue during biopsy procedure must be performed cautiously since any error may result in histopathologic misinterpretation and in turn affects the final diagnosis, treatment plan and the outcome(Kumaraswamy KL,2012).

The surgeon, assistant, and histotechnician plays a crucial role in accurate microscopic analysis of the tissue. Steps to achieve the best result includes correct implementation of the biopsy technique, proper fixation of the specimen, transport and submission to the laboratory. Transfer of adequate clinical, radiographic and surgical information to the pathologist by the clinician or surgeon is also essential to arrive at an accurate histopathological interpretation.

This article deals with indications for biopsy, various biopsy techniques, handling of specimens and relevant details to be communicated to the pathologist.

2. Indications for biopsy

a. Lesions with the characteristics of malignancy.
b. Lesion persisting for more than two weeks with no apparent etiologic basis.
c. Inflammatory lesions that does not respond to local treatment after 10-14 days.
d. Persistent hyperkeratotic changes.
e. Lesions that interfere with local function.
f. Swelling either visible or palpable beneath relatively normal mucosa.
g. Bony lesions that cannot be diagnosed radiographically and which are usually accompanied by pain, altered sensation or other symptoms.
h. Any abnormal tissue removed from the oral cavity.

3. Contraidications for biopsy

There is no absolute contraindication. Few relative contraindications includes
a. Medically compromised patients.
b. Lesions in very deep locations or in an area with difficult access.
c. Hemangioma, due to the risk of massive and persistent hemorrhage.

4. Types of biopsy

Biopsies are classified based on location of the lesion, the biopsy technique and instrument used for biopsy.

4.1. Based on location of lesion

a. Direct -for superficial lesions with easy access
b. Indirect- for deep lesions located under normal tissues

4.2.Based on the technique

a. Incisional - Part of the tissue representing the lesion is taken along with a part of the healthy tissue. Biopsies should be taken with an adequate depth (at least 3-4 mm in depth) to include the basement membrane and the underlying connective tissue. Specimen should include some healthy tissue, so that it can be used as a criteria for comparison with the lesion. If the lesion is extensive, multiple biopsies should be taken.
b. Excisional - lesion is completely removed along with a margin of surrounding normal tissue and deep healthy tissue(Keszler A,1988). This technique is used for small lesions (with a diameter of less than 1 cm).

4.3. Based on instrument used

a. Punch biopsy - uses a sharp cylindrical, sterile blade of different diameter usually 1 to 8 mm(Lynch DP,1990).
b. Knife biopsy - uses a scalpel and blade to make an incision in the mucosa.

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Lag screw osteosynthesis in the management of oblique mandibular fractures- Analysis of outcome in ten patients

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Abstract: *The management of facial trauma, though frequent, is a demanding aspect of work, a maxillofacial surgeon encounters in his practice. Mandible being the prominent and mobile bone of orofacial skeleton, fractures is common in occurrence. Rigid internal fixation in facial bone fractures is aimed to obtain absolute stability and immobilization. The aim of this study is to analyze the clinical outcome in ten patients who underwent open reduction and rigid internal fixation with lag screw osteosynthesis technique for mandibular fractures.*

Key words: *fracture, mandible, lag screw technique, osteosynthesis*

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I. Introduction

Fracture of the mandible occurs more frequently than any of the other bones of facial skeleton.Objectives of mandibular fracture management include the restoration of a functional occlusion, anatomic form and facial aesthesis. Rigid internal fixation resists the forces of muscles of mastication; achieve an excellent reduction of the fracture and primary bone healing. It is associated with a lower rate of infection, non union and mal union when compared with the standard therapy of open or closed reduction combined with maxillo mandibular fixation.

The basic concept of lag screw osteosynthesis is to produce interfragmentary compression which stabilizes the fractured segments.[1] This is achieved by engaging a cortical screw which has threads along its entire length.The term lag screw is probably the most misunderstood of all terms involved with rigid internal fixation as it is used both to describe a type of screw as well as a technique of screw placement.

Lag screw osteosynthesis is a form of compression osteosynthesis in which the bone segments are bound to one another as a result of traction from the screw.[2] A true lag screw has threads only on its terminal end. When used, the threads engage the far cortex, while the head seats against the near cortex,providing compression up on tightening. Lag screw technique is achieved with a cortical screw which has threads along its entire length by overenlarging the hole in the near cortex. This procedure is more commonly used in maxillofacial surgery than the true lag screw[3]. This study is intended to assess the efficacy of lag screw technique in the management of oblique fractures of mandible.

II. Materials and methods

This study was carried out on patients of Department of Oral and Maxillofacial Surgery KMCT Dental College and Hospital, Kozhikode, Kerala. Ten male patients who sustained oblique fractures of mandibular symphysis and body were included in this study.A detailed clinical and radiographic examination was carried out to rule out head injury and injury to vital organs. The occlusion of teeth, type and location of fractures were assessed by radiographs.

After establishing the diagnosis, the treatment plan was explained to the patient and an informed consent was obtained. All of the patients received pre-operative parenteral antibiotics. Fractures of symphysis were accessed intra orally, while those of body of mandible were accessed through extra oral approach. Patient data is summarized in Table 1.

Once the fracture site was exposed and debrided thoroughly, a modified towel clip with its tips bent outward was used to assist in firmly reducing the segments before lag screw placement (Figure 1,2-D). To provide a purchase for the towel clip, small drill holes were placed approximately 10 mm away from each side of the fractured segment. A bur hole was made using a 2.7mm drill bit in the outer cortex of the fractured segment, along the line which bisects the angle perpendicular to the fracture line and bone surface. Then a 2mm drill bit was used to drill the distal fragment through the previous bur hole. With a 2.7mm tap ,the thread hole was cut in to the distal fragment. For lodging the spherical screw head, a corresponding bed was created

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ORIGINAL RESEARCH PAPER

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INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

KAP STUDY ON PRESURGICAL MANAGEMENT OF CLEFT LIP AND PALATE INFANTS AMONG PRACTIONERS AND POSTGRADUATES OF PEDIATRIC DENTISTRY IN KERALA.

Dental Science

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ABSTRACT

Presurgical infant Orthopedics reduces the width of cleft gap to achieve an optimal alignment of the cleft segments and to allow surgical repair with minimal tension. Pedodontists should have the knowledge and practice of handling these patients in their daily practice. Hence this study was undertaken to investigate the perception of Pedodontists and post graduates of Pediatric Dentistry in Kerala regarding the pre surgical management of Cleft lip and palate infants.

A total of 134 Pedodontists and post graduates were interviewed through an online survey. Significant association was found between experience of the dentist and the frequency with which they reported seeing infants with CL/CP and the type of treatment rendered.

There is less exposure among Pedodontists and postgraduates regarding the presurgical orthopaedic techniques which needs to be reinforced through meaningful continuing dental education and training programs.

KEYWORDS

Cleft lip and palate, Presurgical orthopaedics, Pedodontists, Kerala.

INTRODUCTION

Cleft means 'split' or 'separation'. It is a birth defect that occurs when tissues of the lip and /or palate of the foetus do not fuse very early in gestation period. This is the most common congenital malformations of the head and neck and second most common congenital malformation of the entire body, second to clubfoot. The incidence of clefts in the Indian population is not precisely known; it is estimated that between 28,000 and 35,000 children are born with clefts in India each year, or about 1 out of every 500 to 800 live births.[1,2] Only half of the cleft cases in India were treated by a trained surgeon. This results in a backlog of about one million untreated clefts in India.[3]

During the last forty years, Pre surgical infant procedures became integrated into the comprehensive care protocol for patients with clefts in many teams around the world. The treatment of Cleft lip and palate patients presents challenges for the Pedodontists which act as a barrier to the provision of high quality care. Identification of such barriers can be the first step in addressing the deficiencies. Till now no survey has been undertaken to assess the Knowledge attitude and practice of Pedodontists regarding the presurgical orthopaedic techniques for the management of infants with Cleft lip and palate in India.

AIM OF THE STUDY

Aim of this study is to investigate the perception of Pedodontists and post graduates of Pediatric Dentistry in Kerala regarding the pre surgical management of Cleft lip and Palate infants.

MATERIALS AND METHODS

The Study was approved by the Institutional Ethical Committee. Questionnaire was designed and developed consisting of 21 questions. Content validity was assessed by a panel of 5 experts. Aiken's V was used to quantify the concordance between experts for each item.

A total of 134 Pedodontists and post graduates were interviewed through an online survey. Pedodontists who are teaching and practicing in Kerala and post graduates of Pediatric dentistry from various institutes in this state were included in this study.

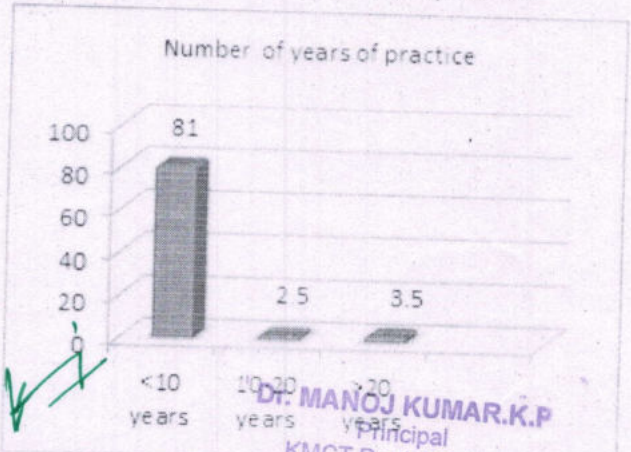
All the data was entered and statistical analysis was performed using the SPSS program version 20.Predictor variable included number of cases attended, choice of impression materials and techniques used and experience with Presurgical orthopedic techniques. Output variable was the number of years of practice. Association between the output variable and the predictor variable was assessed using chi square test. For all statistical tests, a confidence interval of 95% and significance level of 5% ($P < 0.05$) was adopted.

RESULTS

The response rate of survey was 60.44% (Of the 134 questionnaires sent, 81 responded).81% of the respondents had less than 10 years of clinical experience, while 6.6% of Pedodontists had more than 20 years of experience.

Only 30.9% of the study population have attempted Presurgical Orthopaedic Appliance Therapy in CLCP patients. 43.3% concluded that upright position is best impression technique and 53.4% stated elastomeric impression material is the ideal material for impression. 87.2% responded that their postgraduate curriculum included CLCP management. 54.4% of the Pedodontists were updated in Pre Surgical Orthopedics.73.8% have treated only less than 5 cases in their clinical practice.72.3% of the Pedodontists achieved favourable outcome with their Presurgical orthopaedic appliance therapy.

Most commonly practiced technique in Presugical orthopaedics is Naso alveolar moulding.76.7% had experience with Naso alveolar moulding.72.9% have reported that patients were regular in their treatment procedure and75% turned for follow up treatment.



Graph 1: Distribution of sample based on number of years of practice

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Review Article

Digital Dentistry

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Abstract

To date, there has been various softwares used in the field of dentistry as a whole be it in the case history, imaging and in clinical practice management (PM). This article classifies the different types of dental softwares and gives an overview of the different softwares available and used in dentistry across the world with a brief note on its history. We highlight the different dental softwares available for various imaging modalities, PM and easy diagnostics in the field of dentistry. It also gives an insight into the future with different kinds of dental softwares used in the field of dentistry.

Keywords: Dental hardwares, Dental software, digital imaging

Introduction

The term dental software defines softwares used in dentistry. Computer software or just software is any set of machine-readable instructions (most often in the form of a computer programme) that directs a computer's processor to perform specific operations.

Software refers to one or more computer programmes and data held in the storage of the computer. In other words, software is a set of programmes, procedures, algorithms and its documentation concerned with the operation of a data processing system.

On most computer platforms, software can be grouped into a few broad categories as follows:

- System software: It is the basic software needed for a computer to operate (most notably the operating system)
- Application software: It is all the software that uses the computer system to perform useful work beyond the operation of the computer itself
- Embedded software: It resides as firmware within embedded systems, devices dedicated to a single use.

History

The history of the development of the dental software is brief. For the first time, the computers have been used in the dental medicine in the 1960s.[1] Since then, computers and information technologies spread progressively in the dental practice. The statistical data of dentists using computers in the United States were 1% in the year 2000, which was found to increase ever since then, according to Atkinson *et al*.[2]

Classification of Software Used in Dentistry

There are many types of dental software in the dependence of specific task that they do to help the dental practice.

- One classification is given from Schleyer and Kirshner.[3] They categorise three main categories of dental software as follows:
  1. Administrative
  2. Clinical
  3. For the Internet.
- The clinical category from other side is categorised as follows:
  1. Electronic dental records
  2. Electronic dental designs
  3. Dental imaging software and
  4. Software used for diagnostics and treatment.
- Zimmerman *et al*.[4] recognises the following types of computer software, depending on their task:
  1. Administration and management of patient documentation

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DRUG INFLUENCE IN ORTHODONTICS

Binu Purushothaman[1], Mohammed Arif TP [2], Fawaz V [3], Riyaz MK[4]

Abstract

Inflammatory reactions occurring within the paradental tissues, triggers bone remodeling in response to applied mechanical forces, and this forms the biological basis of orthodontic tooth movement. Many patients use drugs daily, and all these drugs have therapeutic effects, as well as side effects, that may influence the cells targeted by orthodontic forces. Therefore, it is imperative that the every General practitioner and Orthodontist pays close attention to the drug consumption history of each and every patient, before and during the course of orthodontic treatment.

Key words: orthodontic tooth movement, drugs, periodontal ligament, inflammatory pathway

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1. Introduction

Orthodontic tooth movement is induced by the prolonged application of controlled forces, which create pressure and tension zones in the periodontal ligament(PDL) and alveolar bone, causing a remodeling of the sockets. This remodeling and tooth displacement occurs by means of an inflammatory process involving osteoclasts, osteoblasts, cytokines along with changes in innervation and local vascularization. Some of these ligands can also cause unwanted side effects, such as pain and root resorption. Orthodontists often prescribe drugs to manage pain from force application to biological tissues, manage TMJ problems, and tackle fungal and viral infections throughout the course of treatment. Some of these drugs may have profound effects on the short- and long-term outcomes of orthodontic treatment. Adult patients may consume regularly prescribed & over the counter drugs meant to address various systemic and local conditions. These drugs may reach the mechanically stressed PDL, interact with local target cells & modify their actions to orthodontic force.

2. Drugs influencing Orthodontic tooth movements

2.1. NSAIDS

NSAIDS are the most common group of medications used in Orthodontics, for the control of pain following orthodontic force application. These drugs are classified as being non-opioid, peripherally acting analgesics, having analgesic, antipyretic and anti-inflammatory action.

Most NSAIDs inhibit the activity of cyclooxygenase-1 (COX-1) and cyclooxygenase-2 (COX-2), and thereby, blocks the synthesis of prostaglandins(PGs) and thromboxane. So, they block the basic inflammatory mechanism. The use of NSAIDs that inhibit the release of PGs and stop inflammation are effective in the treatment of pain related to orthodontic treatment. But, the extended use of NSAIDs is inappropriate for orthodontic treatment as they slow down orthodontic tooth movement(OTM).

Ngan et al[1] compared various analgesic drugs for their effectiveness in managing orthodontic pain. They concluded Ibuprofen is more effective than aspirin in controlling orthodontic pain. Steen Law et al[2] demonstrated that the administration of, preoperative Ibuprofen at a dose of 400 mg, 1 h before separator placement, decreased pain during chewing, up to 2 h after the procedure. Polat et al[3] compared the effects of Naproxen sodium (550 mg) and Ibuprofen (400 mg) administered preoperatively, before arch wire placement. It was found that naproxen sodium is more effective than ibuprofen 2 h, 6 h, and even during the night after arch wire placement.

2.1.1. Acetaminophen (Paracetamol)

It is one of the most popular antipyretic and analgesic drugs worldwide. It lacks significant anti-inflammatory activity, as its mode of action is

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DENTIN HYPERSENSITIVITY
LITERATURE REVIEW

Sreekanth P[1],
Sameera G Nath[2], Amrutha K[3]

Abstract

The objective of this review is to inform practitioners about dentin hypersensitivity (DH); to provide a brief overview of the diagnosis, etiology and clinical management of dentin hypersensitivity and to discuss technical approaches to relieve sensitivity. This clinical information is described in the context of the underlying biology. In the first part, the authors intent to impart a sound theoretical knowledge on dentin hypersensitivity.

Key words: dentin hypersensitivity, ethiopathogenesis, management

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1. Introduction

Different terms have been used to describe dentin hypersensitivity (DH). These terms are used based on the place of occurrence of hypersensitivity and include: cervical, root, dentine, cemental, and the terms sensitivity, and hypersensitivity. All of these terms convey the same clinical conception and can be used interchangeably. According to the Canadian consensus document, DH has been defined as "pain derived from exposed dentin in response to chemical, thermal tactile or osmotic stimuli which cannot be explained as arising from any other dental defect or disease".

Dentinal hypersensitivity is as an exaggerated response to a stimulus that usually causes no response in a healthy tooth, and also, an exaggerated response to a non-harmful stimulus. The non-harmful stimuli are the thermal, tactile or osmotic stimuli that when applied on th exposed dentin, evoke pain without causing pathologic alterations to th dentin-pulpal complex.

About 8 to 30% of the adult population present dentinal hypersensitivity and the most affected age is among 20 and 40 years old and more prevalent in female individuals that would probably be related to their dental hygiene and dietary habits. The canines and first premolars are the most affected teeth, reaching more than half of the cases and the most affected region is the cervical area of the buccal surface.

Dentin hypersensitivity (DH) is a problematic clinical entity that may become an increasing clinical problem for dentists to treat as a consequence of patients retaining their teeth throughout life and improved oral hygiene practices. Besides the importance of correct diagnosis, appropriate treatment recommendations for patients are needed.

2. Ethiopathogenesis

Dentin is considered as a vital tissue and has the capacity to respond to physiologic and pathologic stimuli. Dentin is sensitive to stimuli due to the lesion extension of odontoblastic process and formation of dentin-pulp complex. Dentin and pulp are histologically different. However, they have the same embryonic origin; ectomesenchymal origin. The formation of dentin-pulp causes dentin to be affected by pulp and vice versa. Dentin has very minute tubules which are filled with odontoblastic process. The processes are also surrounded by dentinal fluid which forms about 22% of the total volume of dentin. The fluid is completely filtrated and originates from the blood vessels of the pulp.

Based on the studies, DH is developed in two phases:
1. Lesion localization
2. Lesion initiation

In the first phase, dentinal tubules, due to loss of enamels, are exposed by attrition, abrasion, erosion, and abfraction. However, dentinal exposure mostly occurs due to gingival recession along with the loss of cementum on the root surface of canines and premolars in the buccal surface. It is worth noticing that not all the exposed dentins are sensitive.

In the second phase, for the exposed dentin to be sensitized, the tubular plugs and the smear layer are removed and consequently, dentinal tubular and pulp are exposed to the external environment. Both mechanical and chemical factors are effective in removing the smear layer from the dentinal tubules. However, the results of clinical investigations, the mechanical factors are not the only key factors in removal of the smear layer and when they are accompanied with acidic foods or drinks they lead to the removal of smear layer.

2.1. Dentine Hypersensitivity Mechanisms

The intradentinal nerves are confined to the predentin and the most pulpal part of dentin. This supports the likelihood of an indirect stimulatory mechanism, evoking pain.

Several theories try to explain the dentinal hypersensitivity although none of them leads to a perfect understanding of how the stimuli applied in this surface can cause pain.

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Original Article

Effects of Sodium Fluoride Solution, Chlorhexidine Gel and Fluoride Varnish on the Microbiology of Dental Plaque – A Randomised Controlled Trial

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Abstract

Background: Reducing microbial load in the oral cavity will provide an additional rationale for the prevention of dental diseases. Antibacterial properties of topical fluorides and chlorhexidine (CHX) are well documented with certain limitations. However, effects of topical applications of 2% sodium fl uoride solution (NaF soln), 1% CHX gel, and 2.26% NaF varnish on plaque microfl ora and following its termination are less explored. Hence, there is a need to study the comparative effects on these agents *in vivo*. **Aim:** The aim was to assess quantitative and qualitative changes in the plaque microflora following topical application of 2% NaF soln, 1% CHX gel, and 2.26% NaF varnish. **Materials and Methods:** This was a double-blind, randomized, parallel-group clinical trial. A total of willing sixty schoolchildren of Nellore city with apparently good health aged 9–13 years were randomly allocated to three interventional groups as follows: Group A (NaF soln, 20), Group B (CHX gel, 20), and Group C (NaF varnish, 20). NaF soln and CHX gel were applied four times on a weekly interval and NaF varnish was applied only once. Once patients enrolled to participate in the clinical trial, an identification number was sequentially assigned, allowing maintenance of a double-blind, randomized study design. Plaque samples were collected at baseline (P0) and at seven different time intervals (P1: 1st week, P2: 2nd week, P3: 3rd week, P4: 4th week, P5: 8th week, P6: 12th week, and P7: 16th week) and cultured on nutrient agar medium. The number of microbial colony-forming units (CFUs) was calculated using a digital colony counter. Statistical significance within and between groups was calculated using Chi-square test, paired *t*-test, ANOVA, Dunnett's multiple comparison test, and Tukey's multiple comparison test. **Results:** There was reduction in the CFU in all the three groups at P2, P3, and P4 when compared to P0 ($P < 0.05$), but following termination of application, the CFU showed subsequent increase of CFU at P5 and P6, reaching similar to baseline values at P7 ($P > 0.05$). Single application of NaF varnish was equally potent as four times application of NaF soln and CHX gel, but there was no statistical significance in-between groups in terms of CFU reduction ($P > 0.05$). P7 sample estimation showed Lactobacilli species with 100% resistance followed by other organisms. **Conclusion:** All the three agents used demonstrated significant reduction of microbial load in plaque but allowed recolonization following termination of intervention.

Keywords: Chlorhexidine gel, fluoride varnish, oral microflora, re-colonization, sodium fluoride solution

Introduction

Dental plaque is considered to be a primary etiologic agent for most of the common oral diseases. It is highly specific in nature; its specificity depends on the microorganisms that colonize it.[1,2] Microbiota of the dental plaque also include bacteria which under certain environmental conditions will cause demineralization of enamel and root surface promoting dental caries, as well as destruction of periodontal tissues in humans.[2]

According to the World Oral Health Report 2003, despite great achievements in the oral health of populations globally, problems still remain in many communities around the world, particularly among underprivileged groups in developed and

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"BE WISE ON EARLY RISE"-NATAL AND NEONATAL TEETH

*Dr. P Prathyusha,**Dr.Amith Adyanthaya,**Dr.Marium Raheema,
Dr.Aswathi Krishna K ,*Dr.Hiba Ummer, *****Dr.Lasna MT

Abstract

Natal and neonatal teeth are of the rare developmental variations seen in infants. Many times infants are seen born with teeth which are termed as natal teeth. Other times teeth erupts with in 1st month of birth are termed as neonatal teeth. They are most commonly a part of deciduous dentition. Presence of natal tooth may lead to numerous complications. Here two case reports have been presented which include natal and neonatal teeth present in the mandibular anterior region in 9 and 31day old infants along with its management.

Key Words: natal teeth, neonatal teeth, management

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Introduction

Physiologically 1st primary tooth shows signs of eruption approximately at 6 months of age but with wide range between 6 months to 1 year of infants life. But some teeth are found to be present even at the time of birth, termed as natal teeth or some that erupt in the neonatal period that is, within thirty days of birth, termed as neonatal teeth. Teeth erupting beyond the natal period of thirty days (i.e. erupting within 1-3.5 months) are usually referred to as early infancy teeth.[1] If a tooth is found at the time of birth or during early infancy, it leads to a plethora of reactions, which are combined with a lot of misconceptions. To complicate matters further, there are various difficulties encountered by both the infant as well as the mother like pain on suckling, refusal to feed, irritability etc.[2]

Prematurely erupted primary teeth present at birth have also been described in the literature as congenital teeth, foetal teeth, pre-deciduous teeth, premature teeth, precociously erupted teeth or dentitia praecox.[3]

Zhu and King[4] reported the incidence of both natal and neonatal teeth as ranging from 1:716 to 1:30000, whereas Chow[5] reported an incidence of 1:2000 to 1:3500. Natal teeth are encountered more often than neonatal teeth in an approximate ratio of 3:1 with a greater predilection for females.[6] King and Lee[7] reported that the teeth affected most often are the lower primary central incisors. According to the study by Bodengoff,[8] 85% of natal teeth are mandibular incisors, 11% maxillary incisors, 3% mandibular canines and only 1% are

ANGIOGRANULOMATOUS LESION A 'DEVIANT' APPEARANCE: A CASE REPORT

Sunanda S[1]
Harish Kumar VV[2]
Santhosh VC[3]

Abstract

Enlargement of gingival tissues are common in routine clinical practice and might be related to any underlying systemic disease; drug induced or may be related to local factors like plaque and calculus. Most of these gingival enlargements retaliate well to normal conservative management and adequate plaque control. Few variants from these shows reactive tissue response and exhibits exuberant outgrowth of the involved tissues. This case report is the unusual presentation of angio granulomatous lesion in maxillary anterior region which was managed by excision.

Key words: angiogranuloma, maxillary anteriors, management

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1. Introduction

Gingival enlargements are common and might be related to any underlying systemic disease, drug induced or may be related to local factors like plaque and calculus. The appropriate treatment hinges on the correct diagnosis of the etiologic factors of such enlargements. Out of the countless presentation of these gingival enlargements, most common form of enlargement is due to plaque induced inflammation of the gingival tissues. These enlargements could get magnified by certain hormonal effects (puberty and pregnancy) or due to certain systemic conditions(Seymour RA, 2006).

In addition to the most common plaque related enlargements there can also be localized gingival overgrowth which could represent a group of reactive lesions that would favor the ease in clinical diagnosis and its management (Bosco FB, 2006. These lesions may occur at any site along the free gingival margin and out grows from the gingival sulcus with displacement of the gingival margin. Some other striking features of these lesions include derivation from periodontal ligament; develop from under free gingival margin; reactive etiology; not primarily plaque related; high growth rate; high recurrence rate and specific management requirements(Savage NW,2010).

Angiogranulomas are such kind of localized gingival overgrowths, owing to excessive female hormones like estrogen and progesterone, which results in the increased cellular proliferation and permeability of blood vessels respectively(Divya Gayatri PS, 2016). These lesions are usually painless, pedunculated or sessile masses appearing in dissimilar colors ranging from light pink to bright red and varies in size from small millimeters to several centimeters. It occurs in predominantly in second decade of life and shows a slight female predilection. In the oral cavity, the most common site of involvement is the gingiva (75%); maxilla being more involved than mandible. In rare instances, it may occur extra gingivally on the lips, tongue, buccal mucosa, and palate(Akyol MU, 2001).

The purpose of this article is to report a case of unusual presentation of angiogranulomatous lesion in a female under antidepressant therapy with special emphasis on the diagnosis and management of such conditions as its being encountered daily in clinical practices.

2. Case report

A 32-year-old female patient reported to the OPD, Dept. of Periodontology, KMCT Dental College, Calicut, Kerala with the chief complaint of a swelling in relation to upper front tooth region since few months. She gave a history that the mass was, smaller in size initially and has gradually increased to the present size. There was no history of pain but it was bothering the patient as it did bleed on slight provocation and while brushing. She was under antidepressants since 5 years.

Extra orally, there was no evident swelling or facial asymmetry with incompetent lips. Intraoral examination revealed a sessile gingival mass labially in relation to upper central incisors of size 3x3cm, bright red in color, extending from mesial aspect of #12 to the mesial aspect of #21(Fig 1).

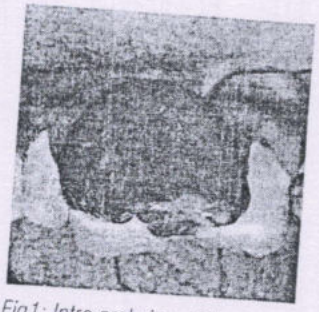


Fig1: Intra oral view of the lesion

The lesion was soft to firm in consistency and bled on slight provocation. Oral hygiene was poor. There was no evidence of pus discharge from the lesion. A provisional diagnosis of angiogranuloma was made

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GINGIVAL SQUAMOUS CELL CARCINOMA: A CASE REPORT

Haseeba K[1], Harish Kumar VV[2], Santhosh VC[3]

Abstract

Squamous cell carcinoma (SCC) is the most common malignant tumor of the oral cavity which arises from dysplastic oral squamous epithelium. Carcinoma of gingiva frequently mimics the reactive and inflammatory conditions affecting the periodontium, which delays the diagnosis or even lead to misdiagnoses. The aim of this study was to report a case of well differentiated SCC of gingiva.

Key words: oral cancer, squamous cell carcinoma, gingival neoplasm

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1. Introduction

Oral cancer is one of the leading cancers in India. Squamous cell carcinoma (SCC) is the most frequent malignant neoplasm affecting structures of the oral mucosa, which accounts for more than 90% of all malignant lesions in the mouth(Wallace ML,1996). The most common sites of oral SCC are the tongue and floor of mouth, followed at a lower frequency by the soft palate, gingiva and buccal mucosa(Torabinejad M,1980).

The clinical characteristics of SCC include the exophytic, endophytic, ulcerated, leukoplastic, erythroplastic or erythro-leukoplastic forms. Depending on their location, these lesions can cause painful symptoms and resorption of adjacent bone seen as a "moth-eaten" appearance on radiographs.

SCC of the gingiva is normally painless and it is located in the keratinized portion(Helldén L,1987). Extrinsic and intrinsic factors may be responsible for the etiology of oral squamous cell carcinoma. External agents such as tobacco smoke, alcohol, syphilis, Human Papilloma Virus (HPV) and sunlight are extrinsic factors. Intrinsic factors consist of systemic conditions, such as general malnutrition or iron-deficiency anemia. All types of tobacco smoking have been associated with the cause of oral cancer(Matthews JB,1993).

The size and the site of the lesion, bone involvement, presence or absence of metastasis, and the stage of the disease play a determining role in the prognosis of SCC. This paper presents a case of male patient with a well differentiated squamous cell carcinoma of the

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CBCT assisted nonsurgical endodontic management of Dens invaginatus in mandibular central incisor – A case report

*Ramesh Kumar M., **Santheep P.C., ***Elsy P. Simon, ****Ravi S.V.

Abstract

Dens invaginatus is a rare malformation with a widely varied morphology and it presents a challenge to the endodontist. The aim of this case report is to highlight the advantage of CBCT in endodontic management of teeth with dental anomalies. Dens invaginatus is commonly seen in maxillary teeth. Involvement in mandibular central incisor is very rare. A provisional diagnosis of type III dens in dente was made based on radiographic findings. Among the three types, type III is most rare. Considering the complex anatomy, CBCT was advised for confirmation. Dental operating microscope was used to access the primary root canal and the area of invagination. Biomechanical preparation of the root canals were done, apical plug created with MTA and obturated with Gutta-percha. This case report demonstrates rapid management of type III dens invagination in mandibular cental incisor with open apex and large periradicular lesion.

Key words: CBCT, Dens invaginatus, MTA

KDJ 2018 | Vol. 41 | No. 2 | Pg 94-97

▶ Introduction

Dens invaginatus is a rare malformation of teeth, which exhibits a broad spectrum of morphological variations. This developmental anomaly results from the invagination of the enamel organ into the dental papilla before the occurrence of calcification[1]. The label of Dens invaginatus encompasses small lingual pits in the cingulum, of otherwise normal teeth, to broad frank tracts visually or radiographically apparent in dilated teeth. This phenomenon is referred to by various other names such as Dens in dente, invaginated odontoma, dilated gestant odontoma, dilated composite odontoma, tooth inclusion, and dentoid in dente.

In 1794, Ploquet, who discovered this anomaly in a whale's tooth, was the first to describe this kind of a dental malformation. In the case of human teeth, it was a dentist named Socrates, who, in 1856, first described Dens invaginatus[2]. The occurrence of dens invaginatus is reported to be in a range of 0.04% to 10%. The upper lateral incisors are the most commonly affected by this phenomenon, followed by maxillary central incisors, premolars, canines and molars. Males are more affected by a ratio of 3:1. Generally, a dens invaginatus is detected purely by chance on the radiograph. Clinically, an unusual crown morphology or a deep foramen caecum may provide a vital clue, but affected teeth sometimes present no clinical signs of the malformation[3].

Various theories have been proposed for the etiology of dens invaginatus[4]. These include folding in of the enamel organ during the tooth germ development due to pressure from adjacent developing tooth germs, rapid in-growth of a portion of the internal enamel epithelium into the developing adjacent dental papilla, failure of a small area of the internal enamel epithelium to grow along with the adjacent epithelium which continues to grow and develop normally, and infection during tooth development, absence of certain inter-cellular signal molecules causing dental anomalies. According to Oehlers,[5] the distortion of the enamel organ during tooth development and the subsequent protrusion of a part of this can result in a linear enamel canal that ends at the cingulum and sometimes, at the incisal border, producing an irregular crown shape.

The first classification of invaginated teeth was published by Hallett,[6] in 1953. However, the commonly used classification, proposed by Oehlers in 1957, includes the following 3 types,based on the depth of the invagination and the degree of communication with the periodontal ligament or the periradicular tissue.

Type I: Invagination confined to inside the crown, and not extending beyond the cemento-enamel junction (CEJ).

Type II: Invagination extending beyond the CEJ, which may or may not communicate with the pulp and does not reach the periradicular tissue.

Type III: Invagination which extends beyond the CEJ,

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ENDODONTIC MANAGEMENT OF MANDIBULAR FIRST MOLAR WITH RADIX ENDOMOLARIS & FIVE CANALS: A CASE REPORT

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****Dr.Ravi S.V, *****Dr. Mohammed Ashik. P

Abstract

The knowledge of variations in root canal morphology significantly affects the success of endodontic treatment. This article presents the endodontic management of a unique case of mandibular molar with an additional distolingual root with two canals and radix endomolaris which is quite uncommon. Mandibular molars can sometimes present a variation called radix endomolaris, wherein the tooth has an extra root attached to its lingual aspect. Accurate diagnosis and careful application of clinical endodontic skill can favorably alter the prognosis of treatment.

Key Words: radix endomolaris, management, case report

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Introduction

Predictable success in endodontic treatment calls for a thorough understanding of root canal morphology and anatomy which in turn will facilitate the debridment, disinfection and obturation of the root canal. Thus, it is mandatory for the clinician to have knowledge of not only the normal anatomy but also its variations.[1] Mandibular molars generally have two canals in the mesial root and one or two canals in the distal root.[2] Studies have shown an incidence of five canals in mandibular first molar to show a variation of 1 and 15% where as three distal canals to be reported of about 0.6%.[3,4] This case report describes the diagnosis and successful management of a case of mandibular first molar with this unusual morphological variation of three distal canals. The presence of two distal canals in distobuccal root and additional distolingual root demonstrates a rare anatomical configuration.

Case Report

A 24-year-old male patient came to the clinic with the complaint of pain in the posterior right mandibular region for the past two weeks. The pain was initially spontaneous and was later triggered by many factors, especially cold. His past medical history was found to be non-contributory. Clinical examination revealed a carious right mandibular first molar with tenderness on percussion. The clinical findings, vitality tests and radiographic findings led to a diagnosis of acute apical

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SMART DENTAL MATERIALS

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***Dr.M.Ramesh Kumar, ****Dr.Ravi.S.V

Abstract

Smart materials are materials that have properties which may be altered in a controlled fashion by stimuli, such as stress, temperature, moisture, pH, and electric or magnetic fields. Smart materials respond to stimuli by altering one or more of their properties. Smart behavior occurs when a material can sense some stimulus from its environment and react to it in a useful, reliable, reproducible, and usually reversible manner. These properties have a beneficial application in various fields including dentistry. Shape memory alloys, zirconia, and smart seal are examples of materials exhibiting a smart behaviour in dentistry. There is a strong trend in material science to develop and apply these intelligent materials. These materials would potentially allow new and ground breaking dental therapies with a significantly enhanced clinical outcome of treatments.

Key Words: Smart materials, responsive materials, review

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Introduction

Smart materials are designed materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, and electric or magnetic fields.[1] Smart materials have been around for many years and they have found a large number of applications. The use of the terms "smart" and "intelligent" to describe materials and systems came from the USA and started in the1980s despite the fact that some of these so-called smart materials had been around for decades. Early smart material applications started with magnetostrictive technologies. This involved the use of nickel as a sonar source during World War I to find German U-boats by allied forces. Smart behaviour occurs when a material can sense some stimulus from its environment and react to it in a useful, reliable, reproducible, and usually reversible manner. Some researchers insist that no material by itself is truly smart, as opposed to being simply responsive. They insist that being smart is not just a matter of producing a response in proportion to a stimulus, but includes principles such as adaptation and feedback. Others draw a distinction between merely smart and truly intelligent, in the sense of being able to do things like make decisions or repair oneself. No artificial materials are yet intelligent in this sense.

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SURVEY

Prevalence of Periodontal disease in 'Kudumbashree' workers of Marad Unit, Kozhikode, Kerala

*Sunanda Sudhakaran, **Harish Kumar V.V., ***Santhosh V.C., ****Sreekanth Puthalath, ****Sameera G. Nath

Abstract

Background and Objectives: Data on Periodontal status of Kudumbashree Workers are scarce. Hence the present cross-sectional study attempts analyse the periodontal diseases among the Kudumbashree workers in Maradunit, Kozhikode, Kerala.

Methodology: Hundred and two women working with Kudumbashree Marad Unit, Kozhikode who fall under the inclusion and exclusion criteria were recruited for the study. Periodontal Parameters like Gingival index (Loe and Silness, 1963), Simplified oral hygiene index (Greene and Vermillion; 1964), Clinical attachment loss (CAL) were assessed for each individuals and the data collected were subjected to statistical analysis and P value <0.05 was considered statistically significant.

Results: The periodontal clinical parameters in women working with Kudumbashree Marad Unit, Kozhikode were evaluated. It was found that despite majority of study population (58%) had a fair oral hygiene, 65% and 48% of the subjects had moderate gingivitis and periodontitis respectively indicating that the study population had an increased likelihood for periodontitis.

Conclusion and interpretation: It can be concluded from the study that though study population displayed a fair oral hygiene there is high prevalence of Periodontal diseases among Kudumbashree workers of Marad Unit, Kozhikode which could be related to the altered life style, inadequate diet and stressed work pattern. This shows the relevance of implementing proper dental health awareness among the Kudumbashree workers which could probably prevent the progression of periodontal diseases among them and their family members.

Key words: Periodontitis, Kudumbashree workers, Dental Health awareness

KDJ 2018 | Vol. 41 | No. 2 | Pg 77-81

Introduction:

Periodontal diseases are one of the most common and prevalent oral disease of mankind[1]. Several factors like systemic and environmental factors including diabetes, stress, smoking osteoporosis influence the severity of the condition and proves to be a risk factor for periodontal diseases[2] Prevalence of the oral infections also reflects the variations in the geographic region, race, culture, tradition, habits etc. which will extent to literacy rate and hygiene practices.

'Kudumbashree' is the women empowerment and poverty eradication program network that brings women to the Grama Sabhas and helps them bring the needs of the poor to the attention of the local government.[3] Kudumbashree workers are engaged in different employments associated with stress, irregular diet, tobacco chewing and other deleterious habits. They belong to a low socioeconomic stature and their low literacy rate could sway on oral hygiene and general health.

Many studies have been conducted probing the periodontal status of different populations but there exists scanty evidence in literature investigating the prevalence of periodontal diseases among Kudumbashree workers. Henceforth present study was undertaken to assess the prevalence of periodontal diseases

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CASE REPORT

Intentional reimplantation: An optimistic approach to save a despairing tooth

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Abstract

Intentional reimplantation is a procedure in which the tooth is intentionally extracted and reinserted into the extraction socket. It is usually reserved as the last resort to save a tooth after other procedures have failed or would likely to fail. The common reason for failure of reimplanted teeth is root resorption, specifically ankylosis or replacement resorption. Eventhough the success rate is not always high, intentional replantation may be a treatment alternative that deserves consideration to maintain the natural dentition and avoid extraction of the tooth. This is a case report of preservation of a periodontally involved molar tooth of hopeless prognosis by means of intentional reimplantation.

Keywords: hopeless tooth, intentional reimplantation, combined endo-perio lesion

KDJ 2018 | Vol. 41 | No. 2 | Pg 73-76

Introduction

The periodontal prognosis of tooth is dependent on various factors and the worst prognosis constitutes to a Hopeless tooth. To establish itself as a hopeless tooth, it has to fulfil criteria. It includes 75% of loss of supporting bone, Class III furcation involvement, probing depth of 8mm or more, hypermobility of tooth, history of periodontal abscess (De Vore 1988).[1] The management of such condition always exists as a dilemma. Extraction is considered to be the only treatment option of such periodontally involved hopeless tooth. Intentional reimplantation was defined by Grossman as the purposeful removal of a tooth and its reinsertion into the socket almost immediately after sealing the apical foramina.[2] It is considered to be a treatment option when other conventional forms of treatment either fail or are impossible. Intentional reimplantation is usually considered as one of the viable mode of treatment in certain situations to preserve the natural dentition.[3] Intentional reimplantation is contraindicated in the presence of periodontal disease, especially in presence of marked tooth mobility, furcation involvement or gingival inflammation. It has been reported that reimplantation will have a lower success rate if the tooth is already compromised periodontally and missing the interseptal bone.[4] Although most of the authors revealed periodontal involvement as a contraindication for reimplantation[4], there are some studies with successful results with periodontally involved teeth.[5] Here we are discussing a case of management of a tooth with combined endo-perio lesion with hopeless prognosis.

Case report

A 62 year old male patient had reported in Department of Periodontology and Implantology, KMCT Dental College with complaint of pus discharge in relation right lower back tooth. Detailed history and examination revealed that he had undergone root canal treatment 9 months back for the same tooth and had persisting mobility and abscess since 2 weeks. He was systemically healthy. On clinical examination there was 10 mm probing depth on distal aspect and 5mm on mesial aspect of 46 [Figure 1]. Inflamed gingiva was present in relation to the same tooth. Grade III mobility was present. Severe attachment loss was evident in relation to distal root. Class III furcation involvement was also present. IOPAR revealed that there was more than 75% bone loss in relation to distal root and interradicular region of 46 [Figure 2]. There was periapical radiolucency in relation to both the roots. The clinical and radiographic findings was suggestive of combined endo-perio lesions. From the overall examination the tooth was categorised as a hopeless tooth.

After overruling the possibility of an endodontic retreatment, we had given the option of extraction followed by prosthetic

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AN UPDATE ON DIGITAL DENTISTRY

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ABSTRACT

To date, there has been various softwares used in the field of dentistry as a whole, be it in case history, imaging and in clinical practice management. This article classifies the different types of dental softwares and gives an overview of the different softwares available and used in dentistry across the world with a brief note on its history. We highlight on the different dental softwares available for various imaging modalities, practice management, easy diagnostics in the field of dentistry. It also gives an insight into the future with different kinds of dental softwares used in the field of dentistry.

KEYWORDS: Dental Softwares, Digital Imaging.

INTRODUCTION

The term dental software defines softwares used in dentistry. Computer software or just software is any set of machine-readable instructions (most often in the form of a computer program) that directs a computer's processor to perform specific operations.

Software refers to one or more computer programs and data held in the storage of the computer. In other words, software is a set of programs, procedures, algorithms and its documentation concerned with the operation of a data processing system.

On most computer platforms, software can be grouped into a few broad categories:

- System software: is the basic software needed for a computer to operate (most notably the operating system).

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Botox – the magical spell of dentistry: A literature review

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Abstract

Botox (botulinum toxin-BTX or botulinum neuro toxin) is a highly versatile multi-purpose therapeutic agent in the modern era, which is often used for cosmetic treatment of the face, for correcting lines and wrinkles, strabismus, blepharospasm, cervical dystonia, hyperhidrosis, torticollis, spasmodic dysphonia etc. It is also helpful in the management of muscle generated dental disorders. To review the relevant data accounting for the effects that botulinum toxin had on patients with muscular and dental disorders, a Medline/PubMed® literature search that only included articles published in English language from 1990 to June 2017 was done. A detailed discussion on the mechanism of action, clinical applications, treatment efficacy, adverse effects and contra indications are illustrated in this paper.

Key words: Botox, botulinum toxin, muscular disorders

Introduction

Botox (botulinum toxin-BTX or botulinum neuro toxin) is a protease exotoxin released by Clostridium botulinum, which is a gram-positive, rod-shaped, anaerobic, spore-forming, motile bacterium. It has a long history of therapeutic and cosmetic use. It has emerged as one of the safest and potent biologic toxin, with exceptionally high therapeutic results in modern medicine.[1] Botox is famous for its minimally invasive reversible treatment modality. The Dental Quality Assurance Commission (DQAC) of Washington, New Jersey state board and Michigan board of dentistry have approved the use of botox and dermal fillers by dentists.[2]

Botulism was originally known as sausage poisoning because its outbreak was noticed after ingestion of poorly prepared blood sausages. In 1817, medical officer Christian Andreas Justinus Kerner was the first to describe the life threatening disease, botulism, which was caused by botulinum toxin, extracted from infected sausages.[1,3] The term botulism was coined by John Muller in 1870, from the Latin word botulus meaning sausage. Clostridium botulinum, as a pathogen causing botulism, was first identified in Belgium, in 1897, by Prof Emile van Ermengem.[1] In 1949, Arnold Burgen discovered that botulinum toxin blocks neuromuscular transmission. Botox was first used in medicine in 1980 to treat strabismus.[4] Michael Kane, a plastic surgeon performed botulinum toxin injections to correct gummy smile since 1992.[5] Since the inception of Botox ® cosmetics in 2002, with the approval of Food and Drug Administration (FDA), it has been widely used for cosmetic purposes also.[2,6]

Mechanism of action

Botulinum toxin brings about the degeneration of muscles or glands because of the blockage of release of acetylcholine (Ach) from the cholinergic nerve. The neurotransmitter Ach is responsible for initiating muscle contraction and glandular secretion. The docking proteins are essential for docking synaptic vesicles, carrying acetylcholine, to the presynaptic membrane (Figure 1). The endopeptidase activity of Botulinum toxin A enables the slicing of the membrane associated docking protein called "synaptosomal-associated

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CBCT: PROTOCOLS FOR INTERPRETATION

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Abstract

Dental radiology has been playing a critical diagnostic role in dentistry. The field of dental radiology has witnessed a rapid progress, with an array of imaging modalities now at the clinician's disposal. The clinical applications for CBCT imaging in the oral and maxillofacial region are increasing. This article focuses to briefly give the clinicians an awareness on CBCT technique.

Key words: dentistry, radopgraphy, cbct, development

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1. Introduction

Dental and maxillofacial radiology has undergone a radical change with the introduction of Cone Beam Computed Tomography (CBCT) (Horner K,2009). The term "Cone Beam" comes from the shape of the beam that scans the patient in a circular path around the vertical axis of the head, in contrast to the fan-shaped beam and more complex scanning movement of multidetector-row computed tomography (MDCT). The availability of improved, rapid, and cost effective computer technology alongwith the ability of software engineers to develop multiple dental imaging applications has heralded an era of Cone beam imaging technology to assist in a multi tude of diagnostic tasks ultimately resulting in improved patient care(Abramovitch K,2014).

As clinicians, we need to recognize that dentists receive training in two dimensional dental imaging as undergraduates, but there needs to be an avenue for training in the application and interpretation of cross-sectional three-dimensional imaging as well. Appropriate training is the basis for effective implementation of key concepts of justification, optimization and dose limitation for radiation protection which are applicable to CBCT(Brown J,2013).

2. Referring clinician

Clinicians referring a patient for CBCT and receiving images for clinical use must have a basic understanding about the radiation physics in relation to CBCT equipment, the radiation doses and risks with CBCT and radiation protection in relation to CBCT equipment, including justification (referral/ selection criteria) and relevant aspects of optimization of exposures. Awareness about normal radiological anatomy on CBCT images and radiological interpretation of disease affecting the teeth and jaws on CBCT images alongwith artefacts on CBCT images are necessary to completely utilize the 3D imaging modality (Horner K,2009). This paper aims to provide the basics of interpretation of CBCT images that should help the clinician navigate the path to diagnosis.

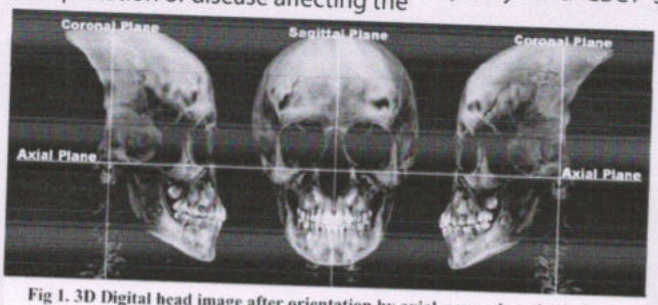


Fig 1. 3D Digital head image after orientation by axial, coronal, sagittal-planes

3. Protocols for imaging, quality assurance and image reconstruction

Imaging Protocols: A thorough clinical examination, either intraoral or extraoral or both depending on the diagnostic concern, will dictate the CBCT imaging protocol to be selected. The field of view (FOV) and the voxel resolution of the scan to be acquired will dictate the imaging protocol(Angelopoulos C,2014). CBCT Machines have an FOV ranging from 3x3cm to 23x17 cm, and a Voxel size as low as 0.125mm to 0.4mm (The lower the voxel size, the better the resolution).

The Radiology Technician and/or Maxillofacial Radiologist usually select the FOV and Voxel size depending on the Clinical diagnosis and Region of Interest (ROI) suggested by the referring Clinician. Facial asymmetries, large developmental defects, and facial trauma are some of the conditions that should steer the radiologist to use large FOVs. Implant site assessment, single tooth impactions, tooth defects, and periapical pathology are evaluated better using smaller FOV.

Quality Assurance Protocols: The most common factors affecting image quality in a CBCT scan are patient motion during the scan acquisition and artifacts (White SC, 2014). Altho ugh current scanners like the i-CAT Next Generation CBCT Machine acquire a scan between 5 and 26 seconds, patient motion may occur during the scan. A thorough review of the entire volumetric data after the scan is acquired-when the patient still is available-is performed to observe for signs of patient motion in the scan. If there is evidence of patient motion in the scan such as blurred images or double margins, the scan may be redone(Angelopoulos C,2014).

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Review Article

Interpretations of Cone Beam Computed Tomography

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Abstract

Dental volumetric tomography is the concept in which tissues of maxillofacial region are depicted using a cone beam shaped x-radiation to provide rapid accurate details. The salient advantages of cone beam computed tomography (CBCT) are shorter exposure time, reduced image distortion due to patient movements, decreased patient dose and multiplanar screening. CBCT aids the clinicians to localize the anatomic structures as a whole which can be visualized in three planes as in axial, coronal and sagittal sections. As a prerequisite for interpretation of every imaging mode, it is essential for the clinician to know the normal from the abnormal. This review highlights the essence to comprehend CBCT and interpret it in the accurate manner with minimal complications.

Keywords: CBCT; Maxillofacial region; Interpretation.

Introduction

Cone beam computed tomography (CBCT) had been established since 3 decades by now. The ease of handling or the reach of this imaging modality to the clinicians even now is not proportional to this long period though. The lack of availability, cost factor forms the major hindrance for this. Another missing link here is the lack of familiarity in the anatomical landmarks in the head and neck imaging in CBCT which is a prerequisite in identifying the pathology associated with it. The present article aims to plug this gap and make this imaging modality familiar and accessible to the clinical practitioners.

Common anatomical structures in head and neck region and its presentation and significance in CBCT is enlisted and described.

Mandibular Canal:

Mandibular canal is a clinically significant structure on accounts of impactions, Implants, benign and malignant lesions, osteotomies, fractures or any operative procedures in mandible. Distortion of image accuracy in 2D imaging leads to miscalculation of the location of mandibular canal.[1,2] It is a tube like structure that transverses whole length of mandible from mandibular foramen in the ramus till the mental foramen in premolar region. On a CBCT image, it appears as a radiolucent circle surrounded by thin radioopaque ring which represents the wall of the canal. The canal is best visible in coronal and cross-sectional images; and is less appreciated in axial sections. On sagittal views, canal might take a variable tube like appearance depending on actual location and orientation of slice selected.[3]

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Mental Foramen

Mental foramen is an opening on the external surface of mandible which is located on the premolar region and it signifies the anterior end of mandibular canal. It possess the mental nerve and vascular supply to the lower lip region. On a CBCT image, it appears as a crescent incomplete circle which is readily visible on all sections. Implantations in this region is a common clinical scenario which demands the precise dimension and viscinity of mental foramen.

It can vary with regard to size, shape, location and direction of opening. Popular method for identification of mental foramen in horizontal plane was proposed by Green.[4] In this method, position of mental foramen is recorded as either in the line with longitudinal axis of a tooth or as lying between the two teeth. The location of mental foramen is also related to the race of an individual.[5,6]

When planning dental important in mandibular premolar region, clinician should be able to identify vertical mental foramen position, as post extraction phase can lead to alveolar bone resorption and the movement of mental foramen closer to alveolar crest. In extreme degrees of resorption, mental nerve and vessels could be found directly under the oral mucosa.

Katakami et al. detected 17 accessory mental foramina in 16 patients using CBCT imaging. Naltoh et al. had detected accessory mental foramen in 7 % of patients with CBCT images. Accessory mental foramen is found in the apical area of the first molar and posterior or inferior to the mental foramen. Mandibular canal may extend beyond the mental foramen as an intraosseous anterior loop. The description by Bavitzet[7] and Misch[8] is: "where the mental neurovascular bundle crosses anterior to the mental foramen than doubles back to exit the mental foramen".

The location of the foramen and the possibility that an anterior loop of mental nerve may be present medical to

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Mending a Menaced Tooth: A Case Report on Management of Endo-Perio Lesion

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ABSTRACT

An Endo perio lesion is one of the most common problems encountered in the day today practice. The simultaneous involvement of pulpal problems along with inflammatory periodontal disease can complicate diagnosis and treatment planning. In cases of primary periodontal with secondary endodontic involvement and true combined endo perio lesions, requires both endodontic therapy followed by periodontal therapy and the prognosis depends on the severity of periodontal disease and response to periodontal treatment. The present case report enlightens about the successful restoration of a tooth with hopeless prognosis by making use of conventional treatment modalities like apicectomy followed by regenerative periodontal therapy.

KEYWORDS: Endo Perio Lesion, Hopeless Teeth, Apicectomy, Bone Grafts

INTRODUCTION

Turner & Drew in 1919[1] described the effect of periodontal disease on dental pulp. The relationship between periodontal and pulpal disease was first described by Simring and Goldberg in 1964.[2] The term "Endo-perio lesion" has been used to describe lesions due to inflammatory products present in the periodontium and pulpal tissues.[3] The major pathways for communication and therefore for extension of disease are from periodontal pocket to the pulp is through patent dentinal tubules, lateral canals, and the apical foramen. According to the classification given by Simon, Glick and Franklin S. Weine (1972)[4] these lesions can be classified as 1) Primary endodontic lesions, 2) Primary periodontal lesions, 3) Primary endodontic lesion with secondary periodontal involvement, 4) Primary periodontal lesion with secondary endodontic involvement, 5) Truly combined lesions. Often when a diagnosis is made, probable outcome of a disease that is prognosis is predicted. According to Mc Guire et al. 1991[5], the prognosis is categorized as good, fair, poor, questionable, and hopeless prognosis. The hopeless prognosis is when a tooth exhibits inadequate attachment to maintain health, comfort, and function. The scheme proposed by Kwok and Caton[6] based on tooth mortality, the treatment option for a hopeless tooth is extraction.

This case report enlightens a tooth with hopeless prognosis and discusses how the tooth was recovered and made functional with conventional treatment approaches.

CASE REPORT

A male patient who is 52 years old came to the OPD of the department of Periodontology, KMCT dental college, Mukkam, Calicut, with the chief complaint of pain and pus discharge from right mandibular first premolar since few months. He was systemically healthy, and his medical history was noncontributory. On clinical examination, there was a generalized presence of plaque and calculus. The tooth 44 had Grade II mobility with attachment loss of 9mm and draining pus through gingival sulcus. Probing pocket depth was found to be about 6mm (Figure.1).The tooth was non carious. The tooth was found to be non-vital as it did not respond to thermal or electric pulp testing. Intra-oral periapical radiograph (IOPAR) showed a deep bony defect on the distal aspect of the tooth 44 extending till root apex and external root resorption at apical one third on the mesial aspect of the root (Figure.2). Based on the clinical and radiographic examination, the case was diagnosed as a primary periodontal lesion with secondary endodontic involvement of 44. The treatment options suggested were: extraction followed by prosthetic rehabilitation, or endodontic and periodontal therapy to retain the tooth. The patient was so particular about saving the tooth and insisted on going ahead with the endodontic and periodontal regeneration therapy.

In the first appointment emergency treatment was carried out, which included drainage of abscess and administration of antibiotics, amoxicillin 500 mg and metronidazole 400 mg thrice daily and analgesics for 5 days. In next appointment, Phase I therapy, full mouth oral prophylaxis followed by occlusal reduction and splinting was done. Re-evaluation of the patient was done after a week and there was a decrease in swelling and inflammation. Phase II therapy, intentional root canal

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Case Report

Pyogenic Granuloma-Associated with a Primary Retained Root Stump- A Case Report

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ABSTRACT:

Background: Pyogenic granuloma is a relatively common inflammatory hyperplasia seen in the oral cavity, as a response to some underlying irritating factor.It is known by a variety of names such as Crocker and Hartzell's disease, granuloma pyogenicum, granuloma pediculatum benignum, benign vascular tumor. This tumor like growth is considered to be non-neoplastic in nature. **Method:** This paper presents a case of pyogenic granuloma managed by surgical intervention in an 11 year old boy. **Result:** Oral Pyogenic Granuloma is a non-specific growth in the oral cavity for which correct diagnosis and proper treatment is required if occurring in a pediatric patient.The patient was recalled every third month for maintenance and for routine follow up to check for possible recurrence. This case was followed up for a period of 1 year and there has been no recurrence so far.

Key words- Hyperplasia, Pyogenic Granuloma, benign lesion.

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INTRODUCTION

Pyogenic granuloma (PG) or granuloma pyogenicum is a common tumor-like mucocutaneous overgrowth that occurs in the oral cavity or on the skin.[1]The term "Pyogenic Granuloma" or "Granuloma Pyogenicum" was introduced by Hartzell in 1904[2,3].

The pyogenic granulomausually manifests as a localized erythematous papules with a sessile or pedunculated base and is usually hemorrhagic in nature.[4]The most frequent intraoral site is the gingiva (approximately 75%), but Pyogenic granuloma lesions also appear on the lips, tongue, buccal mucosa, palate and floor of mouth.[3, 5] PyogenicGranuloma is relatively common tumor-like lesion which includes 3.81% to 7% of all biopsy results of oral cavity lesions.[6,7]

Most investigators consider the lesion arises in response of various stimuli like chronic low grade trauma, physical trauma,hormonal factors, bacteria, viruses and certain drugs [8,9,10,11,12] but local irritants such as calculus, foreign material in the gingiva and poor oral hygiene are also considered .[8,9]

Surgical excision with eradication of local irritants is the treatment of choice. Other protocol such as use of Nd: YAG laser, flash lamp pulsed dye laser, cryosurgery, and intralesional injection of corticosteroids have been proposed[13].

CASE REPORT

A 11-year-old male patient reported to the Department of Pediatric and Preventive Dentistry, K.M.C.T Dental College,Calicut, Kerala, complaining of a swelling in the lower left gum region, which affected his mastication and phonation. The patient reported that he noticed the swelling over the past one month. The swelling was initially small in size which gradually increased to its present size with occasional bleeding episodes.

On extra oral examination; there was no visible swelling on the left side of the mandible. Intraoral examination revealed a large solitary, oval shaped well defined pedunculated gingival overgrowth extending from the lingual to the occlusal surfaces of 33, 34, and 35.The lesion was reddish pink in color with white patches and was approximately 43×

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MUCOCELE OF THE GLANDS OF BLANDIN–NUHN ON THE VENTRAL SURFACE OF TONGUE – A CASE REPORT

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**** Dr. Swapna Honwad, ***** Dr. Afroza KK, *****Dr. Shruti GP

Abstract

A mucocele is a common, benign, mucus-containing cystic lesion of the minor salivary glands in the oral cavity. They are known to occur in various locations in the oral cavity overlying accessory minor salivary glands, most frequently located on the lower lip. Occurrence of a mucocele on the ventral surface of the tongue is rarely seen. This article reports a pediatric case of mucocele of the glands of Blandin and Nuhn on the ventral surface of tongue.

Key Words: Mucocele, extravasation, mucous retention, Blandin–Nuhn glands.

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Introduction

Mucocele can be defined as a cavity filled with mucus.[1] It can be a nodular or a vesiculobullous lesion, bluish red in color and flabby in consistency.[2]Two types of mucoceles can be differentiated based on the histologic features of the cyst wall: a extravasation mucocele formed by mucous pools surrounded by granulation tissue (92%) and a retention mucocele with an epithelial lining (8%).[3,4] Although minor salivary glands are found in most parts of the oral cavity except the gingival, the prevalence of mucocele of glands of Blandin–Nuhn has been reported as unusual.[5] Mucoceles is seen more frequently in children than in adults and are associated with traumatic injuries.[5,6] On clinical presentation, mucoceles are usually single, although more than one may be present at any given time. Regardless of their location, they present as soft painless swellings, with a normal or bluish color. It is fluctuant and movable because of its mucinous contents. The diameter may range from a few millimetres to a few centimetres. If left untreated, an episodic decrease and increase in size may be observed, corresponding to rupture and subsequent mucin production.[7]

Case Report

An 8 years old male patient presented to our institution with the chief complaint of swelling below the tongue since the past 5 months. The lesion was sudden in onset, gradually increased in size, ruptured spontaneously with a watery discharge, following which it decreased in size. The patient gave a history of consecutive increases in size followed, after few days, by

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MRI – AN INSIGHT

Radiology

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ABSTRACT

SUMMARY:

Magnetic Resonance Imaging (MRI) has been a potential tool in diagnostics in lesions in human body. It is accurate due to the sound biological principle behind it. It has an array of unique features; but is not free from certain constraints which hinder the smooth progression of its course. This article throws light on the salient features and constraints pertaining to MRI, with an insight towards the future prospects of the same.

KEYWORDS

Magnetic Resonance Imaging, Dentistry.

Introduction:

MRI (Magnetic Resonance Imaging) is a non-invasive method of mapping the internal structure and certain aspects of function within the body. It uses non-ionizing electromagnetic radiation and appears to be without exposure-related hazard. It employs radio frequency (RF) radiation in the presence of carefully controlled magnetic fields in order to produce high quality cross-sectional images of the body in any plane. The MR Image is constructed by placing the patient inside a large magnet, which induces a relatively strong External magnetic field. This causes the nuclei of many atoms in the body, including Hydrogen, to align them with the magnetic field and later application of RF signal, Energy is released from the body, detected and used to construct the MR image by Computer.(1)

The MR system comprises two main groups of equipment. The first is the control centre, which is positioned where the operator sits. The control centre houses the 'host' computer with its graphical user interface. Its associated electronics and power amplifiers are usually situated in an adjacent room and connect to the second equipment group. This second group of equipment is housed within the machine in which the patient lies. It contains the parts of the MR system that generate and receive the MR signal and include a set of main magnet coils, three gradient coils, shim coils and an integral radiofrequency (RF) transmitter coil. (2)

The MR system uses a set coordinates to define the direction of the magnetic field. Gradient coils representing the three orthogonal directions (x, y and z) lie concentric to each other within the main magnet (Fig 1). They are not supercooled and operate relatively close to room temperature. Each gradient coil is capable of generating a magnetic field in the same direction as B0, but with a strength that changes with position along the x, y or z directions, depending on which gradient coil is used.

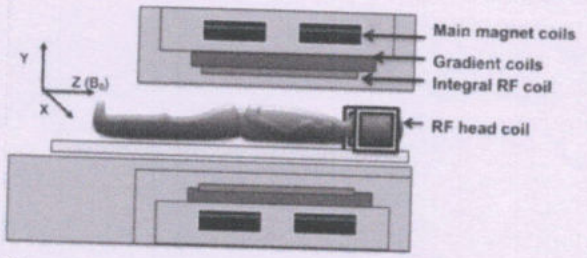


Figure 1: Schematic Diagram of MRI

Historical Aspects:

1857-1952 :Larmor relationship –Sir Joseph Larmor: The rate of frequency of precession of proton is termed larmor frequency. (3)
1930 : Isidor Isaac Rabi succeded in detecting single state of rotation of atoms and
molecules, and in determining the mechanical and magnetic moments of the
nuclei. (4)
1946 : MR phenomenon – Bloch and Purcell (5)
1952 : Nobel Prize – Bloch and Purcell (6)
1950-70 : Nuclear Magnetic Resonance imaging developed as analytical tool. (3)
1972 : Computerized Tomography was introduced. (3)
1973 : Back projection MRI – Lauterbur. (3)
1975 : Fourier Imaging – Erust (3)
1977 : Echo-planar imaging – Mansfield (7)
1980 : FT MRI demonstrated – Edelstein (3)
1986 : Gradient Echo Imaging: NMR Microscope (8)
1987 : MR Angiography- Dumoulin.(3)
1991 : Nobel Prize – Ernst. (9)
1992 : Functional MRI (3)
1994 : Hyperpolarized 129 Xe Imaging. (3)
2003 : Nobel Prize :Lauterber and Mansfield for contributions in MRI. (3)

Salient Features:

1. No Ionizing Radiation: RF pulses used in MRI do not cause ionization and have no harmful effects of ionizing radiation. Hence can be used in child bearing ladies and children.
2. Non-invasive: MRI is non-invasive.
3. Contrast resolution: It is the Principle advantage of MRI, i.e. ability of an image process to distinguish adjacent soft tissue from one another. It can manipulate the contrast between different tissues by altering the pattern of RF pulses.
4. Multiplanar image: With MRI, we can obtain direct, sagittal, coronal and oblique image which is impossible with radiography and CT.
5. It could differentiate between acute and chronic transit and fibrous phases parallel with histopathological changes.
6. Absence of significant artifact associated with dental filling.
7. No adverse effect has yet been demonstrated.
8. Image manipulation can be done.
9. Useful in determining intramedullary spread.

Applications in Dentistry:

Signal intensity for each tissue:

1. Fat tissues: Fat tissue appears as high signal intensity on T1-Weighted images and low signal intensity on T2-Weighted images with fat suppression.

2. Muscle tissue: Muscle commonly appears as low signal intensity on both T1 and T2-weighted images with fat suppression except Lingual muscles, which have intermediate signal intensity on T1-weighted images due to their relatively high fat component compared to other muscles.

3. Cortical bone tissue: Cortical bone tissue is indicated as a signal intensity void on T1 and T2-weighted images. Cancellous bone tissue demonstrates high intensity on T!-weight images and low intensity on T2-weighted images with fat suppression.

4. Lymph nodes and tonsils: Lymph nodes and tonsils have low intensity on T1-Weighted images and intermediate –high signal intensity on T2-Weighted images with fat suppression.

5. Teeth: The teeth, except pulp tissue, appear as a signal void on T1

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A MISCELLANY OF CLASSIFICATIONS OF GINGIVAL RECESSIONS OF THE TWENTY FIRST CENTURY TILL DATE :REVIEW

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**Dr. Harish Kumar VV, ***Dr. Santhosh VC

Abstract

A classification system facilitates the communication and understanding of common standardized identification of the nature of cases, helps in diagnosis, prognosis and finally suitable treatment plan for the condition. Gingival recession, a common condition leading to exposure of root surfaces, is seen in both dentally aware population and those with limited access to dental care. There are several classification systems in literature, with their merits and demerits, to describe recession. In this section the updates of twenty first century till date is described.

Key Words: gingival recession, classification, update

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Introduction

Pini-Prato stated, "The prognostic anticipation of a certain amount of root coverage is a complex process that should consider data from reliable studies and cannot be drawn from theoretical considerations." Difficulty in determining prognosis and treatment plan based on the classification categories, stems from the fact that prognosis depends on many factors other than the clinical features of the disease. The treatment plan and amount of root coverage not only depends on the clinical condition of the tissues, but also on patient-related factors (e.g., habits), tooth/site-related (e.g., recession depth, width), and technique-related (e.g., presence or absence of releasing incisions) prognostic factors. Mucogingival therapy is very technique sensitive and surgeon's dexterity can also affect the extent of root coverage.[1]

Pini Prato then critically evaluated the limitations of Miller's classification based on Murphy's criteria. Since no classification is complete until it is updated regularly, especially in the light of recent innovations and advancements. Hence, in view of the drawbacks associated with Miller's classification, Mahajan's classification was proposed in an attempt to emphasize the need to modify Miller's classification to make it more comprehensive and updated.

There are several classification systems in literature, with their merits and demerits, to describe recession.[1] In this section the updates of twenty first century till date is described. They are:

1. Mahajan (2010)
2. Cairo *et al.* (2011)

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NEUTRAL ZONE TECHNIQUE IN REHABILITATION OF SEVERELY RESORBED MANDIBULAR RIDGE- A CASE REPORT

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Abstract

Reduction in denture foundation is one of the common problems encountered by long term edentulous patients and denture wearers. Prosthetic rehabilitation of a patient with severely resorbed ridge is the most challenging therapy a Prosthodontist can undertake. For better prognosis of denture therapy, impression techniques elected should be based on the present state of basal tissue support. The neutral zone is the area in the oral cavity where during function; the forces of the tongue pressing outward are neutralized by the forces of cheeks and lips pressing inward. The technique of neutral zone is to construct a denture that is shaped by muscle function and is in harmony with the surrounding oral structures. This clinical report describes rehabilitation of a patient with severely resorbed mandibular ridge using neutral zone impression technique.

Key Words: Neutral zone technique, atrophic mandibular ridge, case report

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Introduction

The eruption of the teeth in the oral cavity is influenced by the forces exerted by tongue, cheeks and lips. These muscular forces collectively determine the dental arch form and position of the tooth in the oral cavity. This muscular environment continues throughout life, even after teeth have been lost and greatly influences this potential space. It is one of the major determining factors for any prosthesis that will be placed in the oral cavity.[1]

Ridge resorption is a chronic, progressive, irreversible and cumulative localized bone loss. Most resorption occurs in alveolar process whereas the basal portion remains intact. This leads to qualitative and quantitative reduction in denture bearing area; loss of sulcus depth and available ridge height; decrease in load bearing capacity of denture bearing area and reduced denture stability. Conventional dentures may not provide desired results in these cases. Provision of implant retained prostheses may serve the purpose. But every patient is not suitable for implants. To get the successful results in such cases other factors may have to be exploited. These may include improved impression techniques; proper location and arrangement of artificial teeth and appropriate form of polished surfaces.[2,3]

The neutral zone impression technique is the only option left for the stabilization of

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CASE REPORT

KDJ – Kerala

Severe malocclusion in a child treated by using simple fixed straightwire appliance by a General Practitioner

*Aneesha N.K, **E. Ramanishnan

Abstract

...dental practitioner ... treatments ... malocclusions ... children ... treatments. This procedure is completely done by Dr. Aneesha, a junior lecturer in the department of Pedodontics, KMCT Dental College, Mukkam, Kozhikkode

...benefit of general dental practitioners and pedodontists who are not undertaking ...

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▸ Introduction

According to the world wide prevalence studies of malocclusion about 4 to 85 percentage of children who walk in to a dental clinic, have some kind of malocclusion which require proper treatment[1-3]. A study on 10-12 year old children in Kozhikkode district in 2016 showed a prevalence of malocclusion as 85 percentage[4]. It is the duty of every dentist, to take measures to meet the treatment needs of these children. Majority of the children in our country seek dental treatment from general dental practitioners, because of non availability of a specialist like a pedodontist or orthodontist in their locality. The situation demands a proper management of the malocclusions of children, from the general dental practitioners as well. The advancements in Pedodontics, Orthodontics, Material science and various appliance systems have made it possible and easier for every dentist to incorporate fixed appliance therapy for helping the children with malocclusion. The removable appliance therapy has gained much popularity among the dentists because of advantages of better oral hygiene, less chair-side time, less expense etc. Fixed appliance therapy has gained much popularity because of their special advantages like better tooth control, lesser time for the treatment, non dependence on patient cooperation etc. However fixed appliance therapy is not favoured by pediatric dentists and general dental practitioners. Fixed appliance therapy is a non invasive procedure and can be mastered by anyone who is willing to spend some time on it. It is of paramount importance that all the tools of treatment like removable appliances, fixed appliances, functional appliances etc should be made available in the pediatric dental clinic as well as a general dental practitioner clinic, for the benefit of child patient. Unfortunately the treatment of malocclusions in children are not much undertaken by the pedodontists or general dental practitioners. These children are generally referred to an orthodontist. The situation of nonavailability of orthodontists in many parts of the country results in neglect of treatment needs of these children. There are only 6000 orthodontists in our country of population of 134 crores[5,6]. To help these children with malocclusions, every dentist and Pedodontist should come forward to get themselves trained through various continuing dental education programs and short training programs in appliance therapy. It is to be understood that the treatment of malocclusions in children can be accomplished even by a general dental practitioner, because the procedures are simple and easy. In this case report treatment of a child with severe malocclusion with cross bite of 12 and 22 and crowding in the lower arch using extraction therapy of selected premolars and straightwire appliance, is presented.

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Endodontic management of unusually long mandibular incisors in a mother and son (two genetically related patients)

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Fathima shirin.V [2],
Ramesh kumar.M [3],
Chandini raveendran[4]

Abstract

Successful endodontic therapy of a tooth demands that the dentist should have a thorough knowledge of the root canal morphology, making it mandatory towards thorough radiographic evaluation and diagnosis of the status of the pulp canals as well as the periapical areas.This case report highlights the unusual length of mandibular incisors seen in a mother and son that have not been reported so far in an indian population.

Keywords: Endodontic management,unusually long central incisors

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Introduction

Many of the challenges faced during root canal treatment can be due the unexpected morphological variations seen in the human dentition demanding greater operator skill and knowledge of dental anatomy[2].Though carious destruction of mandibular anterior teeth is infrequent, situations do arise where these teeth require endodontic treatment [3,4,5,6].

Numerous studies indicate an existence of strong genetic influence on tooth dimensions [7, 8]. At the same time, environmental and dietary changes could also affect tooth morphology and dimensions [9, 10] .There are various reported correlations between height of parents and their off-springs. Other correlations have also been reported such as, stature to skull and jaw dimensions; length of various skeletal bones to height or stature of a person ,length of teeth and bones correlating to the individual's age and sex [11,12].Fernex et al. (1967) found boys to show more similarities to their parents than girls. Facial skeletal structures were more frequently transmitted from mothers to sons than from mothers to daughters[13]

A great number of research has been done on morphological variations seen in teeth but there are very few reports on variations related to tooth length.The two endodontic cases presented here showcases the unusual length of mandibular incisors seen in a mother and son, that have not been reported so far in an indian population.

CASE REPORT 1

A 19-year-old male patient reported to the Department of Conservative Dentistry and Endodontics ,KMCT Dental college,Calicut with a chief complaint of tenderness to the lower anterior teeth. He gave a history of trauma four months back.On examination,the mandibular anterior crowns were intact with no discolorations .31,32,41 and 42 were mildly tender to purcussion and all four teeth responded negatively to vitality tests.No soft tissue abnormalities were seen.The intraoral periapical (IOPA) showed periapical radiolucency extending from the distal aspect of 32 to distal aspect of 42.Non-surgical endodontic treatment was planned for all 4 mandibular incisors.

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SUCCESSFUL ENDODONTIC MANAGEMENT OF A MANDIBULAR CANINE WITH TWO CANALS: A CASE REPORT

Nasleena.K[1], Ramesh Kumar M[2], Elsy P. Simon[3], Ravi SV[4]

Abstract

The success of endodontic treatment depends on dentist's knowledge about root canal morphology and its possible anatomic variations. Mandibular canines are recognized as usually having one root and one root canal in most cases. This case report describes a clinical case of mandibular canine with two canals. Human mandibular canines do not present internal anatomy as simple as could be expected; there are such canines with a single root and two canals, two roots or fused roots. The existence of mandibular canines with more than one root canal is a fact that clinicians ought to keep in mind, in order to avoid failure during endodontic treatment.

Key words: endodontic treatment; mandibular canine, two canals.

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1.Introduction

The aim of endodontic treatment is the elimination of infection from the root canal and the prevention of reinfection(Sjogren U,1990). However, root canal treatment may fail because of factors including persistent infection of the root canal, unsatisfactory intra canal procedures that may lead to poor canal preparation, broken instruments and incomplete root canal fillings. Morphological features of the tooth may also adversely affect endodontic procedures (Nair PN,1990). Many investigators have reported on the anatomical variations associated with mandibular canines(Andrei OC,2010; Versiani MA 2011). Mandibular canines are recognized as usually having one root and one root canal in most cases, although approximately 15% may have two canals or sometimes two roots. The following clinical report describes endodontic treatment of one mandibular canine with two canals(D'arcangelo C2001).

2.Case Report

A 47 year old female patient reported to the department of conservative dentistry and endodontics, with a chief complaint of pain in relation to the lower right anterior region since for the past two weeks,both spontaneous triggered by many factors,especially cold. Her past medical history was found to be noncontributory. Clinical examination revealed a carious lower right canine with tenderness on percussion. The clinical findings, radiographic findings, and vitality tests led to a diagnosis of irreversible pulpitis with acute apical periodontitis of the right mandibular canine, necessitating endodontic therapy. Radiographic examination revealed deep caries involving the pulp (Fig 1a).

The access cavity was prepared with round diamond point bur and caries was excavated completely. After reaching the pulp chamber, the roof and overhanging dentin from lateral walls were removed(Fig 1b).

The orifices of labial and lingual canals were explored and canals were located with #8 & #10 k files . For the straight line access, gg drills were used with crown down method to enlarge the orifices. Irrigation was done using 5.25% sodium hypochlorite. Working length was estimated with an apex locator and confirmed by a radiograph. Both the canals were instrumented using k files till apical preparation #25 size(Fig 1c). Canals were then prepared and then obturated with protaper gutta percha points and ahplus sealer(Fig 1d).

3.Discussion

Knowledge of anatomic variations is essential because endodontic success is related to a thorough debridement of the root canal system.. Mandibular canines are recognized as usually having one root and one root canal in the majority of cases. It has been reported that 15% of mandibular canines presented with two canals with one or two foramina (Vertucci FJ,1984), careful examination of preoperative radiographs can aid in locating additional canal or roots. Thus, root canal therapy of these teeth should be carried out by using x-rays from different angulations, efficient explorers, wider access openings, adequate illumination and whenever possible, image magnification. During radiographic examination, a careful interpretation of periodontal ligament space could suggest the presence of an extra root or canal. Additional root canals if not detected, are a major reason for failure(Haapasalo M,2003). Nevertheless, manual exploration of root canal system with an endodontic file or explorer is a reliable way to identify the exact configuration of root canal, especially the number of foramina(Soares LR,2004). Necessary precautions have to be taken during root canal therapy of these teeth and hence instrumenta-

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Original Research Article

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Endodontic management of single rooted immature mandibular second molar with a single canal using MTA- A case report

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Abstract

An immature tooth with necrotic pulp and periapical pathology imposes a great difficulty to the endodontists. The case becomes more difficult when the clinician comes across a rare presentation of tooth morphology. Endodontic treatment options for such teeth consist of conventional apexification procedures. This article demonstrates the recent concept of mineral trioxide aggregate (MTA) apical plug technique, for the management of a single rooted immature second molar with a single continuous canal.

Keywords: Apexification, apical plug, mineral trioxide aggregate, necrotic teeth with immature apices.
Abbreviations: CH-Calcium Hydroxide, MTA-mineral trioxide aggregate.

Introduction

Non-surgical endodontic treatment aimed at the retention of teeth with a necrotic pulp comprises thorough cleaning and shaping, followed by three-dimensional obturation of the root canal system.[1,2] Knowledge of dental anatomy is an essential tool for the success of endodontic treatment. A clinician is required to have an insight of the morphology of tooth related to its shape, form and structure before commencing treatment.

Generally anatomical configuration of mandibular second molar is that of two roots, mesial and distal, it is seen closer together than the first mandibular molar, it can also be fused to a single conical root with varying internal anatomy and often have c-shaped canal configuration. Root fusion that becomes a single-root, conical, or ''C-shape'' form has an incidence of approximately 21.8%.[3] C-shaped canal system is commonly found in mandibular second molars especially in Asian population. But the presence of single canal with a round or oval orifice in a second mandibular molars has been reported only rarely. A study by Weine et al. reported that 1.3% of mandibular second molars have single canal configuration.[4] In another study conducted by Yang ZP et al. in Chinese population he found cone-shaped roots in only 2.1% of the second mandibular molars.[5] The data from six anatomical studies that differentiated single conical and C-shaped roots indicate that the incidence of these two canal systems is approximately equal (8.3% and 8.5%, respectively).[3]

The treatment of immature teeth poses many challenges for the clinician, one of which is the lack of an apical stop, which makes controlled obturation in three dimensions demanding if not impossible.[6] In addition, the dentinal walls of an immature root may be very thin, thereby subjecting the tooth to the risk of fracture.[7,8]

Various ways of managing tooth with a wide open apex have been suggested. These include obturation of the root canal with a customised blunt-ended gutta-percha cone,[9] filling the root canal short of the apex with gutta-percha[10] or peri-radicular surgery,[11] or apexification procedures. Traditionally, the apexification method involves application of calcium hydroxide (CH) until completion of root-end closure.[12,13] However, the disadvantages of this long-term technique include delayed treatment, difficulty in following up with patients, unpredictability of an apical seal, and the risk of root fractures because of the presence of thin walls.[14] Filling of the root canals with CH dressing for extended periods may weaken tooth structure.[15]

Apical closure in immature teeth may also be achieved by placement of an artificial apical barrier, allowing prompt obturation and restoration[11]. Mineral trioxide aggregate (MTA) has been introduced as the material of choice for this technique numerous clinical studies showing favourable results, comparable or superior to apexification with calcium hydroxide. MTA has many characteristics making it a suitable apical barrier material, including biocompatibility, sealability, low cytotoxicity and induction of a favourable tissue response[16].

This case report highlights the occurrence and management of single rooted mandibular second molar with open apex of the single canal, using MTA Angelus (Angelus Dental Solutions, Londrina, Parana, Brazil).

Case Report

A 15-year-old female patient came to the endodontics department of our college, complaining of pain in relation to the left mandibular posterior region, since 1 month. Patient also reported a history of severe spontaneous pain two weeks back, for which the patient took medications and the pain subsided. Medical

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ENDODONTIC MANAGEMENT OF SINGLE ROOTED IMMATURE MANDIBULAR SECOND MOLAR WITH A SINGLE CANAL USING MTA: A CASE REPORT

Bizenza CP[1], Ramesh Kumar M[2], Elsy P.Simon[3], Ravi SV[4]

Abstract

An immature tooth with necrotic pulp and periapical pathology imposes a great difficulty to the endodontists. The case becomes more difficult when the clinician comes across a rare presentation of tooth morphology. Endodontic treatment options for such teeth consist of conventional apexification procedures. This article demonstrates the recent concept of mineral trioxide aggregate (MTA) apical plug technique, for the management of a single rooted immature second molar with a single continuous canal.

Key words: apexification, apical plug, mineral trioxide aggregate, necrotic teeth with immature apices

Abbreviations
CH-Calcium Hydroxide
MTA-mineral trioxide aggregate

Author details
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1. Introduction

Non-surgical endodontic treatment aimed at the retention of teeth with a necrotic pulp comprises thorough cleaning and shaping, followed by three- dimensional obturation of the root canal system (Schilder H 1967,1974). Knowledge of dental anatomy is an essential tool for the success of endodontic treatment. A clinician is required to have an insight of the morphology of tooth related to its shape, form and structure before commencing treatment.

Generally anatomical configuration of mandibular second molar is that of two roots, mesial and distal, it is seen closer together than the first mandibular molar, it can also be fused to a single conical root with varying internal anatomy and often have c-shaped canal configuration. Root fusion that becomes a single-root, conical, or "C-shape" form has an incidence of approximately 21.8%(Ingle JI,2008). C-shaped canal system is commonly found in mandibular second molars especially in Asian population. But the presence of single canal with a round or oval orifice in a second mandibular molars has been reported only rarely. A study by Weine et al. reported that 1.3% of mandibular second molars have single canal configuration(Weine FS,1988). In another study conducted by Yang ZP et al. in Chinese population he found cone-shaped roots in only 2.1% of the second mandibular molars(Yang ZP,1998). The data from six anatomical studies that differentiated single conical and C-shaped roots indicate that the incidence of these two canal systems is approximately equal (8.3% and 8.5%, respectively).

The treatment of immature teeth poses many challenges for the clinician, one of which is the lack of an apical stop, which makes controlled obturation in three dimensions demanding if not impossible(Abbott P V,1998). In addition, the dentinal walls of an immature root may be very thin, thereby subjecting the tooth to the risk of fracture (Shabahang S,1999; Hachrneister DR,2002).

Various ways of managing tooth with a wide open apex have been suggested. These include obturation of the root canal with a customised blunt-ended gutta-percha cone(Pollack,1967), filling the root canal short of the apex with gutta-percha(Moodnick R,1963) or peri- radicular surgery(Witherspoon DE,2001), or apexification procedures. Traditionally, the apexification method involves application of calcium hydroxide(CH) until completion of root-end closure(Seltzer S,1988; Rafter M,2005). However, the disadvantages of this long-term technique include delayed treatment, difficulty in following up with patients, unpredictability of an apical seal, and the risk of root fractures because of the presence of thin walls(Shabahang S,2013). Filling of the root canals with CH dressing for extended periods may weaken tooth structure(Andreasen JO,2002).

Apical closure in immature teeth may also be achieved by placement of an artificial apical barrier, allowing prompt obturation and restoration. Mineral trioxide aggregate (MTA) has been introduced as the material of choice for this technique numerous clinical studies showing favourable results, comparable or superior to apexification with calcium hydroxide. MTA has many characteristics making it a suitable apical barrier material, including biocompatibility, sealability, low cytotoxicity and induction of a favourable tissue response(Moore A,2011).
This case report highlights the occurrence and management of single rooted mandibular second molar with open apex of the single canal, using MTA Angelus (Angelus Dental Solutions, Londrina, Parana, Brazil).

2. Case Report

A 15-year-old female patient came to the endodontics department of our college, complaining of pain in relation to the left mandibular posterior region,

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Review Article

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Indications for lower incisor extraction – A case series review

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Abstract

Lower incisor extraction is a treatment regime since decades with its own advocates and opponents. Even though many pioneers and legends support lower incisor extraction therapy, there is still a dilemma in the orthodontic community which might be due to the fear of certain disadvantages such as formation of black triangles, midline discrepancy, loss of canine guidance, decrease in intercanine width and bite deepening. But proper case selection, treatment planning and treatment mechanics will produce stable and good results with lower incisor extraction therapy. In this article we are illustrating the specific indications of lower incisor extraction with the help of treated cases.

Keywords: Mandibular incisor, Extraction, Bolton discrepancy, Adult orthodontics, Black triangle.

Introduction

The era of extraction had begun as early as in 1757, by Bourdet, a disciple of Pierre Fauchard where he extracted premolars to relieve crowding while Hunter in 1835 extracted the first premolars for retraction of proclined incisors.[1] Even though the charm of extraction therapy had decreased during the Angle's period, the pendulum has swung back and forth. Now it has reached a stand point where extraction of any teeth is warranted, until it meets the treatment goal, stability, final occlusion and aesthetic demands pertaining to individual cases. In view of this fact, lower incisor extraction becomes an alternative treatment for malocclusions that do not fit the conventional forms of extraction since it is more stable in the long term. This bloom in the favourability of lower incisor extraction has occurred in the light of various theories put forward by several authors. The phylogenetic studies of the mandible had shown that the tooth bearing portion has decreased during the course of evolution which in turn was supported by Bolk's fetalisation theory, according to which the masticatory apparatus comes to a standstill at a much less progressed stage in ancient man compared to the ancestors.[2] Moreover, Berger[2] stated that change over from labidodonty (edge to edge bite) to psalidodonty (scissor bite) is responsible for the high frequency of mandibular incisor crowding compared to maxillary incisors.

History has shown that as long back as 1904; Jackson[3] had illustrated a case where two mandibular incisors were removed to alleviate crowding. Similar cases where displayed by Milton Fischer[4] in 1940, where he demonstrated good stability even after four years without any retention protocol. To correct Class III malocclusions by lingual movement and elevation of the anterior teeth, Hahn[1] in 1942, advocated the removal of a mandibular incisor.

Riedel[4] (1992) in his ten year post retention studies have shown that in patients with severely crowded mandibular arches, the removal of one or more mandibular incisors is the only logical alternative which may allow for increased stability of the mandibular anteriors without continued retention compared to premolar extraction cases.

Even though many pioneers and legends support lower incisor extraction therapy, there is still a dilemma in the orthodontic community which might be due to the fear of certain disadvantages such as formation of black triangles, midline discrepancy, loss of canine guidance, decrease in intercanine width and bite deepening. But proper case selection, treatment planning and treatment mechanics will produce stable and good results with lower incisor extraction therapy.

As the indications for incisor extraction are very specific and vast it is essential to understand the basics of this methodology.

Indications

1. Class I Malocclusion

a. Tooth size anomalies due to Bolton's mandibular tooth material excess[5]
b. Tooth size discrepancies due to deficient mesiodistal width, especially of upper lateral incisors[6]
c. Ectopically erupted incisors[5,8]
d. Severe tooth size discrepancies due to anomalies in number of anterior teeth[9]

2. Class II Malocclusion

a. Class II Division 1 skeletal and dental malocclusion[10]

3. Class III Malocclusion

a. Mild class III malocclusion with anterior cross bite[11]
b. Mild class III malocclusion with edge to edge relationship and tendency towards anterior open bite[12]
c. Non-surgical alternative in mild class III which requires mild overjet and overbite corrections

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CBCT: AN INTRODUCTION

Vivek G*
Niyas Ummer**
Manoj Vengal***

Abstract

Dental radiology has been playing a critical diagnostic role in dentistry. The field of dental radiology has witnessed a rapid progress, with an array of imaging modalities now at the clinician's disposal. The clinical applications for CBCT imaging in the oral and maxillofacial region are increasing. This article focuses to briefly give the clinicians an awareness on CBCT technique.

Key words:
dentistry, radopgraphy, cbct, development

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INTRODUCTION

Dental radiology has been playing a critical diagnostic role in dentistry. The field of dental radiology has witnessed a rapid progress, with an array of imaging modalities now at the clinician's disposal, to aid and guide them through the complex and essential web of diagnosis. The discovery of X-rays by Wilhelm Roentgen on 8th November, 1895 was soon followed by the used of those rays in intraoral radiography by German Dentist, Otto Walkhoff. Extraoral imaging such as cephalometric radiography and panoramic radiography has provided broad coverage of the teeth and surrounding structures since the mid-twentieth century. Digital revolution has made acquiring, retrieving and transmitting these imaging modalities all the more effortless. Dental and medical diagnosis have grown leaps and bounds with the development of CT, MRI, nuclear medicine, and ultrasonography; in the recent decades.

2D v/s 3D

At the outset, it should be clarified that Intraoral Periapical imaging still provides the best spatial resolution of any imaging method. However, spatial information is lost in the third dimension as a result of collapsing 3D structural information onto a two-dimensional (2D) image. The clinician has to then attempt to reconstruct mentally this 2D image into a 3D reality with limited information (Fig. 1).

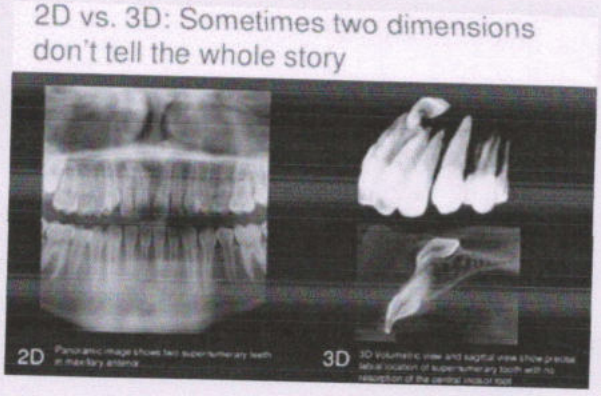


Fig 1: A Case of Supernumerary teeth showing benefits of 3D imaging

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A Cone-Beam Computed Tomography Study of the Root Canal Morphology of Mandibular First Premolars in an Indian Subpopulation

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***Abstract**: Introduction: Successful root canal therapy requires an in-depth knowledge of root canal morphology. The aim of this study was to investigate root canal morphology in mandibular first premolars in an Indian subpopulation using Cone-Beam Computed Tomography (CBCT). Methods: Four hundred extracted mandibular first premolars were selected for the study, based on the inclusion and exclusion criteria. CBCT acquisition of each specimen was done and the root canal morphology was reconstructed three-dimensionally with a semiautomatic threshold-based segmentation approach. The root canal morphology of the mandibular first premolars was classified according to Vertucci's classification. The level of root canal bifurcation, if present, was also noted. Results: The mandibular first premolars showed Vertucci's Types I, II, III, IV, V and VIII. Type I was observed in 315 teeth [78.75%], Type II in 5 teeth [1.25%], Type III in 3 teeth [0.75%], Type IV in 64 teeth [16%], Type V in 11 teeth [2.75%] and Type VIII in 2 teeth [0.5%]. Root canal bifurcation, if present, tended to occur in the middle third (63.16%) or apical third (36.84%). Conclusions: Type I configuration represented the highest percentage (78.75%). There was high incidence of Type IV configuration as compared to Types V, II, III and VIII in the descending order. CBCT is a valuable diagnostic tool in the management of mandibular premolars with complex canal morphology.*

***Keywords:** Cone-beam computed tomography; mandibular first premolar; root canal morphology*

Date of Submission: 27-11-2017 Date of acceptance: 14-12-2017

I. Introduction

Successful root canal treatment relies on a comprehensive understanding of the morphology of the root canal system. The inability to detect, prepare, or obturate one or more of the root canals is a common cause of failure of endodontic treatment.[1] According to Hoen and Pink, the incidence of missed roots or canals in the teeth that needed retreatment was 42%.[2]Frequently considered an enigma to the endodontist, the mandibular first premolar can generate complicated mechanical problems due to the tortuous nature of the canals dividing at various levels of the root. Mandibular premolars may present the greatest difficulty of all teeth to perform successful endodontic treatment.[3] This fact can be substantiated by the presence of multiple root canals[4], lateral canals, apical deltas and C-shaped canals. In addition, the access cavity in these teeth is relatively small, resulting in reduced visualization. Canal configurations in mandibular premolars may vary significantly with respect to ethnicity[5–7], race[8], and sex[6,9].Previous studies have shown that a high percentage of mandibular first premolars have more than one root canal ranging from 11.53% to 46%. These variations may result in missing root canals in mandibular first premolars that need root canal treatment.[10]

Advanced modes of radiographic imaging and analysis such as spiral computed tomography (SCT), micro-computed tomography (micro-CT) and cone-beam computed tomography (CBCT) have allowed for extensive knowledge of pulp space anatomy in three dimensions and identification of rare aberrations.[11] CBCT uses a cone-shaped beam instead of the fan-shaped one used by regular CT scanners. CBCT scanning can help clinicians view morphologic features from a 3-dimensional perspective. The images are displayed in axial, sagittal, and coronal sections and can reduce the superimposition of surrounding structures.[12]Owing to the variations in root canal anatomy, the mandibular first premolar is quite notorious for its high flare up and failure rates.[13] Though a few studies have been carried out in India, no study on the variation in root canal anatomy of mandibular first premolar has been done in the Malabar subpopulation of India. Hence, the purpose of this study was to determine root canal morphology of mandibular first premolars in Malabar subpopulation using CBCT and to classify the canal morphology according to Vertucci's classification[14] (Fig 1). The level of root canal bifurcation, if present, was also noted.

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Comparative Evaluation of Compressive And Flexural Strength of Newer Nanocomposite Materials with Conventional Hybrid Composites-An Invitro Study

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Abstract: *During the recent years, different brands of nanocomposites have been introduced and it is a matter of utmost importance to choose the one with most favorable properties. The present study aimed at comparison of compressive and flexural strength of hybrid and nanocomposites available in the market and also to compare the nanocomposites of different brands. The newer nanocomposite materials used in this study include Filtek Z350XT, Tetric N ceram & Brilliant NG. Hybrid composite include Filtek Z250.*

Methods: *A total of 100 specimens were selected. Four groups were made of four different composite materials having 25 specimens in each group.13 in each group were subjected to compressive test and 12 in each were subjected to flexural test. The specimens were stored in distilled water at 37 ◦C, 24 h. and transferred to the universal testing machine, subjected to compressive & flexural strength analysis.*

Results: *Filtek Z350XT had the highest compressive and flexural strength and Tetric N Ceram had the lowest*

Conclusion: *Within the limitations of our study it can be concluded that nanohybrid resins (Tetric N Ceram and Brilliant NG) tested presented inferior properties compared with the nanofilled composite (Filtek Z350XT).The performance of Hybrid composite Filtek Z250 was comparable to nanocomposite.*

Keywords: *Nanocomposites, hybrid composites, compressive strength, flexural strength, universal testing machine*

Date of Submission: 27 -11-2017 Date of acceptance: 09-12-2017

I. Introduction

The use of composites based on Bowen's resin heralded a new era in restorative dentistry. Nowadays, composite restorations have gained more popularity and are widely used due to their high aesthetic properties, rapid application, ease of use and low costs. No single property can give a true measure of the quality of a restorative material. Several combined properties determined from standardized laboratory and service tests are employed to give a measure of quality and are of great importance in the clinical evaluation of a particular product. Composite resins have been available to the dental profession for over many years. During this time a tremendous amount of basic and clinical research have been conducted on this versatile class of materials. These materials have been improved far beyond the limits of the orginal formulations.

The latest development in the field has been the introduction of nanofilled materials by combining nanometric particles and nanoclusters in a conventional resin matrix. Nanocomposites thus have been introduced to serve these functional needs through the application of nanotechnology[1]. Nanotechnology is the production of functional materials and structures in the range of 0.1- 100 nanometers nanoscale by various physical and chemical methods. Nanocomposites have improved mechanical properties i.e. better compressive strength, diametrical tensile strength, fracture resistance, wear resistance, low polymerization shrinkage, high translucency, high polish retention and better esthetics[2]. They possess a combination of favorable properties of hybrid and microfilled composites. They also exhibit optimal aesthetic properties and therefore are good candidates for anterior restorations. At the same time, they show suitable mechanical properties which make them good alternatives for posterior restorations as well[3]. Their physical properties and wear resistance are comparable with those of hybrid composites[1]. Hybrid composites have smooth surface and good strength, hence widely used for anterior restorations including class IV. They are also widely employed for stress bearing restorations. In this study we have taken Filtek Z250, a hybrid composite as standard to compare with three nanocomposites. During the process of mastication, teeth are constantly subjected to mechanical and thermal cycles and restorative materials develop fatigue and fail/fracture eventually[4].Therefore it is especially important to restore teeth with materials than can handle such pressures. In our study we have evaluated two mechanical

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ANTIBIOTIC USE IN DENTAL PRACTICE

*Dr. Ananth Chams, *Dr.Aswathi Vinod,**Dr.Manoj Kumar KP



Abstract

Dentist use of antibiotics is characterized by a number of particularities. In effect, antibiotic prescription is empirical, i.e., the clinician does not know what microorganism is responsible for the infection, since pus or exudate cultures are not commonly made. Based on clinical and bacterial epidemiological data, the germs responsible for the infectious process are suspected, and treatment is decided. The present study reviews antibiotic use in dental practice, and contributes elements to favor the rational use of such medicines.

Key Words: antibiotics, analgesics, dentistry

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Introduction

Antibiotic treatment is an aspect of pharmacotherapy with the particularity of affording both etiological and curative action. It was introduced in the mid-twentieth century in the form of sulfa drugs (1935), penicillin (1941), tetracyclines (1948) and erythromycin (1952). Since then, antibiotics have focused much clinical and pharmacological research, in response to the progressive challenges posed by bacterial infections: identification of new pathogens, the development of resistances to antibiotics, the consolidation of new diseases, and novel clinical situations (increase in chronic processes, survival of patients with disorders considered to be fatal until only recently, etc.).[1]

A good example of the usefulness of these drugs is provided by the fact that in the period 1998-2000, the number of daily doses of antibiotics per 1000 inhabitants was 30.7 with a cost of 47.18 euros/1000 inhabitants/ day. Furthermore, in Spain during the year 2004, the public National Health Care System prescribed 25.61 million containers of macrolides, combinations of penicillins, other betalactams and fluorquinolones, with a total cost of 336.12 million euros.[2] The fact that no antibiotic is included among the 35 most widely consumed generic drug products during the year 2004 is misleading. This is because antibiotics are generally prescribed for acute episodes and for brief periods of time, while the most heavily consumed medicines are those prescribed for chronic processes (antihypertensive agents, hypolipidemic drugs, antacids, anti-inflammatory drugs, bisphosphonates, bronchodilators, etc.).

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A Rare Case of Large Intra Oral Lipoma- Diagnosis and Management

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Abstract

Lipomas are said to be the most common soft tissue benign mesenchymal neoplasm of fat cells with an incidence of 15-20%. They have a higher incidence of occurrence in the posterior neck region. There occurrence in the oral cavity is rare, amounting to 0.5-5% of all the benign tumors. The most frequent sites of presentation are lips, tongue, palate, buccal mucosa, gingivo-buccal sulcus and the floor of the mouth. A review of the available English literature has shown that a maximum size of 5cm has been reported for intraoral lipomas. In this case report, we are reporting a case of longstanding, large, intraoral lipoma of size ≥6cm in a medically compromised patient and its management by surgical excision. Histological examination following lipoma excision is imperative to detect or exclude liposarcomatous degeneration. Complete removal of the lesion should be done so as to avoid recurrence.

Keywords: Lipoma; Intraoral lipoma; Rare benign intraoral neoplasm

Opinion

Lipomas are said to be the most common soft tissue benign mesenchymal neoplasm of fat cells with an incidence of 15-20%. The first description of oral lipomas was provided by Roux in 1848 in a review of alveolar masses. He referred to it as a "yellow epulis" [1]. They have a higher incidence of occurrence in the posterior neck region. There occurrence in the oral cavity is rare, amounting to 0.5-5% of all the benign tumors [2]. Clinical presentation of intraoral lipoma is usually a well-circumscribed, painless, slowly enlarging submucosal mass and may be superficially or deeply seated [3,4].

Superficial lipomas can be differentiated by the presence of yellowish tinge on its mucosal surface. The etiology and pathogenesis of lipomas are still in debate, with various authors suggesting mechanical, endocrine, and inflammatory causes [4]. Clinical diagnosis for lipomas is usually apparent, and the use of imaging studies aid in diagnosis. The base of the lesion can vary as being pedunculated or sessile [4]. The most frequent sites of presentation are lips, tongue, palate, buccal mucosa, gingivo-buccal sulcus and the floor of the mouth [5,6]. A review of the English literature has shown that a maximum size of 5cm has been reported for intraoral lipomas.

Here, we are reporting a case of longstanding, large, intraoral lipoma of size ≥6cm in a medically compromised patient and its management.

Case report

A 52-year old male patient reported to Department of Oral and Maxillofacial Surgery, KMCT Dental College and Hospitals, complaining of a slow growing mass inside the left side of mouth since 2 years. It started as a single soft swelling of size 0.5cm which originated on the left buccal mucosa near to the retromolar region. It attained a size of 1.5cm in the first few months, and then remained static for a long period. Six months prior to the excision, the swelling size again started increasing to the present size. Occasional traumatization of the lesion occurred while chewing. There was no history of any co-morbidities or regular medications. Personal history revealed that he is an alcoholic and cigarette smoker.

On intraoral examination, there was a large ovoid pedunculated swelling of size 6cm x 4cm x 3cm on the left buccal mucosa, originating near the retromolar region (Figure 1). Surface bosselation with areas of fibrosis was present, which may be attributed to the self-inflicted trauma during mastication. On palpation, it was soft in consistency and showed compressibility. Keeping the social status of the patient in consideration, we decided to go for a high resolution ultrasonographic examination, and magnetic resonance imaging, if indicated. Color Doppler ultrasonographic examination revealed that the lesion was well defined, heterogeneously hyperechoic with no obvious vascularity and no signs of intramuscular infiltrations, eliminating the need

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Case Report

Actinomycotic osteomyelitis of the mandible

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ABSTRACT

Actinomycetes are prominent organism among the normal microbial flora of the oral cavity. However, actinomycotic infection presenting as osteomyelitis in the jaws is relatively rare. This article presents a rare case of osteomyelitis of the mandible arising from an extraction site which was diagnosed as actinomycotic in origin based on the histopathological investigations. Patient responded well to prompt systemic antibiotics and local surgical measures. Early management helped in preventing complications.
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1. Introduction

Actinomycosis is an uncommon, chronic bacterial infection that induces both suppurative and granulomatous inflammation. Cervico-facial involvement is characterized by localized swelling with suppuration, abscess formation, tissue fibrosis, and sinus drainage. The occurance of actinomycotic infection in the head and region is quiet uncommon. But when it occurs, mandible is the common location, accounting for 53.6% of the cervicofacial actinomycosis [1]. The diagnosis of actinomycosis is easily missed out because it may mimic neoplasia.

This article presents a case of osteomyelitis of the mandible arising from an extraction site which was diagnosed as actinomycotic in origin based on the histopathological investigations. Patient responded well to prompt systemic antibiotics and local surgical measures. Early management helped in preventing complications.

2. Case report

A 49-year-old female patient presented to the out-patient department with a complaint of continuous mild dull aching pain and swelling of lower right back jaw since seven months. Patient gave a history of extraction of lower right back tooth seven months back due to pain, but no relief from pain after extraction. At the time of presentation, a diffuse swelling measuring 2 × 1 cm was noted along the right lower one third of the face (Fig. 1). The swelling appeared normal in color, tender on palpation, bony hard in consistency, with no bleeding or discharge on palpation.

On intra oral examination, a partly healed extraction socket was seen in the lower left second molar region with a moderate pus discharge (Fig. 2). A mild vestibular obliteration was evident with expansion of the buccal cortical plates. The adjacent tooth and vestibular areas were tender on palpation.

A mandibular cross-sectional occlusal radiograph was obtained which showed bucco-lingual expansion of the cortical plate of the right mandibular posterior region. Panoramic radiograph demonstrated an ill-defined radiolucency measuring 3.5 × 2 cm of mandibular right posterior region (Fig. 3). The radiolucency extended from the distal root of tooth 46 and almost centered in the body of mandible. An irregular radiopacity was present along the mesial aspect of the lesion. The lower border of the mandible appeared intact and no root resorption or displacement of tooth noted. Based on history, clinical examination and radiographic eval-

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Self-disinfecting Alginate *vs* Conventional Alginate: Effect on Surface Hardness of Gypsum Cast—An *in vitro* Study

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ABSTRACT

Introduction: For the construction of any dental prosthesis, accurate impressions are necessary. Hence, we undertook the present study to evaluate and compare the surface hardness of gypsum casts poured from impressions made using conventional alginate and self-disinfecting alginate.

Materials and methods: A total of 30 impressions of stainless steel die were made, out of which 15 impressions were made with conventional alginate and 15 were made with self-disinfecting alginate and poured using Type III dental stone. Thirty stone specimens were subjected for hardness testing. Data were analyzed using independent samples t-test to compare the mean surface hardness.

Results: Difference in surface hardness was statistically insignificant ($p > 0.05$).

Conclusion: Surface hardness of gypsum casts poured using impressions made from self-disinfecting alginate and conventional alginates were comparable.

Clinical significance: Self-disinfecting alginates may be employed in clinical practice as safe and effective materials to overcome the infection control issues without compromising on the properties of the material.

Keywords: Alginate, Gypsum cast, Hardness, Hydrocolloid.

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INTRODUCTION

Accurate impressions are necessary for construction of any dental prosthesis. Irreversible hydrocolloid (or alginate) is the most popular dental impression material in everyday practice.[1] They are more popular among dentists because these are inexpensive, fast setting, and simple to use. Dentistry is quite different from other fields of medical science in that all the clinical procedures are undertaken in an environment in which there are saliva and blood contaminated with microorganisms.[2]

Infections in the oral cavity can come from any external source including any type of dental instrument and impression material. Impressions have been identified as an area of concern. Dental impressions can easily become contaminated with patient's blood and saliva.[3] This impression material may act as a medium for the potential transfer of organisms from patient to operator, to other patients, and to dental auxillaries.[2]

Concerns regarding the transmission of infectious organisms have prompted a rise in the measures for infection control throughout the health-care field.[4] All the patients must be individually categorized under the category of potentially infectious group, and therefore, separate handling of the impression should be done with great care.[5] The rising profile of conditions, such as hepatitis B and human immunodeficiency virus has helped to increase awareness of the risk of transmission of infection within the dental environment. The hazard can be reduced by adequate chemical disinfection before the work leaves the clinic.[6] For disinfection for irreversible hydrocolloid impression materials, various methods

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RESEARCH ARTICLE

INTRAVENOUS ANTIBIOTICS IN FASCIAL SPACE INFECTIONS OF ODONTOGENIC ORIGIN – THE NONPAREIL THERAPY REVISITED: A CASE SERIES FROM KERALA, INDIA

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Odontogenic origin, intravenous antibiotics, space infection.

ABSTRACT

Beyond doubt, in most cases improperly managed dental infections can result in fatal complications. Dental infections can lead to fatal complications if not properly managed. Three cases of oro-facial infection leading to life-threatening complications are reported here. The importance of supportive treatment, vigorous antibiotic therapy and elimination of source of infection in combating these complications have been stressed upon. Administration of high dose intravenous antibiotics is recommended, with the initial choice of antibiotics modified in the light of subsequent bacteriological reports.

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INTRODUCTION

Deep fascial space infections are rare yet potentially fatal complications of dental pulp necrosis. An odontogenic infection sometimes can progress rapidly from aseemingly harmless toothache to a life-threatening infection. In children, early management and recognition of orofacial infections is very essential to prevent systemic involvement including toxicity and airway compromise(1).Such complications can arise from neglected dental caries which leads to fascial cellulitis and systemic toxicity if left untreated(2,3).

Presented here are three case reports of rapid progression to multi-space infections due to various reasons including dental neglect of carious tooth and resorting totraditional medical practices for toothache relief.

Case 1

A 9 year old female patient(Fig 1) (accompanied by her mother)reported to the Department of Pedodontics, KMCT Dental College, Kerala, India with chief complaint of swelling on left side of the face including periorbital region. History taking revealed that she had toothache in the lower left back region two days back which was not given any medical attention. The swelling was associated with trismus, anorexia and fever. Parenteral antibiotics were advised but stating domestic and personal inconvenience the mother was unwilling for the recommended treatment. Oral antibiotics (Amoxicillin-Clavulanate plus Metronidazole) were prescribed as an alternative, with strict instructions to report back immediately if symptoms aggravated.



Fig 1

Trismus limited the attempts for pus drainage through the infected tooth. The patient reported back the next day with aggravated symptoms including persisting fever, increased trismus and malaise (Fig 2). The swelling had extended to the contralateral side, now involving buccal and infraorbital spaces bilaterally. Patient was put on intravenous antibiotics as an emergency measure. Intravenous Ceftriaxone 1g and Metronidazole100ml (250mg) were administered. Radical changes were noticed in the initial one hour itself (Fig 3). After the 5 day course of antibiotics, the offending teeth (lower left first and second deciduous molar) which served as the source of infection were extracted under local anesthesia.

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A GUIDE TO CLINICAL PRACTITIONERS: WHITE LESIONS

Tim Peter*

Abstract

This article aims to give an insight regarding the white lesions of oral mucosa. Oral white lesions prevailing in the world have been summarized. It stresses on the clinically important aspects both for the patients and the clinicians in dental clinics. The potential life threatening white lesions in the oral cavity when aptly diagnosed and managed by the health care professional can better the prognosis of the lesion to a greater extent.

Key words:
White Lesions, Potentially Malignant Disorders, Oral Squamous cell Carcinoma

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INTRODUCTION

Oral health highlights the relationship between oral and overall health, emphasizing that oral health involves more than dentition. Oral lesions have long been considered the first signs of many systemic disorders and a plethora of oral diseases.

White lesions of oral cavity may consist of debris (material alba) or necrotic epithelium (burns) or fungi (candidosis). These lesions can be typically wiped off from the mucosa with a guaze and are termed nonkeratotic lesions. White lesions which cannot be wiped off, and appear so because of thickened keratin and which looks white when wet are termed keratotic or nonscrappable white lesions.

ETIOLOGY

Etiology for white lesions in oral cavity can be multifactorial.

1) Local:
-Materia alba and fissured tongue (debris from poor oral hygiene)
-Burns
-Keratosis (Frictional keratosis (cheek/lip biting), Smokers keratosis, Snuff dipper's keratosis)
-Skin grafts and scars
2) Congenital:
-Fordyces spots
-Leukoedema
-Inherited dyskeratoses (White spongy naevus, Dyskeratosis congenital, Darier's disease)
3) Inflammatory:
a) Infective
-Fungal (candidosis)
-Viral (Hairy leukoplakia, Epstein Barr virus, Human Papillomavirus infections)
-Bacterial (Syphilitic mucous patches and keratosis)
b) Non infective
-Lichen Planus, Lupus erythematosus.
4) Potentially malignant disorders
-Leukoplakia, Keratoses, Carcinoma

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'PERI-OZONE' - OZONE THERAPY IN PERIODONTICS



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Dr.Shabeer Mohammed Madani,*Dr. Sunanda S

Abstract

Gingival and periodontal diseases are two globally leading oral afflictions where bacteria play an important role in its etiopathogenesis. Ozone therapy is successfully being used in the medical field for treatment of various diseases. The versatility of ozone therapy, its unique properties, noninvasive nature, absence of side effects or adverse reactions are responsible for its wide spread use. The use of ozone in dentistry has been proposed because of its antimicrobial, disinfectant, biocompatibility and healing properties. Ozone gas has a high oxidation potential and has the capacity to stimulate blood circulation and the immune response. It can be used for the treatment of periodontitis, as a mouthwash for reducing the oral micro flora, as well as in the cases of periimplantitis.

Key Words: Ozone therapy, periodontics, uses

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Introduction

Periodontitis is defined as an "infectious disease resulting in inflammation within the supporting tissues of the teeth, progressive attachment loss, and bone loss".[1] Plaque accumulation on tooth and gingival surfaces at the dentogingival junction is considered the primary initiating agent in the etiology of gingivitis and chronic periodontitis.

Humans have evolved to have an intimate and dynamic relationship with microorganisms; this includes those that make up the resident microbiota of all environmentally exposed surfaces of the body as well as those that cause disease. Contemporary studies are demonstrating that the relationship with the resident microbiota is highly interactive, and makes a major contribution to the health of the host .[(2)] These microbiotas have a diverse composition, and function as interactive microbial communities in which their combined properties are greater than the sum of the activities of the constituent species. These communities, and those present at other habitats in the body, play an active and critical role in the normal development of the host and in the maintenance of health.[2]

The mechanical debridement of the biofilm and adjunctive use of antibiotics, disinfectants or various chemotherapeutic agents have been the conventional methods for periodontal therapy.[3] Ozone therapy is one of the modern non-medication methods of treatment which is found to be effective due to its antimicrobial effect.

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Peripheral ossifying fibroma

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Abstract

One of the most frequently encountered lesion of oral cavity is gingival overgrowth. Most of them arises due to localised chronic irritation such as plaque, calculus, restorative or orthodontic appliances. These over growths were termed broadly as epulis. Peripheral ossifying fibroma (POF) is one among them that shows considerable variation in its nomenclature and etiopathogenesis. Any slowly growing soft tissue mass in the anterior oral cavity of young adults should raise a suspicion of reactive oral lesion such as POF. Etiology of POF is unclear and the treatment must be total excision to prevent recurrence. Commonly used synonyms for POF includes calcifying fibroblastic granuloma, peripheral fibroma with calcification, peripheral cementifying fibroma, calcifying or ossifying fibrous epulis. This case report presents a 17 years old female with gingival overgrowth in maxillary anterior region on buccal side since 1 year.

Key words: Peripheral ossifying fibroma, Gingival overgrowth

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Introduction

The gingiva is subjected to constant irritation from plaque, calculus, food impaction, irregular restorations, low-grade trauma, and iatrogenic factors and the gingival tissues react to these irritants by developing a type of growth which was known by the Greek term epulis for many years. This common localized overgrowth is not considered as neoplasm but a nonspecific hyperplastic inflammatory reaction. POF is a focal, reactive, non-neoplastic tumor like growth of the soft tissue that often arises from the interdental papilla.[1] Though the etiopathogenesis is uncertain, an origin from cells of the periodontal ligament has been suggested.[2] It accounts for 3.1% of all oral tumors and 9.6% of gingival lesion.[3]

Case report

A healthy 17 yrs old female patient reported with chief complaint of lump on upper right front teeth region since one year (Fig. 1), giving unpleasant appearance to her smile. Patient was otherwise healthy. Swelling started as small growth and grew to the present size of 1 to 1.5 cm. There was no associated history of bleeding or pain. The patient did not give any history of trauma or food impaction.

Clinical examination revealed a well-circumscribed, solitary, sessile, firm swelling measuring approximately 1 cm to 1.5 cm on the inter dental papilla in relation to upper right maxillary canine and premolar, extending to middle third of labial aspect of canine. The lesion appeared reddish pink. It was non fluctuant, non tender, non compressible, non reducible on palpation. The surface of the lesion was non ulcerated and the overlying mucosa appeared normal. No periodontal pocket / tooth mobility was noted in relation to canine. After performing oral prophylaxis, growth was excised completely and area was curetted. After controlling bleeding, the area was sutured and covered with periodontal pack. Excised tissue was sent for histopathological examination. Radiographically, there were no signs of bone resorption or any finding pertaining to the exophytic bony lesion (fig. 2). Clinically provisional diagnosis for this growth were fibroma and peripheral ossifying fibroma.

The histopathological examination of the lesion using Haemotoxylin and Eosin staining method showed parakeratinized stratified squamous epithelium with adjoining fibrocollagenous connective tissue. The overlying epithelium atropic at focal area and shows pseudo epitheliomatous hyperplasia. The bulk of the lesion is composed of large number of plump proliferating fibroblasts intermingled throughout a very delicate fibrillar stroma. Ovoid circular and linear calcification resembling bone are evident (Figures 3a and 3b). Depending upon clinical, histopathological examination diagnosis of peripheral ossifying fibroma was confirmed.

The periodontal treatment plan included patient education and motivation for oral hygiene instruction, scaling and root planing, reevaluation and surgical excision of the lesion under local anesthesia. Scaling and root planing was performed for elimination of local

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Intracanal irrigants in pediatric endodontics: A review

Sajeela Ismail, Amith Adyanthaya and Natta Sreelakshmi

Abstract
Bacteria are the major cause of pulpal and periapical diseases. Complexity of the root canal system and formation of smear layer during instrumentation of root canal are the major obstacles for complete elimination of bacteria during cleaning and shaping of root canal systems. The bacterial population of infected root canals can be significantly reduced by using saline irrigation; however, irrigants that have antibacterial effects have clearly superior effectiveness in bacterial elimination when compared with saline solution. The irrigants that are most commonly used include saline, sodium hypochlorite, chlorhexidine, EDTA and MTAD. None of the irrigants has optimal properties to be termed an ideal irrigant. Different irrigating solutions reported in literature have been reviewed here.

Keywords: Root canal irrigants, primary tooth, smear layer

Introduction
Primary teeth are also as important as permanent teeth for the harmonious development of occlusion, maintenance of arch length, mastication and speech. Endodontic therapy helps to preserve and maintain function of severely carious primary teeth. Successful root canal therapy relies on the combination of proper instrumentation, irrigation and obturation of the root canal. Intracanal irrigants can augment mechanical debridement by flushing out debris, dissolving tissue and disinfecting the root canal system [1]. Irrigants play a major role in pediatric endodontics because of the bizarre internal geometry and features like internal connections and horizontal anastomoses seen in primary teeth [2].

Microorganisms present within an asymptomatic root canal differs from those within a clinically symptomatic root canal. The most prevalent bacterial species in infected root canals of primary teeth have been found to be *Enterococcus faecalis*, *Porphyromonas gingivalis* and *Treponema denticola* [3].

The ideal requisites of a root canal irrigant as given by Zehnder are: [4]

1. Broad antimicrobial spectrum
2. High efficacy against anaerobic and facultative microorganisms organized in biofilms
3. Ability to dissolve necrotic pulp tissue remnants
4. Ability to inactivate endotoxin
5. Ability to prevent the formation of a smear layer during instrumentation or to dissolve the latter once it has formed.
6. Systemically nontoxic when they come in contact with vital tissues, noncaustic to periodontal tissues, and with little potential to cause an anaphylactic reaction.

Since no single irrigant has these optimal properties, studies have reported the use of two or more solutions in a specific sequence or in combinations for better results.

Normal Saline
Normal saline is isotonic to the body fluids. It is universally accepted as the most common irrigating solution in all endodontic and surgical procedures. It is also found to have no side effects, even if pushed into the periapical tissues [5]. However, saline should not be the only solution to be used as an irrigant, it is preferably used in combination with or used in between irrigations with other solutions like sodium hypochlorite [6].

Sodium Hypochlorite
Henry Drysdale Dakin and the surgeon Alexis Carrel popularized the use of buffered 0.5% NaOCl solution for the irrigation of infected wounds [7].

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MEDICOLEGAL ISSUES RELATED TO OROFACIAL INFECTIONS

Manojkumar KP*
Aswathi Vinod**
Ananth Chams**

Abstract

Dento alveolar surgery constitutes 81% of the primary procedures related to infection cases for oral-maxillofacial surgeons. It is important to recognize that most occurrences of infections when treated appropriately and never become legal issues. Good documentation of decision processes, backed by evidence-based medicine, best serves patients and usually protects practitioners against litigation.

Key words:
medicolegal cases; dentistry; litigation

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INTRODUCTION

Clinicians managing patient infections unfortunately have the same risks of medicolegal problems as when managing other patient problems. Patients with a preexisting infection pose the possibility of the practitioner failing to make a timely diagnosis, reaching a misdiagnosis, or providing the wrong treatment. On the other hand, infections occurring after clinical intervention run the risk of being blamed on negligence in the performance of a procedure or failure to take appropriate steps to prevent infection. During the period 2009 to 2013 allegations related to infections represent 10% of all claims, 6% of the total indemnity paid, and 16% of the total costs. Although 86% of the claims closed without an indemnity payment, infection-related claims still present a serious risk. Dento alveolar surgery constitutes 81% of the primary procedures related to infection cases for oral-maxillofacial surgeons, while dental implant surgery accounted for 9%. The remaining cases involved nonsurgical treatments, facial aesthetic surgery procedures, temporomandibular joint treatment, orthognathic surgery, pathology, and trauma. It is important to recognize that most occurrences of infections when treated appropriately and never become legal issues.

Failure to Make a Timely Diagnosis

Patients with a preexisting infection usually have the signs and symptoms that lead the clinician to suspect the presence of an infection; however, three problems can arise. First, when an infection is not the most obvious diagnosis, the clinician may place infection too low (or not at all) on his or her differential diagnosis list, not conducting needed diagnostic procedures, such as ordering blood cultures, sufficiently early in the patient's workup. Second, even when an infection is suspected, the actual pathogen is not identified because of the failure to perform appropriate microbiological diagnostic procedures. Third, even if the actual pathogen is identified, effective antimicrobial therapy is not prescribed.

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LASERS IN ORAL AND MAXILLOFACIAL SURGERY



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Abstract

Lasers have been used in various treatment modalities across different specialities of Dentistry. The use of lasers within Oral and Maxillofacial Surgery along with potential benefits, drawbacks, and risks with certain procedures will be reviewed along with the discussion of some newer non traditional applications of laser therapy.

Key Words: Laser, applications, oral and maxillofacial surgery

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Introduction

Lasers are currently used to perform a variety of procedures and therapies within the practice of oral and maxilla facial surgery. The laser offers many benefits over traditional surgical procedures performed by traditional techniques of sharp dissection, and the use of the laser continues to expand in conjunction with the advancement of laser technology. The use of lasers within oral and maxillofacial surgery along with potential benefits, drawbacks, and risks with certain procedures will be reviewed along with the discussion of some newer non traditional applications of laser therapy.

Laser physics

A brief review of laser physics is essential to understand how lasers work in regard to specific applications of their use for surgical procedures. The physics of lasers is well known as energy is transferred to an electron and then emitted to produce laser energy based on Einstein's quantum theory of radiation hypothesis that atoms passing from a higher to a lower energy state will emit energy or photons, representing small units or quanta of electromagnetic waves.[1]

Electrons are usually in a low energy orbit closest to the atomic nucleus, and electrons can move to a higher energy level orbit by absorbing external energy. Conversely, when the electrons return to the original lower orbital level, the excess energy previously absorbed is released as spontaneous emission in the form of light or photons. The laser production of energy is accomplished by the transfer of energy to the electron of an atom. Normally the low energy electron is excited through a photon striking the atom and transferring energy to produce excitation of the electron to a higher energy state, causing the electron to enter another excitatory outer electron ring further away from the nucleus of the atom through the absorption of energy. The electron in the unstable higher energy state in an outer orbit returns to the lower energy orbital ring of a resting state and subsequently releases

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Case Report

Assessment of implant stability during various stages of healing placed immediately following extraction in an overdenture situation

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Abstract To assess the implant stability during different stages of healing in an immediate loaded implant soon after extraction. A 73-year-old female came with a chief complaint of bad smell and irritation in her lower front gum region. On examination, she was found to be completely edentulous in the maxillary arch and partially edentulous in the mandibular arch with only the canines present bilaterally. The posterior mandibular ridge was severely resorbed and hence could not be treated with a conventional mandibular complete denture. Considering the age of the patient and the preference of only a single surgical visit, we decided to plan for a conventional maxillary denture against an implant supported mandibular overdenture with two implants placed immediately after extraction of canines. The stability of these implants was assessed during the early phases of healing with the help of a resonance frequency analysis method (RFA) using Osstell ISQ™. During the healing phase, implant stability quotient (ISQ) values decrease by 4–5 values after installation with the lowest values at the 1st week postplacement. Following this, the ISQ values increased steadily for all implants up to 16 weeks. No significant differences were noted over time. At placement, the mean ISQ values at 33 and 43 regions were 74 and 75.2, respectively. The mean lowest ISQ values recorded at the 1st week were 58.8 and 65.4, respectively. At 16 weeks, the mean ISQ values were 70.5 and 67.9, respectively. The survival of such immediately placed implants, which are later used as overdenture supported implants, are highly predictable when the surgical and prosthetic part is done meticulously. However, there needs future studies oriented to understand better the healing pattern of immediately placed implants in extraction sockets, which would guide the clinician with the optimal loading time.

Key Words: Immediately placed implants, implant supported overdenture, resonance frequency analysis (RFA)

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INTRODUCTION

According to the WHO, edentulous patients are considered as "physically impaired." The classic treatment for such patients would be to fabricate conventional complete dentures. Patients who are treated with such dentures often complain of the instability of their lower dentures. These dentures are fully

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Going an extra mile to create beautiful smiles

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Introduction: Rehabilitation of cleft lip and palate patients is a challenge for all the concerned members of the cleft team. Pedodontist have to play a vital role in this cleft team.

Aim: To assess knowledge, attitude and practice on pre surgical management of cleft lip palate infants among practioners and post graduates of pediatric dentistry in Kerala.

Methods: An online study with the aid of a structured Questionnaire conducted among practioners and post graduates of Pedodontics in Kerala.

Results: 82% have come across cleft lip and palate infants in their clinical practice. 60% is comfortable in treating them.61% have no experience with pre surgical orthopedic techniques. All the respondents believe that pedodontists should be a part of multidisciplinary team for treatment of cleft lip and palate patients in India.

Conclusion: We need to create more awareness regarding cleft lip and palate management of infants both among pedodontists and post graduates.

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of the teeth reported in these cases have remained stable and functional.

A Short Study On The Prevalence Of Various Deleterious Oral Habits And Related Malocclusion Among School Children In Calicut District, Kerala

Afroza K K, Amal Sidharth, Prathyusha P, Amith Adyanthay, Nisha Elizabeth John, Aswathi Krishna

KMCT Dental College

Introduction: Certain abnormal and deleterious oral habits are known to cause malocclusion in children.

Aim: Aim of the study is to determine the prevalence of oral habits and its deleterious effects on the dentition among school children aged 6-12 years in Calicut district, Kerala.

Methods: A questionnaire was distributed among schoolchildren which were to be filled by parents. 112 children aged between 6-12 years were examined and screened for the presence of oral habits and their prevalence and effects on malocclusion.

Results: A prevalence of 27.67% with oral habits was present and of them 77.41 % had malocclusion associated with oral habits.

Conclusion: Tongue thrusting habit was found to be the most common followed by mouth breathing and thumb sucking. The study showed a strong association between malocclusion and oral habits.

Supernumerary tooth- a ghost in oral cavity

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Introduction: Supernumerary teeth are defined as those in excess when compared to the normal series of deciduous or permanent dentition. Many complications such as crowding, impaction, delayed or ectopic eruption of adjacent teeth, pathology like dentigerous cyst formation, dilacerations, resorption of adjacent teeth, loss of vitality, diastema can be associated with supernumeraries.

Case Report: A girl aged 10 years reported with chief complaints of extra tooth in upper front region. Clinical examination and diagnostic x-ray revealed two supernumerary tooth. Tooth was removed surgically. Uniqueness of the Case: Impacted supernumerary Tooth

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Review Article

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Clear Cell Odontogenic Carcinoma-A Review of the Literature

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Abstract

Clear cell odontogenic carcinoma is a rare jaw lesion with predominantly clear cell characteristics. Although touted as a benign lesion in the initial stages, once the aggressive nature of the lesion became evident, it was reclassified as a malignant tumor by the World Health Organization. Etiology of this lesion remains elusive, and association with any precursory lesion is yet to be proved. It may have their origins from odontogenic epithelium, salivary gland pathologies or even as metastasis from distant locations like kidneys. That the ideal treatment plan should be composite resection along with elective neck dissection, followed by reconstruction of the defect. If clinical and radiological examination of the patient reveals, extensive soft tissue invasion, perineural spread, lymph node metastasis with an extra - nodal involvement or in those where tumor-free margins are not possible, then, the use of adjuvant radiation therapy should be considered and employed at the surgeon's discretion. Even though initial tumor free margins are attained, it is emphasized that the patient should be kept under the long-term follow-up to identify recurrences

Keywords: Clear Cell Odontogenic Carcinoma; Clear Cell Odontogenic Tumor; Metastatic Clear Cell Odontogenic Carcinoma; Clear Cell Maxillary Carcinoma; Clear Cell Mandibular Carcinoma

Introduction

Hansen et al. [1] coined the term "clear cell odontogenic tumor" in 1985 when they described an odontogenic epithelialtumor with predominantly clear cell characteristics. Since all their cases were located centrally in the jaws, they contended upon the odontogenic origin of the lesion. Although previously excluded from the World Health Organization (WHO) classifications of odontogenic tumors, its tendency to recur and metastasis is, since then, well documented [2,3]. Therefore, it was agreed upon that "clear cell odontogenic carcinoma" (CCOC) is a more appropriate nomenclature, and Reichart and Philipsen, later, adopted the same in their latest classification of odontogenic tumors approved by the WHO [4]. In 1992 WHO defined CCOC as "A benign but locally invasive neoplasm originating from odontogenic epithelium and characterized by sheets and islands of uniform, vacuolated and clear cells."

Odontogenic tumors, salivary gland tumors (primary or secondary) and metastatic renal carcinomas are considered as differential diagnoses of CCOC. Based on the morphological, immunohistochemical and clinical grounds the latter two were subsequently eliminated from the list. Waldron et al. [5] first observed the resemblance of clear cell odontogenic carcinoma to ameloblastoma due to the presence of focal palisading. In spite of their presence, no other areas exhibited typical ameloblastoma characteristics. The focal palisading later went on to justify the odontogenic origin of this lesion, more so when accompanied by inductive hyalinization of the adjacent fibrous tissue.

Normal presentations of CCOC include mild pain or tenderness, or loosening of teeth. The ragged radiolucent area with the expansion of the jaw is concomitantly seen. The first case ever was reported in Maxilla. Local recurrence, evidence of distant, metastasis, and distinct histological features accompanies the aggressive behavior of CCOC. Hence, they are currently considered as malignant [6]. Due to the rareness of the lesion, identification of risk factors is still in their nascent stages. Tumors containing the clear cell component in the head and neck region may have their origins from odontogenic epithelium, salivary gland pathologies or even as metastasis from distant locations like kidneys.

Hence, it is prudent to recommend additional specimen staining of mucin be performed, to rule out mucoepidermoid carcinoma. Lack of calcification and amyloid deposits are the markers, which, when employed, can distinguish CCOC from the clear cell variant of

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RCR RADIOLOGY CASE REPORTS

Case Report

Gorham disease involving the maxillofacial bones: A perplexing entity

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ABSTRACT

Gorham disease is a rare disorder with progressive osteolysis which leads to the vanishing of bones. Its etiology and ideal management strategy are still an enigma. A case of Gorham disease involving the maxillofacial region in a 25-year-old male with an emphasis on etiology and diagnosis is discussed.

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Introduction

Gorham disease is a rare musculoskeletal disorder with spontaneous progressive massive osteolysis of bone. This disease diversely affects the axial and appendicular skeletons, with the shoulder, pelvic girdle, and skull being the common sites. In the maxillofacial region, the mandible is mostly involved. The disease is usually associated with angiomatosis of blood vessels and rarely with the proliferation of thin-walled endothelium-lined lymphatic vessels.

J.B.S. Jackson was the first person to describe a case of the vanishing bone disease in 1838 [1]. However, the first person to report a case in the jaws was Romer in 1924, whereas Thoma

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Dental Research Journal

Original Article

Assessment of oral health parameters among students attending special schools of Mangalore city

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ABSTRACT

Background: The aim of the study was to assess the oral health status and treatment needs and correlation between dental caries susceptibility and salivary pH, buffering capacity and total antioxidant capacity among students attending special schools of Mangalore city.

Materials and Methods: In this study 361 subjects in the age range of 12–18 years were divided into normal (n = 84), physically challenged (n = 68), and mentally challenged (n = 209) groups. Their oral health status and treatment needs were recorded using the modified WHO oral health assessment proforma. Saliva was collected to estimate the salivary parameters. Statistical analysis was done using Statistical Package for Social Sciences version 17. Chicago.

Results: On examining, the dentition status of the study subjects, the mean number of decayed teeth was 1.57 for the normal, 2.54 for the physically challenged and 4.41 for the mentally challenged study subjects. These results were highly statistically significant ($P < 0.001$). The treatment needs of the study subjects revealed that the mean number of teeth requiring pulp care and restoration were 1 for the normal, 0.12 for the physically challenged, and 1.21 for the mentally challenged study subjects. These results were highly statistically significant ($P < 0.001$). The mean salivary pH and buffering capacity were found to be lowest among the mentally challenged subjects. Physically challenged group had the lowest mean total antioxidant capacity among the study subjects. Among the study subjects, normal students had the highest mean salivary pH, buffering capacity, and total antioxidant capacity. These results were highly statistically significant ($P < 0.001$).

Conclusion: This better dentition status of the normal compared to the physically and mentally challenged study subjects could be due to their improved quality of oral health practices. The difference in the treatment needs could be due to the higher prevalence of untreated dental caries and also due to the neglected oral health care among the mentally challenged study subjects. The salivary pH and buffering capacity were comparatively lower among the physically and mentally challenged study subjects which could contribute to their increased caries experience compared to the normal study subjects. However, further studies are needed to establish a more conclusive result on the total anti-oxidant capacity of the saliva and dental caries.

Key Words: Dental caries, education, oral health, saliva, statistics susceptibility

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DIABETES AND ORAL HEALTH

Dental Science

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ABSTRACT

Diabetes is a major public health issue with oral complications. It represents a public health problem due to its high prevalence, morbidity and mortality. The prevalence of diabetes is rapidly rising all over the globe at an alarming rate. India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the 'Diabetes capital of the world'. Diabetes (especially if it is not well controlled) brings with it a greater risk of periodontal disease, which is the most frequent complication. On the other hand, the possible influence of periodontal disease on glycemic control is still not well established. Other reported manifestations are xerostomia, sialadenosis and burning mouth syndrome. With regard to dental caries, oral lichen planus and candidosis, recent studies have not revealed a significantly higher incidence in these patients. Given the epidemic proportion of diabetes, it is critical for all health professionals to be well educated about diabetes. Dentists are well-positioned to provide patients with diabetes prevention information, support the need for good glycemic control, and facilitate referral to other health care providers.

KEYWORDS:

Diabetes, dental management, periodontal disease, dental considerations.

INTRODUCTION

Diabetes mellitus (DM) is a metabolic disorder characterized by chronic hyperglycemia due to the absence of insulin or its inability to function properly. It represents a public health problem due to its high prevalence, morbidity and mortality.[1] The prevalence of diabetes is rapidly rising all over the globe at an alarming rate. Over the past 30 years, the status of diabetes has changed from being considered as a mild disorder of the elderly to one of the major causes of morbidity and mortality affecting the youth and middle aged people.[2] Diabetes mellitus is one of the main threats to human health in the 21st century. The past two decades have seen an explosive increase in the number of people diagnosed with diabetes world-wide.

India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the *'Diabetes capital of the world'*. According to the Diabetes Atlas 2012 published by the International Diabetes Federation, the number of people with diabetes in India is currently around 61.3 million which is expected to rise to 101.2 million by 2030 unless urgent preventive steps are taken.[3] The effect of diabetes mellitus on a person's health can be profound. A diagnosis of DM carries with it the knowledge that the patient will be at high risk of developing cardiovascular diseases, kidney disease, eye disease, nerve disorders and alterations in wound-healing capacity and numerous other maladies.[4] Compromised oral health is one of the many complications of poorly controlled or uncontrolled diabetes. Such oral complications include periodontal disease, fungal infections, xerostomia, oral ulcers and many others.[5]

Given the epidemic proportion of diabetes, it is critical for all health professionals to be well educated about diabetes. Dentists are well-positioned to provide patients with diabetes prevention information, support the need for good glycemic control, and facilitate referral to other health care providers. In 1993, Loe proposed that periodontal disease was the sixth complication of diabetes mellitus. In a 2008 article, Taylor and Borgnakke[6] identified periodontal disease as a possible risk factor for poor metabolic control in people with diabetes mellitus. This bidirectional relationship between periodontal disease and diabetes mellitus makes diabetes a disorder of importance to dentists and dental hygienists and to patients seen in the dental office.

CLASSIFICATION OF DIABETES MELLITUS[7]

Diabetes can be classified into four clinical categories:

1. Type 1 diabetes (due to Beta-cell destruction, usually leading to absolute insulin deficiency)

2. Type 2 diabetes (due to a progressive insulin secretory defect on the background of insulin resistance)

3. Other specific types of diabetes due to other causes, e.g., genetic defects in beta-cell function, genetic defects in insulin action, diseases of the exocrine pancreas (such as cystic fibrosis), and drug- or chemical-induced (such as in the treatment of HIV/ AIDS or after organ transplantation)

4. Gestational diabetes mellitus (GDM) (diabetes diagnosed during pregnancy that is not clearly overt diabetes)

DIAGNOSIS OF DIABETES

Diabetes is usually diagnosed based on plasma glucose criteria, either the fasting plasma glucose (FPG) or the 2-h plasma glucose (2-h PG) value after a 75-g oral glucose tolerance test (OGTT). Recently, an International Expert Committee added the A1C (threshold ≥6.5%) as a third option to diagnose diabetes.

Criteria for diagnosis[8]

A1C≥6.5%. The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay.*

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ORIGINAL ARTICLE

Oral Pathology

Betel quid oral lichenoid lesions: a hospital based cross-sectional study

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Keywords
areca nut, betel quid, lichenoid lesion, prevalence, tobacco.

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Abstract

Objective: The aim of this study was to assess the prevalence and risk indicators of betel quid oral lichenoid lesions in chewers.

Methods: A total of 1209 chewers were identified and categorized into three main groups based on the type of lesion: betel quid oral lichenoid lesions only, betel quid oral lichenoid lesions in association with quid-induced other oral mucosal lesions, and no lesions. Multinomial regression analyses were used to determine associations between dependent and independent variables.

Results: Betel quid oral lichenoid lesions were more common in individuals who chewed quid comprising both tobacco and areca nut, and in those who chewed it two to three, or greater than three, times a day. Betel quid oral lichenoid lesions + quid-induced other oral mucosal lesions were more likely to occur in females, and in individuals who chewed quid containing both tobacco and areca nut, in their processed and unprocessed forms, and greater than three times a day.

Conclusion: The prevalence of betel quid oral lichenoid lesions was higher than that reported in previous studies conducted in India. Increase in the frequency and duration of quid chewing was associated with increased likelihood of developing these oral lichenoid lesions.

Introduction

Quid is defined as a substance or mixture of substances placed in the mouth or chewed, remaining in contact with the mucosa, and usually containing one or both of the two basic ingredients, tobacco and/or areca nut in raw or processed forms.[1–3] Quid chewing is a major social and cultural norm among communities in the Indian subcontinent, and is also prevalent among migrant communities in Africa, Europe, North America, and Australia.[4] The use of tobacco and areca nut has gained popularity worldwide, and nearly 10% of the world's population is estimated to be consuming quid in various forms.[4,5] Areca nut can be consumed alone, or as betel quid (paan), which is a combination of areca nut and slaked lime rolled into a betel leaf. The addition of tobacco to betel quid is common in India.[6] A dry powdered mixture of areca nut, catechu, lime, and other ingredients without a betel leaf is called paan masala, and with the addition of tobacco, this product is termed as *gutkha*.[6] Various concentrations of areca nut, tobacco, and lime in quid have varying effects on the oral mucosa.[7]

Mucosal disorders that resemble oral lichen planus (OLP) have been termed as oral lichenoid reactions (OLR), which generally are seen in areas of the oral mucosa that are in contact with specific agents, such as metallic restorative materials and resins; however, systemic drugs have also been implicated in the formation of

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Original Article

Spectrophotometric analysis of coronal discoloration induced by white mineral trioxide aggregate and Biodentine: An *in vitro* study

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Abstract

Aims: The aim of this study was to evaluate the specific chromatic alterations in tooth crowns induced by two different endodontic restorative materials.

Settings and Design: This *in vitro* study was conducted at the Department of Conservative Dentistry, KMCT Dental College, Kozhikode, Kerala.

Subjects and Methods: Forty-five freshly extracted, fully developed, single-rooted teeth were prepared and randomly assigned to two experimental groups (n = 15 each) and one negative control group (n = 15). Group 1 consists of white mineral trioxide aggregate (WMTA), Biodentine formed Group 2, and controls formed Group 3. Double-beam ultraviolet spectrophotometer equipment was used to assess the coronal discoloration as determined by CIE L^*, a^*, and b^* and their corresponding total values.

Results: At baseline, no significant difference was detected for CIE values between the groups. Group 1 showed a significant decrease in L^*, a^*, and b^* values over time. The color change with WMTA led to clinically perceptible crown discoloration after 6 weeks which exceeded the perceptible threshold for the human eye, i.e., $\Delta E > 3.3$. No changes were observed with Biodentine.

Conclusions: Materials used in endodontics may stain teeth. WMTA induced clinically perceptible crown discoloration, whereas Biodentine demonstrated color stability.

Keywords: Biodentine; endodontic restorative materials; spectrophotometry; tooth discoloration; white mineral trioxide aggregate

INTRODUCTION

Tooth discoloration induced by endodontic materials is a common finding and may impair the esthetic outcome of endodontically treated teeth.[1] A major etiological factor for the occurrence of local intrinsic staining, especially in the cervical and middle third of the crown, is the presence of root canal filling materials in contact with the coronal dentin of the pulp chamber. Any change to the optical and chromatic properties of the dentinal structure is likely to cause an alteration in the outward appearance of the crown caused by its light transmitting and reflecting properties.[2]

Mineral trioxide aggregate (MTA) is a biomaterial that has been investigated for endodontic applications since the early 1990s. MTA materials are derived from a Portland cement parent compound and have been demonstrated to be biocompatible endodontic repair materials, with its biocompatible nature strongly suggested by its ability to form hydroxyapatite when exposed to physiologic

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OZONE THERAPY: TOWARDS A GREEN DENTISTRY

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***Dr.Ramesh Kumar, ****Dr.Ravi.S.V



Abstract

Ozone has been successfully used in medical field since many years owing to its' oxidising property making it an excellent antimicrobial agent. Moreover it's potent anti-inflammatory property along with favourable cellular and humoral immune response has made ozone an effective therapeutic agent. Also its ability to arrest and reverse carious lesions in predictable way opened up a new chapter in minimal intervention dentistry. Furthermore its efficacy in curbing resistant polymicrobial root canal flora appears very promising.

Key Words: ozone, applications, dentistry

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Introduction

Ozone is one of the most powerful antimicrobial agents available for use in medicine and dentistry. Ozone therapy is a well-established alternative and complementary therapy in most of the European countries. The ozone therapy has been more beneficial than present conventional therapeutic modalities that follow a minimally invasive and conservative application to dental treatment.

History

1839	Christian Friedrich Schonbein, first noticed the emergence of a pungent gas with an electric smell. The word Ozone (O_3) is derived from the Greek word ozein (odorant).
1857	JoachimHensler , A German physicist and Hans Wolf German physician developed first Ozone generator for medical use.
1881	Used as a therapeutic agent in treatment of diphtheria
1883	Dr. Charles Kenworthy published his experiences with ozone in Florida Medical journal
1885	Dusbaden, in Holland used Ozone in its water treatment plant .
World war I and II	Ozone was used to treat wounded soldiers in trenches.
Early 20thcentuary	Ozone use got legalised in USA
1950	Dr E.A.Fiseh a German dentist used Ozone o regular basis in Dental Practice
2001	Dr.Sieg fried wrote a text on the use of Ozone in Medicine
2004	Prof. Edward lyrich published "OZONE – The Revolution in Dentistry"[1]

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BIOMIMETICS IN CONSERVATIVE DENTISTRY AND ENDODONTICS



*Dr. Santheep P C, **Dr. Ramesh Kumar,
***Dr. Elsy P.Simon, ****Dr. Ravi S.V

Abstract

Biomimetics is the study of the form, structure or function of biologically produced substances and materials, and biological mechanisms and processes, especially for the purpose of synthesising similar products by artificial mechanisms to mimic natural ones. Biomimetic Dentistry is based on the philosophy that the intact tooth in its ideal hues and shades and, more importantly, its intra coronal anatomy, mechanics and location in the arch, is the guide to reconstruction. Biomaterials used in the medical field lack the ability to integrate with biological systems through a cellular pathway. Conversely, biomimetic materials transcend the regular biomaterial in utility and will suitably perform the functions of the biological molecule that needs to be replaced. This review will attempt to provide a better understanding of the relative position of the Biomimetic materials in the context of the past and present dental materials.

Key Words: biomimetics, dental materials, biologic systems, conservative dentistry, endodontics

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Introduction

The advancement in science and technology has a positive impact on the present day world. It has contributed immensely to every aspect of our lives, including medical and dental care.

Biomimetics is defined as the study of the formation, structure, or function of biologically produced substances and materials and biological mechanisms and processes especially for the purpose of synthesizing similar products by artificial mechanisms which mimic natural ones. A material fabricated by Biomimetic technique based on natural process found in biological systems is called a Biomimetic material.[1] The goal of Biomimetics in restorative dentistry is to return all of the prepared dental tissues to full function by the creation of a hard tissue bond that allows functional stresses to pass through the tooth, making the entire crown into the final functional biologic and esthetic unit. Using the intact tooth as the guide to reconstruction that determines the success.[2] Biomimetics is known by several names such as Bionics, Biognosis etc. The concept is very old but the implementation is gathering momentum only recently.[3]

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2017

SMEAR LAYER IN ENDODONTICS:A REVIEW



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***Dr. Elsy.P.Simon, ****Dr. Ravi.S.V

Abstract

When the root canals are instrumented during endodontic therapy, a layer of material composed of dentine, remnants of pulp tissue and odontoblastic processes, and sometimes bacteria, is always formed on the canal walls. This layer has been called the Smear layer. It can prevent the penetration of intracanal medicaments into dentinal tubules and influence the adaptation of filling materials to canal walls.Data obtained suggests that smear layer removal should enhance canal disinfection. Current methods of smear removal include chemical, ultrasonic and laser techniques – none of which are totally effective throughout the length of all canals or are universally accepted. If smear is to be removed, the method of choice seems to be the alternate use of ethylenediaminetetraacetic acid and sodium hypochlorite solutions. Conflict remains regarding the removal of the smear layer before filling root canals, with investigations required to determine the role of the smear layer in the outcomes of root canal treatment.

Key Words: dentine, ethylene diaminetetraacetic acid, endodontic treatment, smear layer

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Introduction

The term 'smear layer' is used most often to describe the grinding debris left on dentin by cavity preparation. However, the term applies to any debris produced iatrogenically by the cutting, not only of dentin, but also of enamel, cementum, and even the dentin of the root canal.

Endodontic smear layer has been reported as being a layer of material which covers the prepared canal walls.[1] It is always produced when dentine surface is cut or drilled. Identification of the smear layer was made possible using the electron microprobe with scanning electron microscope (SEM) attachment, and first reported by Eick et al. (1970). These workers showed that the smear layer was made of particles ranging in size from less than 0.5–15 μm.[2] Scanning electron microscope studies of cavity preparations by Bra¨nnstro¨m & Johnson (1974) demonstrated a thin layer of grinding debris. They estimated it to be 2–5 lm thick, extending a few micrometres into the dentinal tubules.[3]

Cameron16 (1983) and Madder et al(1984) described the formation of two kinds of smear layer: the first one consisted

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HAPTICS IN PERIODONTICS



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***Dr. Sameera G Nath, ****Dr. Haseeba K

Abstract

The simulation of clinical situations with the acquisition of fine motor skills is an essential component of the dental students' learning experience. The traditional approach to dental skills training has drawbacks in terms of cost, availability, lack of real-world cases, with the restraints of time, clinical supervision, and the funding of raw materials such as real and plastic teeth. The introduction of dental haptics opens the door to a more realistic clinical experience which can be free from the previous constraints. The performance of the students should be reviewed invaluably by pinpointing exactly where mistakes may have been made and directed learning should be allowed. Also, haptics offers the possibility of unlimited training hours by which students can gain skills without demands on manpower and resources.

Key Words: Haptics, periodontics, simulation, virtual reality

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Introduction

Haptics is defined as the science of applying touch (tactile) sensation and control to interaction with computer applications. The word "haptics" is derived from the Greek "haptikos," meaning able to grasp or perceive. Technology is constantly evolving with time and so is its application in medical and dental fields. Simulation has long been used in the medical field, which has increased patient safety and has reduced the risk associated with human errors.

Application of haptics in other fields includes Laproscopic and Endoscopic Surgeries, Neurosurgery Simulation, Surgical Simulation System for Cleft Lip Planning and Repair. Haptic Surgical Correction of Dento-Facial Deformities, Haptic Suturing Simulator.

The field of dental simulation is at the verge of emergence. Webster's dictionary defines simulator as a training device that duplicates artificially the condition likely to be encountered in some operations.[1] Simulation can aid, improve, and advance the way dentistry is taught for future generations. This technology has significant potential to complement traditional training approaches, especially in the fields in which hands-on training is not applicable or ethical as in dentistry.[2]

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Original Article

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Dentistry Section

Immuno-Histochemical and Quantitative Study of Melanocytes and Melanin Granules in Oral Epithelial Dysplasia

SWAPNA HONWAD[1], SV RAVI[2], MANDANA DONOGHUE[3], MANJIRI JOSHI[4]

ABSTRACT

Introduction: Oral Epithelial dysplasia (OED) is a potentially malignant disorder that is characterized by the presence of architectural and cytological changes. One of the prime factors responsible for the development of these lesions is the usage of tobacco. A variety of factors provide protective mechanism in order to prevent the effects of chemotoxic agents including tobacco products of which, melanin pigmentation is one of the vital elements.

Aim: Role of melanocytes in progression of OED has remained unclear, so the present study was done to evaluate density of melanocyte and melanin granules in different grades of epithelial dysplasia and to correlate both findings with different grades of epithelial dysplasia.

Materials and Methods: The study included 60 OED cases, of which three histopathogical sections were prepared from each block. The sections were stained with Hematoxylin and Eosin, Masson Fontana and Human Melanoma Black (HMB-45), an immunohistochemical stain. Quantification of melanin granules was evaluated under 40X magnification using arbitrary scale with micrometer square as, 0= Absence of melanin granules, 1= Rare and scattered melanin granules, 2= Dense but not aggregated melanin granules, 3= Dense and aggregated melanin granules. Density of melanocytes was evaluated under 10X magnification. Five consecutive fields were evaluated for melanocytes and melanin granules starting from the field of highest density.

Results: There was an insignificant increase in number of melanocytes and melanin granules in mild and moderate dysplasia compared to normal but significant reduction was observed in severe dysplasia.

Conclusion: The decrease in number of melanocytes and melanin granules was proportional to severity of epithelial dysplasia. This could be due to chronic irritation by chemical products leading to death of melanocytes.

Keywords: Carcinoma in situ, Masson fontana, Smoking, Tobacco, Silver nitrate

INTRODUCTION

Dysplasia is a Greek term used in pathology refers to abnormal (dys) growth (plasia). It is characterised by the presence of architectural and cytological changes and considered as gold standard for assessment of potentially malignant disorders [1,2]. One of the principal factors responsible for the development of these lesions is the usage of tobacco in its various forms like smoking cigarette, bidi and snuff chewing [3,4].

Tobacco releases benzopyridine epoxides when it is burnt, which initiates pathogenesis of oral squamous cell carcinoma. These chemicals stimulate oral mucosal melanocytes, which are non-keratinocytes situated in basal epithelial layer. These melanocytes synthesize melanin pigment which binds to epoxides to prevent further deleterious effects on cells [5]. Hence, the variation in melanin pigmentation and melanocyte density is one of the defensive components against the chemotoxic products of tobacco.

The pigment melanin produced by specialized cells melanocytes, is most commonly responsible for colour of oral mucosa. Melanin is synthesized within melanocytes as small structures called melanosomes, which are inoculated in to cytoplasm of melanocytes and transferred to adjacent keratinocytes [6]. Melanocytes have a low proliferation potential and resist apoptosis as they are endowed with antiapoptotic mechanisms. And these cells have a very long life span, and survive for decades [6,7].

Melanin pigment producing cells are altered in various physiologic and pathologic conditions. Their role in health and disease has remained unclear which attracted further research. There is an absence of evidence related to melanocytes and their possible role in progression of OED. So, the present study was aimed at assessing the changes in density of melanocytes and melanin granules in different grades of epithelial dysplasia which can bring new auxiliary data about role of melanocytes and melanin in different grades of OED.

MATERIALS AND METHODS

This retrospective study was carried out on 60 pregraded cases of OED of which 20 cases of mild, moderate and severe dysplasia were taken from the archives of Department of Oral Pathology and Microbiology, College of Dental Sciences, Davangere, Karnataka, India. The study was lacking details of age, gender and tobacco habits of each case since they were not properly available in archives. Normal oral mucosa were used as control. The proven cases of malignancies were excluded.

Two paraffin embedded tissue sections of 5 µm -6 µm and one section of 4 µm were prepared from each block using semiautomatic soft tissue microtome (Leica, Germany). Two sections were mounted on glass slide and stained with Harris Haematoxylin and Eosin (H&E) stain for regrading epithelial dysplasia [Table/Fig-1] and Masson Fontana's special stain for melanin granules [Table/Fig-2]. Third section of 4 µm thickness was mounted on adhesive coated slides and stained with HMB-45 immunohistochemical staining kit (Bio genex private Ltd, USA), which detects particularly activated melanocytes [Table/Fig-3,4].

- The H&E stained slides were graded as mild, moderate and severe epithelial dysplasia according to WHO 2005 criteria [8].

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Fibroepithelial Polyp with Sebaceous Hyperplasia: A Case Report

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Abstract

Fibro epithelial Polyp (FEP) is a polypoid outgrowth of epidermis and dermal fibro vascular tissue. This polyp is most commonly found in oral cavity, neck and axilla, though any skin fold may be affected like groin area. We describe a case of a 25-year-old male patient with a growth over the anterior rugae region of hard palate since 3 years. Based on histological appearance, diagnosis of sebaceous gland hyperplasia in fibroepithelial polyp was given which itself is a rare entity, and in our case, it was encountered at the rarest of sites.

Keywords: *Fibroma, Polyp, sebaceous gland hyperplasia*

Introduction

The oral cavity is a dynamic site being exposed to various external and internal stimuli, resulting in a myriad of diseases, from developmental to reactive and neoplastic. Fibroma of the oral mucosa is an inflammatory hyperplastic lesion of the connective tissue and is most commonly seen in older adults but can occur at any age, with a prevalence of 1–2%.[1]

Daley *et al.* suggested the term "focal fibrous hyperplasia" (FFH), which implies a reactive tissue response therefore preferable than the term "fibroma." It is also known as irritation fibroma (IF)/traumatic fibroma/ FFH/fibrous nodule/fibro-epithelial polyp.[2]

Cooke described all the pedunculated swelling arising from a mucosal surface as "polyp" (fibro-epithelial polyp), where maximum number of lesions occurred on the mucosa in the line of occlusion, and the entire pedunculated and sessile lesion in the gingival as "epulides" (fibrous epulides), which commonly occurred in the maxillary anterior region.[3]

Sebaceous adenoma and sebaceous gland hyperplasia (SGH) are rarely diagnosed intraorally,[4] being more frequent on the face of elderly patients with a predilection for forehead and scalp. However, intraoral sebaceous glands are quite common and usually found on the vermilion border of the upper lip and on the buccal mucosa[5] as Fordyce's spots. Sebaceous SGH is diagnosed based on the following criteria as suggested by Daley.[6]

1. A clinically distinct lesion requiring biopsy for definitive diagnosis
2. Histological presence of well-differentiated sebaceous glands that exhibits no fewer than 15 lobules per gland.

In this article we present a rare case of fibro-epithelial polyp showing sebaceous gland hyperplasia on the anterior region of hard palate.

Case Report

A 25-year-old male patient reported with a growth over the anterior rugae region of hard palate present since 3 years. The growth was smooth and shiny, pedunculated, in appearance and slightly pale in color as compared to the normal mucosa measuring 5 cm × 2 cm in dimension and situated in the region of anterior hard palate [Figure 1].

On histological examination, hyperkeratinized stratified squamous epithelium overlying dense connective tissue stroma was reported. The epithelium showed areas of keratin plugging along with collection of sebaceous glands in subepithelial regions. These lobules contained undifferentiated cells in the periphery and mature sebocytes with clear cytoplasm in the centre. Sheets, islands and cystic spaces of squamous epithelial cells and sebaceous cells were seen, without any cellular atypia or mitosis [Figure 2]. Underlying connective tissue was dense fibrous and collagenous containing

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THE ETIOLOGY OF EARLY CHILDHOOD CARIES A NARRATIVE REVIEW

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Abstract

Background

Early Childhood Caries (ECC) is a serious form of dental caries that affects the primary dentition of young children. The present review provides etiological issues of ECC in light of its current understanding which has become a significant problem in many developing countries and some minority communities.

Types of Studies Reviewed

The Authors examined the literature regarding etiological factors of ECC and also explored several predisposing factors unique to young children related to the implantation of cariogenic bacteria, immaturity of the host defense systems, as well as behavioral patterns associated with feeding and oral hygiene during early childhood. To accomplish these goals, priority was given to systematic reviews and meta-analysis followed by randomized controlled trials, non-randomized clinical trials and cross sectional studies.

Results and Conclusions

The review highlights the complex etiology of ECC. It was found to occur as a result of infection with mutans Streptococcus that occurs vertically in most cases from the mother. Oral conditions including consumption of sugary foods and fluids and hypoplastic enamel at the time of infection may significantly favour the establishment of earlier infection and earlier onset of caries. Role of childhood feeding patterns to ECC was found to be inconclusive.

Key Words: early childhood caries; nursing bottle caries; dental caries; breast feeding; streptococcal infection; preschool.

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Introduction

Early childhood is a stage in human development and is generally the sum of toddlerhood and play age. During the last several years, investigations have paid considerable attention to the relationship between oral and general health. Many

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Original Article

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Dentistry Setion

Comparison of the Effect of PRP, PRF and Induced Bleeding in the Revascularization of Teeth with Necrotic Pulp and Open Apex: A Triple Blind Randomized Clinical Trial

VASUNDARA YAYATHI SHIVASHANKAR[1], DEXTON ANTONY JOHNS[2], RAMESH KUMAR MAROLI[3], MAHALAXMI SEKAR[4], RATHINAVEL CHANDRASEKARAN[5], SHANMUGAVEL KARTHIKEYAN[6], SENTHIL KUMAR RENGANATHAN[7]

ABSTRACT

Introduction: Treatment of a tooth with necrotic pulp and open apex is a special challenge to the clinicians. Apexification with calcium hydroxide and MTA barrier technique fails to induce continued root maturation which makes the tooth susceptible to root fracture. Hence, an ideal outcome for such a tooth should be regeneration of pulp like tissue into the root canal capable of continuing normal root maturation.

Aim: This study aims to compare the effect of Platelet Rich Fibrin (PRF), induced bleeding technique and Platelet Rich Plasma (PRP) in the revascularization of tooth with necrotic pulp and open apex. The main objectives of the study were to: (a) Radiographically evaluate the continuation of root development, increase in the dentin wall thickness and narrowing of canal space, apical closure and resolution of the periapical lesion; and to (b) To clinically evaluate the response to pulp sensibility testing and response to percussion and palpation tests.

Materials and Methods: Sixty patients (6 to 28 years) with necrotic immature permanent tooth were randomly categorised into three groups after the root canal disinfection procedure. PRF as scaffolding material (Group A: n=20), revascularization with conventional induced bleeding technique (Group B: n=20), and PRP as the biomaterial (Group C: n=20). The primary outcome variable was measured using Periapical Index (PAI) (for periapical healing), Chen and Chen index (for apical responses), Schei's ruler (for root lengthening and root thickening) and other clinical parameters. The Chi-square test was used to interpret the data among the three groups at the end of 12 months for the variables root lengthening and lateral wall thickness. ANOVA test was performed to compare the mean of the PAI scores of the three groups at preoperative stage and 12 months. If statistically significant, Bonferroni test was done to compare the outcome among the three groups. The significant level was set at $p<0.05$. Kappa agreement was used to see whether the clinical criteria of success (asymptomatic) were in agreement with radiographic criteria.

Results: At the end of 12 months, patients presented with no pain and no signs of reinfection or no radiographic enlargement of the pre-existing apical pathosis in all the three groups. PRP was better than PRF and induced bleeding technique with respect to periapical wound healing when used in the regenerative endodontic procedures. The groups were comparable on grounds of root lengthening and lateral wall thickening. Type 3 apical response was the most common apical response in all the three groups.

Conclusion: On analysing the pros and cons of the techniques performed, it is wise to establish induced bleeding technique as the standard endodontic procedure for revascularization of a non vital immature permanent tooth.

Keywords: Apical response, Pulp dentin complex, Root maturation, Schei's ruler, Triple antibiotic paste

INTRODUCTION

An archetypal outcome for a tooth with an immature root and necrotic pulp would be the regeneration of pulp tissue into the canal capable of bolstering the continuation of normal root development [1]. Three components contributing to the success of this procedure include, stem cells that are capable of hard tissue formation, signalling molecules for cellular stimulation, proliferation, and differentiation, and finally, a 3-dimensional physical scaffold that can fortify cell growth and differentiation [2]. The induced bleeding technique of revascularization is well documented in the literature [3-5].

PRP has been mentioned as a potentially ideal scaffold for regenerative endodontic treatment regimens because of its increased growth factor concentrations [1]. PRF is a second generation platelet concentrate which requires no biochemical handling of blood and is easy to procure [6]. The potential applications of PRF as a biologic scaffold to promote the regeneration of lost or injured dental pulp tissues and stimulate dentinogenesis was mentioned in a research study [7]. It has been mentioned that PRF is an ideal biomaterial for pulp dentin complex regeneration [8].

No study has compared the effect of PRP, PRF and induced bleeding in the revascularization of a tooth with necrotic pulp and open apex. The purpose of this study was to add knowledge to the existing literature in the field of regenerative endodontics by comparison of the effect of PRP, PRF and induced bleeding in the revascularization of a tooth with necrotic pulp and open apex. The main objectives of the study were to: (a) radiographically evaluate the continuation of root development, increase in the dentin wall thickness and narrowing of canal space, apical closure and resolution of the periapical lesion; and to (b) to clinically evaluate the response to pulp sensibility testing, percussion and palpation tests.

MATERIALS AND METHODS

A triple blind randomized controlled trial was conducted at Government Dental College, Calicut, Kerala over a period of one

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Original Article

Barriers to dental care for children with special needs: General dentists' perception in Kerala, India

Amith Adyanthaya, Natta Sreelakshmi, Sajeela Ismail, Marium Raheema

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ABSTRACT

Introduction: Special children are among the underserved dental patient groups around the globe. Oral health care for disabled children remain an unmet challenge. One out of two persons with a significant disability cannot find a professional resource to provide appropriate dental care. Identification of barriers can be the first step in addressing the deficiencies in dental care for such patients. **Aim:** To investigate the perception of dental practitioners in Kerala, India regarding the hurdles faced by them in providing dental care to Special Needs Children including the challenges faced by them. **Materials and Method:** 149 dental professionals were interviewed through a questionnaire for their perceived barriers to provide oral health care for children with special needs. **Statistical analysis:** The data was obtained and Chi-square test, Pearson correlation coefficient and logistic regression model were assessed using the SPSS version 20.0. All analyses were performed using a level of 0.05 for statistical significance. **Results:** Greatest barriers as perceived by the practitioners were their level of training and lack of motivation of caretakers. Significant association was found between experience of the dentist with the frequency with which they reported seeing children with special needs ($p<0.05$). **Conclusion:** Findings from this study provide a valid picture of barriers to access for children with special needs within general dental private practice system. Recommendations for amendment of undergraduate dental curriculum is made in order to equip future graduates to deal with this group of children better.

KEYWORDS: Barriers, disability, oral health, special children

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Introduction

India ranks number two in the list of countries by population. The population of India is equivalent to 17.84% of the total world population.[1]

In 2001, it was reported that over 21 million people in India were suffering from one or the other kind of disability and this constitutes about 2.1% of the population of the country. According to United Nations Enable, around 10% of the world's population live with disabilities. The United Nations Universal Declaration of Human Rights (1948) emphasizes equal rights to good health and well-being even for persons with disability. Children with special healthcare needs (CSHCN) is one of the underserved dental patient groups throughout the world.

The poor oral hygiene can be attributed to underlying disability, reduced manual dexterity, or sometimes as a side effect of certain medications.[2]

Despite advances in dentistry, general oral health of people with special needs remains poor. The prevalence of dental caries might be or might not be similar to the general population but other aspects like periodontal

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TRI IMMUNOPHASIC THERAPY IN PERIODONTOLOGY

*Dr. Arya Sreedhar,**Dr. Harish Kumar VV, ***Dr. Santhosh VC,
****Dr. Sreekanth P



Dr. Arya Sreedhar

Abstract

Periodontal disease describes a group of related inflammatory reactions resulting in destruction of periodontium due to upregulation of immune response and in the presence of disease causing pathogens resulting in loss of attachment and bone loss. William Hoisington has developed a new non-invasive technique known as Tri-ImmunoPhasic periodontal therapy (TIP) which allows practitioners to go up to the crest of the alveolar bone and destroy anaerobic bacteria. The methods involved are: Bone One Session Treatment, Controlling occlusal Forces, Oral Hygiene reinforcement with adjuvant modalities, Life Style modification, enhancing nutrition and Exercise. TIP can alter the pathogenesis by removing the etiological factors as well as guide the tissue for regeneration and new attachment.

Key Words: Periodontitis, Tri immunophasic therapy, TIP, BOST

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Introduction

Periodontal disease leading to destruction of periodontal ligament and the underlying alveolar bone plays a major part of the burden of oral diseases. Predominantly, gram negative anaerobic bacteria are considered to be pathogenic to dental supporting tissues.[1]

The treatment modalities includes both non-surgical (scaling, root planning, home care oral hygiene practices) and surgical (periodontal incision flap) treatment. Healing after both these treatments are slow and incomplete, also recurrence is high. Mechanical methods of subgingival debridement accomplished by thorough scaling & root planing, accompanied by oral hygiene procedures still serve as a gold standard of periodontal therapy since decades.

US periodontal therapist William Hoisington has commenced a new technique in treating periodontal disease known as Tri-Immuno Phasic periodontal therapy (TIP). TIP targets at complete healing of periodontal disease which is a relatively new concept. Most writing on the subject speaks of managing periodontal disease, acquiescing to its chronic nature, slowing it down, or reducing pockets. [2]

TIP allows practitioners to go up to the crest of the alveolar bone and destroy anaerobic bacteria – aggressive pathogens which not only causes degeneration of alveolar bone and gingiva, but also penetrate the body's circulation and contribute to systemic complications such as coronary heart disease, osteoporosis, pre term low birth weight and infertility.[2]

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The effect of infertility treatment on periodontium

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Abstract

Aim: Women undergoing infertility treatment can be considered to be a 'risk group' for periodontal disease, due to prolonged, sustained serum levels of progesterone and oestrogen. This investigation aims to study the effects of infertility treatment on periodontal tissues of infertile women.

Methodology: 60 women of the age group 18-35 yrs. were included in the study- 20 women in whom infertility treatment had not yet been initiated (Group I), 20 women undergoing treatment for infertility (Group II) and 20 women who had conceived and delivered naturally (Group III-control group). Clinical parameters such as Oral hygiene index- simplified (OHI-S), Gingival index (GI), Sulcus bleeding index (SBI) and Clinical attachment loss (CAL) were assessed.

Results: Despite similar OHI-S scores ($P > 0.05$) in all groups, women of Group II had significantly higher gingival inflammation ($P < 0.05$) compared to women of Group I and Group III.

Conclusions: Increased levels of estrogen and progesterone in infertile women undergoing assisted reproductive therapy is associated with increased prevalence of gingival inflammation and clinical attachment loss. These patients require meticulous oral hygiene practice and periodic professional consultation.

Key words: Assisted reproductive therapy, Infertility, Estrogen, Progestrone, Gingivitis, Loss of attachment

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Introduction

Infertility is "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.".[1] This condition may be classified as primary infertility, in which no previous pregnancies have occurred and secondary infertility, in which a prior pregnancy, although not necessarily a live birth, has occurred.[2] The World Health Organization (WHO) estimates that approximately 8% to 10% of couples worldwide experience some form of fertility problem. Today, there is a wide range of medical help that can be offered to infertile couples. In the past few years, there has been great advances in infertility treatment. These new therapies which are commonly referred to as assisted reproductive technology (ART) have raised the hopes in growing number of infertile couples around the world.[3]

A woman undergoing infertility treatment is mainly given drugs for ovulation induction to produce as many healthy follicles as possible, so as to increase the chances of ovulation and to control the ovulation timing so that the eggs can be surgically retrieved and used for assisted reproductive therapy.[4,5]

Medications used for ovulation induction include clomiphene citrate, urofollitropins, human chorionic gonadotropins, human menopausal gonadotropin, menotropins, and follicl stimulating hormone and pulsatil gonadotrophin releasing hormone.[3] Clomiphene citrate is a non-steroid estrogen antagonist that increases follicl stimulating hormone and luteinizin hormone levels by blocking estroge negative feedback at the hypothalamus. I is the most commonly used drug for thi purpose. A woman taking these drug produces twice or thrice the amount o progesterone and estrogen in that cycl compared to pre-treatment cycles.[6]

Table 1. Effects of estrogen on the periodontal tissues[7]

- Decreases keratinization whil increasing epithelial glycogen tha results in the diminution in th effectiveness of the epithelial barrie
- Increases cellular proliferation i blood vessels
- Stimulates phagocytosis of PMNLs
- Inhibits chemotaxis of PMNLs
- Suppress leukocyte production fron the bone marrow
- Inhibits proinflammatory cytokine released by human marrow cells
- Reduces T-cell mediated inflammatio
- Stimulates gingival fibroblast proliferation
- Stimulates the synthesis and maturation of gingival connective tissues
- Increases the amount of gingival inflammation with minimal amoun of plaque

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Original Research Article

Thermal alteration on the external root surface during endodontic treatment using three different rotary file systems: An in vitro study

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Abstract: The aim of this study is to evaluate increases in temperature on the external root surface during endodontic treatment with three different rotary file systems. Fifty human mandibular first premolars with single root canal were selected. All root canals were instrumented using a size 20 H file, and the canals were irrigated with 5% sodium hypochlorite solution. The samples were randomly divided into the following three groups of 15 teeth: Group 1: The Protaper Next Rotary Files X1 and X2; Group 2: The Mtwo rotary File 20/06 and 25/06 Group 3: The Hyflex rotary File 20/06 and 25/06. During the preparation, the temperature changes were measured in the middle third of the roots using a noncontact infrared thermometer. The temperature data were transferred from the thermometer to the computer and were observed graphically. Statistical analysis was performed using the oneway ANOVA analysis of variance at a significance level of 0.05. The increases in temperature caused by the Hyflex rotary file system were lower than those of the other files. The Mtwo rotary file showed the highest temperature increases. However, there were no significant differences were noticed between the Protaper Next and Hyflex rotary files in terms of temperature increase during root canal preparation. Mean temperature increases no higher than 3.4°C were recorded for any of the system examined, which indicates that these instruments are safe for the surrounding periodontal tissues.

Keywords: infrared thermometer, Protaper Next, Mtwo, Hyflex.

INTRODUCTION

The aim of endodontic treatment is thorough debridement and cleaning of the root canal system of any infected pulp tissue so the canal space can be shaped and prepared to be filled with an inert material thus preventing or minimizing any chances of reinfection [1]. Nowadays, there is an extensive array of nickel-titanium instruments available to the endodontist and appear promising as effective instruments for cleaning and shaping [2]. During rotary instrumentation frictional force generates heat along the root canal walls due to difference in velocities between the two sliding surfaces [3]. Surface and near-surface temperatures can become raised enough to cause changes in the structure and biological behavior of the adjacent tissues. These complications include tooth ankylosis, bone necrosis and resorption [4]. The study by Eriksson and Albrektsson reported that a temperature increase of 10°C on the outer root surface caused bone resorption and tooth ankylosis [4]. In 1972, Matthews observed that the threshold temperature increase for alveolar bone is 19°C because this temperature increase results in alkaline phosphatase denaturation [5]. However other studied observed that even temperature rise less than 19° may also results in protein denaturation and alveolar bone necrosis. In 1982, Eriksson and Albrektsson in another study indicated that exposing the bone to a temperature of 53°C for 1 min interrupted the blood flow [6]. In 1988; Sauk et al observed the exposure to a temperature of 43°C may result in protein denaturation in the periodontal ligament [7]. There are several methods of measuring tissue temperature with or without contact [8]. Infrared thermometers can measure the tissue surface and determine the superficial temperature without contact. The aim of the study is to evaluate the temperature changes on the external root surface during root canal preparation with three different rotary file systems (Protaper Next, Mtwo and

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PRF and Bonegraft-Magical tools in Periodontics- A case report

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Abstract

Periodontal regeneration can be defined as the reconstitution of a lost or injured part to restore the function of the periodontium. Regeneration of lost periodontal tissues are the ultimate goal of any periodontal therapy. Platelet-rich fibrin (PRF) was developed in France by Choukroun et al in 2001. It belongs to a second generation platelet concentrate with autologus fibrin matrix containing cytokines and platelets. In periodontal wound healing it helps and motivates tissue repair. This case report investigate the effectiveness of autologous PRF along with the use of DFDBA (Demineralised freeze dried bone graft) in the management of intrabony defects.

Keywords: DFDBA, Chronic periodontitis, Intrabony defects, Platelet rich fibrin.

Introduction

Periodontal disease can be defined as a complex, multifactorial disease characterized by the loss of connective tissue attachment with destruction of periodontal tissues.[1] The elimination of inflammatory process, the prevention of progression of periodontal disease and the regeneration of the lost periodontal tissues are the ultimate goal of periodontal therapy.[1] Root biomodifications, bone grafts, soft tissue grafts, guided tissue regeneraton and combinations of above procedures include various periodontal regenerative procedures.[2]

A sequence of coordinated interactions between gingival fibroblasts, epithelial cells, periodontal ligament cells and osteoblasts leads to periodontal wound healing. The rupture of vasculature during wound healing leads to fibrin formation, platelet aggregation and release of several growth factors into the tissues from platelets through molecular signals.[3]

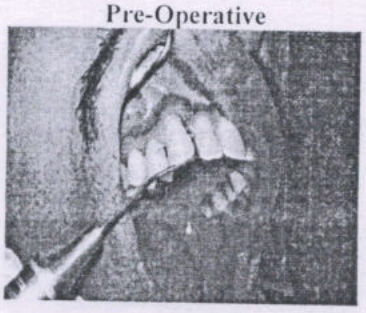
As platelets are the hub of growth factors and cytokines they play an important role in periodontal regeneration. Growth factors and cytokines in platelets play unique roles in inflammation and wound healing.[4] Platelets secrete fibronectin, vitronectin and fibrin which acts as a matrix for connective tissue and as adhesion molecules for cell migration.[5]

This has led to the idea of using platelets as therapeutic tools to improve tissue repair particularly in periodontal wound healing. The clinical application of different bioactive surgical additives that manipulate surgical wound environment is the important step in developing new therapeutic approaches in order to enhance the wound healing.[5]

Case Report

A 35 yr old male patient came to the Department of Periodontology KMCT Dental College with slight mobility of upper right canine(13) and also bleeding from the gums. On intraoral examination it was found that there was a grade I mobility of 13. An IOPA radiograph was taken and it was found that there was a vertical bone loss in the distal aspect of 13. Endodontic treatment of 13 was performed. Splinting was done on the buccal aspect connecting 12, 13, and 14. After 2 weeks periodontal flap surgery was planned. Lignocaine hydrochloride injection 1.8 ml was injected in the buccal vestibule. Crevicular incisions are placed using a no 11 bard-parker blade from 12 to 14. Flaps are elevated using molt no.15 periosteal elevator. The exposed root surface was thoroughly debrided and root planed. DFDBA (Osseograft) was emptied into a dappen dish and were incrementally added to the defect. Autologus PRF was prepared and mixed with Osseograft and was condensed in the defect. The flap was closed with 3'0' black braded silk. A tension free primary closure was obtained. Periodontal pack was placed. Antibiotics and analgesics were prescribed. 500 mg of amoxycilin 3 times a day for 5 days and a combination of mefenamic acid with paracetamol for 5 days were prescribed. Post-operative instructions were given. Patients were adviced to avoid chewing in the area for 2 weeks and not to brush for 10 days. Suture removal was done after 10 days. Recall appointments were scheduled at 3 and 6 months after the surgery for soft tissue evaluation and recording clinical variables.

Pre-Operative



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Endo-perio lesion- A diagnostic quandary

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Abstract

The pulp and periodontium originate from ectomesenchyme. They are embryonically, anatomically and functionally inter-related. The concurrent existence of pulpal inflammation and periodontal disease are clinical dilemma as it can complicate diagnosis and treatment planning. This case report evaluates the efficacity of decalcified freeze-dried bone allograft (DFDBA) along with bio-resorbable barrier membrane in the management of right maxillary central incisor. A patient aged 33 yrs reported to our department with endo-perio lesion in right maxillary central incisor. It was treated with decalcified freeze-dried bone allograft (OSSEOGRAFT) along with bio-resorbable barrier membrane (PERIOCOL). 6 months after the procedure, there was improvement in clinical parameters.

Keywords: DFDBA, GTR membrane, Endo-perio lesion

Introduction

Dental pulp and periodontal tissues are ectomesenchymal in origin. The pulp originates from dental papilla and periodontal ligament originates from dental follicle. They are separated by Hertwig's epithelial root sheath (HERS). In 1964, Simring and Goldberg first described the relation between diseases of pulp and periodonium.[1] Since then, the term "endo-perio" lesion has been used to illustrate the lesions with varying degree of inflammation in both pulpal and periodontal tissues.

Endo-perio lesion presents challenges to the clinician with respect to diagnosis and prognosis of the involved teeth. Although there are many factors that lead to the development and progression of endodontic and periodontal diseases, the most important cause is bacterial infections with complex microbial flora. The similarities of the microbial flora of the endodontic and periodontal lesions have been reported by many authors.[2,3] If lesion in one of these tissues is left untreated, it can lead to signs and symptoms of disease within the other tissue.[4,6]

Classification

Simon et al. classified endo-perio lesion based on primary source of infection. It is the most accepted and commonly used classification.[7]

- Primary endodontic lesion
- Primary periodontal lesion
- Primary endodontic lesion with secondary periodontal involvement
- Primary periodontal lesion with secondary endodontic involvement
- True combined lesion

Connecting paths between endodontium and periodontium: The endodontium and periodontium develop from a common ectomesnchymal origin which results in numerous communication channels, which may lead to the spread of pathological disorders. The common possible pathways for spread of bacteria and their products are: Anatomical and Non-physiological.[8]

Anatomic pathways: The primary connection between the pulp and periodontium are apical foramina. In addition, there are numerous lateral and accessory canals that connect the main root canal system and the periodontium. Dentinal tubules are the third most common anatomic route for spread of infection.[8]

Non-physiological pathways: Iatrogenic root canal perforations and vertical root fractures are main cause. They are produced by powered rotary instruments during access opening or tooth preparation for post placement. It can also be caused by improper manipulation of endodontic instruments. They are critical complications of dental treatment and have poor prognosis.[9]

Vertical root fractures are caused by trauma to the tooth. It can occur in vital as well as non-vital teeth. In vital teeth it can be an extension of coronal fractures in the "cracked tooth syndrome" or it can occur exclusively on root surfaces.[10]

Case Report

A healthy female patient aged 33 years reported to the OPD, Dept. of Periodontology, KMCT Dental College, with the chief complaint of dull pain and mobility in relation to upper right front tooth from past 3 months. The pain was throbbing in nature. It was intermittent and aggrevated on mastication. Patient gave a history of trauma to her upper front tooth following which it was endodontically treated 1 year ago. There was no relevant medical history.

On intra-oral examination, a sinus opening with suppuration was present in relation to discoloured 11. A probing pocket depth of 9mm and gingival recession of 3mm was present. Grade I mobility was also present. It

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THE MYSTERIOUS CASE OF A DENTURE !

Sameera G Nath*

"He had just had a set of false teeth inserted, which accounts for the constrained expression so noticeable about the mouth and lower part of the face."

GILBERT STUART, PAINTER

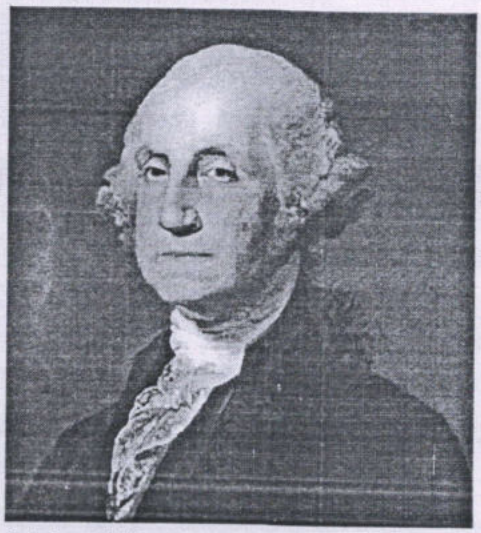


Fig 1: George Washington

When George Washington opened his mouth at New York's Federal Hall to take the oath as the first President of the United States, he wore awkward-fitting, painful, face-disfiguring dentures. For years, he had suffered from dental problems; that morning he had swollen, burning gums and only a single original tooth in his mouth-A Premolar!

One of the most popular historical exhibits at Mount Vernon, originally the estate of the first President of the United States and now a monument to his life and legacy, is a set of the great man's dentures. The only complete surviving set of George Washington's dentures are on view at Mount Vernon, George Washington's beloved plantation on the Potomac River, not far from Washington, DC. Created by New York dentist Dr. John Greenwood, a dental pioneer, Washington's false teeth were a technological marvel of the 18th century. And they still fit poorly(Fig 2). The crude, handmade prosthesis, comprising both upper and lower teeth, is displayed in a circular glass case permitting a 360-degree view. The majority of Mount Vernon's one million visitors per year, one presumes, pause to stare at the famous choppers for at least a moment before moving on to the table settings.(For years, Washington's dentures were kept out of public view to avoid marring his image; they are now a popular attraction at Mount Vernon's excellent museum).

The fascination with George Washington's false teeth could be attributable to various factors — that they're a medical curiosity from the 18th century, when dentistry was still just this side of barbaric; that they're an intimate vestige of the man himself, letting us feel closer to him; or, maybe, that we're all just eager to see what was repeated is true: that the Father of USA had wooden teeth? The exhibit does not disappoint. One look at the contraption itself, is enough to see that it wasn't carved out of wood. Lead was used to create the top and the bottom bases that fit against Washington's upper and lower jaw. No wooden teeth were ever used. The upper row of the dentures displayed at Mount Vernon consist of horses and donkeys' teeth and the lower row sports a mix of cow's teeth, elephant and walrus ivory, and actual human teeth.

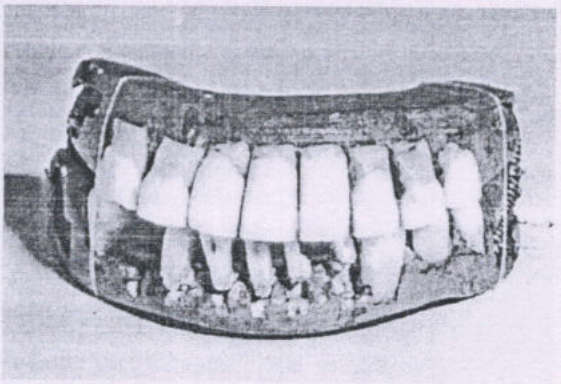


Fig 2: Denture worn by George Washington-He wore this particular set of dentures during the last nine years of his life

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CARPAL TUNNEL SYNDROME AND DENTISTRY

*Dr. Binu Purushothaman, **Dr. Harish Kumar V V,
*** Aarathi Krishna, ****Dr. Vivek G

Abstract

Carpel tunnel syndrome, or CTS, is a muscle-, tendon-, and nerve related disorder that affect people performing intensive work with their hands. It is a common upper extremity disorder, and the most common mononeuropathy.A relatively high number of dentists have a prolonged median ulnar latency, yet two thirds of the dentists affected are asymptomatic.Early recognition of symptoms and education regarding ergonomic risk factors is important in the successful management of CTS. Furthermore, because the relationship of symptoms to CTS still is not fully understood, proactive management of people at risk of developing CTS or experiencing pain is a reasonable approach to reducing the risk of future development of CTS.

Key Words: Carpel tunnel syndrome, median nerve, dentists

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Introduction

Carpel tunnel syndrome, or CTS, is a muscle-, tendon-, and nerve related disorder that affect people performing intensive work with their hands. It is a common upper extremity disorder, and the most common mononeuropathy. The main cause of CTS is increased pressure within the carpal tunnel, which consequently applies compressive force to the median nerve. The increased pressure upon the median nerve causes nerve ischemia, which is the source of the motor and sensory dysfunction experienced by patients inflicted with CTS. Most cases are idiopathic but are associated with other conditions such as obesity, hypothyroidism, arthritis, diabetes and trauma.



Fig 1 : Picture representation of CTS

Both dentists and dental hygienists have been reported to have a high prevalence of upper extremity musculoskeletal disorders, including CTS. A 1997 American Dental Association survey reported that 9.2% of dentists had been diagnosed by a physician as having some type of repetitive motion disorder. The

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Case Report

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JRAD Journal of Research and Advancement in Dentistry

Compound Composite Odontoma in A 9 Year Old Boy: A Rare Case Report

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ABSTRACT

Background: Odontomas are odontogenic benign tumors composed of dental tissue. Majority of these lesions are asymptomatic and are very difficult to detect and are often detected on routine radiographs. They can be thought of as "tooth hamartomas" with the lesion consisting of various tooth components. They are divided histologically into complex odontomas and compound odontomas. Compound odontomas generally appear as small, solitary, multiple radiopaque lesions on a radiographic examination. Compound odontomas are commonly seen in the incisor canine region of maxilla and complex odontomas are frequently present in premolar and molar regions of both jaws. In this case compound odontoma is present in left anterior maxillary region blocking the eruption of canine and causing displacement of left maxillary lateral incisor in a 9 year old patient. The surgical removal of the lesion was performed to allow eruption of left maxillary permanent canine in the present case. The size of denticles removed varies from 3mm-5mm.

Keywords: Compound composite odontoma, surgical removal, denticles.

INTRODUCTION

Odontomas are mixed odontogenic tumors in which both the epithelial and mesenchymal components undergo functional differentiation and form enamel and dentin (Budnick, 1976; Shafer, 1993). They are hamartomatous lesions rather than true neoplasms (Budnick, 1976; Shafer, 1993).World health organization (WHO) classification defines this lesion as "a malformation, in which all the dental tissues are represented, individual tissues being mainly well formed but occurring in more or less disorderly pattern".Odontomas have been classified as benign odontogenic tumors and are subdivided into complex or compound odontomas morphologically.[1]

Odontomas generally appear as small, solitary or multiple radio-opaque lesions found on routine radiographic examination.[2] Odontoma may cause disturbances in the eruption of teeth such as impaction, delayed eruption or retention of primary teeth.[3]

CASE REPORT

A nine year old boy reported to the Department of Pedodontics and Preventive dentistry, K.M.C.T Dental College, Manassery, Mukkam, Calicut, Kerala with a chief complaint of spacing between permanent maxillary left central and left lateral incisor. This space was absent during primary dentition period but was evident with eruption of permanent maxillary lateral incisor. There was premature loss of left primary maxillary canine and lack of space for eruption of maxillary left permanent canine. The medical and family

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Case Report

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Dentistry Section

Identifying Aarskog Syndrome

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ABSTRACT

Aarskog syndrome also known as Aarskog-Scott Syndrome, Facio-digito-genital Syndrome or Faciogenital Dysplasia is a rare, X-linked disorder predominantly affecting males, characterized by facial, skeletal and genital anomalies. This is a case report of a 15-year-old male patient who visited our college complaining of poor facial aesthetics. History revealed consanguinity and his sibling to be suffering from the same. A diagnosis of Aarskog syndrome was made based upon the detailed patient history, thorough clinical evaluation and identification of characteristic findings in radiographs. Professional counselling explained him the nature of his condition and treatment options to correct dental anomalies and congenital malformations were advised.

Keywords: Aarskog-Scott syndrome, Facial anomalies, Genital anomalies

CASE REPORT

Syndromes not associated with severe medical problems or mental retardation can easily go unnoticed by physicians who may not be aware of the syndrome and co-related features. We report a case of 15-year-old male patient who came with a complaint of poor aesthetics because of missing teeth in the front region of the upper and lower jaws since childhood. He gave no history of extraction or exfoliation of teeth in front region of the jaw and there was no history of trauma either. He stated that he was the second son of consanguineous parents and had two brothers; the elder brother had a short stature, missing teeth and extra fingers. No relevant medical history was reported. On general examination he had short stature [Table/Fig-1], was well nourished and well oriented in time place and person. He had sparse scalp hair [Table/Fig-2]. His facial appearance was striking with abnormally large nose and ptosis of upper eyelids, hypertrophied and everted lower lip [Table/Fig-3]. The patient was 1.32 meter tall, weighed 46 kilograms and his vital signs were within the normal range. The patient had 6 digits on both his hands and the nails appeared smaller in size than normal [Table/Fig-4]. The patient could not adduct his thumb, index finger and the extra digit. Inward bowing of both lower limbs was noticed and both the feet had six toes [Table/Fig-5].

Intra-oral examination revealed an abnormally large tongue covering the occlusal surface of the mandibular dentition. The maxillary lateral incisors and all four mandibular incisors were missing. A high arched palate was observed with palatal positioning of second premolars [Table/Fig-6]. The maxillary central incisors were macrodontic with altered morphology and diastema [Table/Fig-7]. All the canines were conical in shape and the edentulous ridge of mandibular incisor region showed a soft tissue prominence and hyperplastic labial frenum [Table/Fig-7]. Based on the history and the clinical findings a provisional diagnosis of acrodental dysostoses was arrived. The other differential diagnosis considered were Weyers acrodental dysostosis which besides the dwarfism, postaxial polydactyly and dysplastic teeth is also characterized by cardiac problems but as patient did not report of any systemic problems and examination of vital signs did not reveal any abnormalities this was ruled out. Aarskog syndrome was also considered as similar features are noticed as in this case but a characteristic feature of genital abnormality had to be further examined. Leopard syndrome was excluded because of absence of multiple black macules on the skin and absence of sensorineural deafness.

Investigations: An Orthopantomograph (OPG) of the patient was done which confirmed all the clinical observations made regarding the number, shape and position of teeth. The hand wrist radiograph showed an extra digit and star like pattern of the digits [Table/Fig-8]. Further physical and clinical examinations were conducted by a general physician who acknowledged that there was no cardiac problem but the examination of genitals revealed unusual shawl like tissue around glans penis. This characteristic feature made us to presume the most probable diagnosis as Aarskog syndrome. Further blood investigations and genetic investigation to search for mutation in FGD1 were advised to the patient but he was quiet unwilling for further investigations. Besides explaining the patient his condition, prosthetic rehabilitation was done for him which was his main concern.

DISCUSSION

In 1970 Aarskog, in Norway, described a syndrome associating short stature with certain anomalies of the face, hands, feet, and



[Table/Fig-1]: Short stature. **[Table/Fig-2]:** Sparse scalp hair. **[Table/Fig-3]:** Large nose, droopy upper eyelids, hypertrophied and everted lower lip. **[Table/Fig-4]:** Extra finger on both hands, small nails.

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IRRIGANT ACTIVATION SYSTEMS IN ENDODONTICS: A REVIEW

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Abstract

The aim of endodontic therapy is the debridement of all vital or necrotic tissue, microorganisms, and their products from the root canal system. This may be accomplished by chemo mechanical debridement of root canal. However, irregular and oval canal cross-sections, accessory canals, isthmuses, fins, curves and apical delta make chemo mechanical debridement difficult. Thus irrigation of root canal system becomes very essential. Various irrigants and irrigation systems have been introduced. This review article features the newer advances in irrigation systems for better debridement of complex root canal system.

Key Words: irritant activation system, endodontics, review

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Introduction

In the hierarchy of cleaning and shaping of root canal systems, root canal irrigants are indispensable aids in dissolving and activating organic debris and destroying microorganisms. It is well established that even with the use of rotary nickel-titanium instruments currently available, central body of the canal, canal fins, isthmi and cul-de-sacs remain untouched that harbors tissue debris, microbes and their byproducts which might prevent close adaptation of the obturating material and result in persistent periradicular inflammation. Thus irrigation is the benchmark as it can reach where instruments cannot.

Throughout the history of endodontics, endeavors have continuously been made to develop more effective irrigant delivery and agitation systems for root canal irrigation. These systems might be divided in to two broad categories-manual agitation technique and machine assisted agitation devices. The objective of this review was to present an overview of contemporary irrigant agitation methods available in endodontics.[1]

➢ Manual Irrigation Techniques

Syringe Irrigation with Needles/Cannulas

The technique involves dispensing of an irrigant into a canal through needles/cannulas of variable gauges, either passively or with agitation. The latter is achieved by moving the needle up and down the canal space. 27 gauge needle is the preferred needle tip size for routine endodontic procedures.[2,3]

Needle-tip design: Several modifications of the needle tip designs(Fig 1) have been

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Radix entomolaris in mandibular Second molar: A rare case report

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Abstract

Radix entomolaris (RE) is a common variation present in mandibular first molars, in which on the ligual aspect we can find an extra root. But it's extremely rare to find an additional root in mandibular second molars. So understanding and being aware of this uncommon variant, helps to do endodontic therapy in a better way. Prognosis of mandibular molars with this root canal morphology will depend on an accurate diagnosis and careful application of clinical endodontic skill. This case report discusses endodontic management of one such rare case with RE in mandibular second molar.

Keywords: Radix entomolaris, Mandibular second molar, Root canal treatment

Introduction

The awareness and understanding of root canal anatomy of mandibular molar is very essential for the clinician to achieve the successful endodontic outcome. One of the main reasons for failure of root canal treatment (RCT) in molars is missed canal.[1,2]

The number, location of roots and root canals of permanent mandibular molars may vary. Generally, mandibular molars have 2 roots, however, the presence of an extra root is a major anatomic variant, first identified by Carabelli in 1844. This third root in human permanent mandibular molars can be located either lingually - radix entomolaris (RE) or facially - radix paramolaris (RP).[3]

By analyzing pre-operative radiograph we can certainly identify anatomic variations in root morphology. To avoid complications or missing of canals (RE/RP) during endodontic therapy, an accurate diagnosis of is very important. Since these additional root canal is mostly located bucco-lingual plane which is same as the other two roots. So it may go undiagnosed because of superimposition. A complete examination and analysis of any such variations like an unclear outline / contour of any root (mesial or distal), is very important as it may suggest an "hidden" RE/RP.[4] Ingle *et al* has recommended a thorough radiographic study of the involved tooth, using exposure from the standard buccal-to-lingual projection, one taken 20° from the mesial, and the third taken 20° from the distal to obtain basic information regarding the anatomy of the tooth.[5]

A 1985 study by Walker and Quackenbush claimed that panoramic radiographs resulted in an accuracy rate of approximately 90%.[6]

According to a review of literature RE has been reported occurring in the first (7.4%), second (0%), and third mandibular permanent molars (3.7%) occurring with a least frequency or none on the second molar.[7]

But in an another study the prevalence of radix molars in the Malaysian population was 9.9% (4.9% in first, 2% in second and 3% in third molar).[8]

Tratman and others surveyed the Indian population found its frequency <5% Presence of RE in the first mandibular molar is most commonly seen in the Mongoloid population.[9] There was no specific incidence rate in relation to mandibular second molar.

So with present available literature we can understand that incidence of radix entomolaris in mandibular second molar is very rare. The following case report describes management of one such rare case.

Case Report

A Female patient of 19 years of age was referred to the clinic. Her chief complaint was pain in the lower right back tooth area since 3days. There was tenderness on vertical percussion. No abnormality on periodontal probing and no mobility was found. On radiographic examination a deep carious lesion very close to pulp was seen. There was periodontal widening seen on both mesial and distal aspect of the both roots. There was an additional root present on distolingual aspect.

With these examination, it was confirmed the diagnosis of irreversible pupitis with apical periodontitis.

A non-surgical root canal therapy was planned and explained to the patient with possible outcomes and prognosis.



Fig. 1: Pre-operative radiograph

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Prevalence of halitosis and its relationship with oral hygiene practices, oral habits and oral health status among patients attending a dental institution in Bangalore city

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ABSTRACT: Halitosis is any disagreeable odour in expired air, regardless of whether the odorous substances originate from oral or non-oral sources. It can actually be an indication of more serious health concerns. Poor oral hygiene, periodontal diseases, nasal problems, and various systemic illnesses can be various reasons behind halitosis.
Two hundred and forty four subjects (134 males and 110 females) in the age group of 18-65 years were selected from the out patients attending the oral medicine department. Halitosis was assessed with organoleptic measurement. Assessment of oral health included decayed, missing and filled teeth (DMFT), periodontal status by Community Periodontal Index (CPI), Oral Hygiene Index Simplified (OHI-S) and Tongue Coating score (TCS) (Oho et al 2001). The prevalence of halitosis was 28.3%. Smoking (OR = 3.6; 95%CI:1.84-7.07) ,presence of pockets and poor oral hygiene ($p<0.001$) were significantly associated with halitosis.

KEYWORDS: Halitosis; Tongue coating; Organoleptic measurement

INTRODUCTION

The term halitosis is originated from the Latin word halitus means breath, and the Greek – osis which is an unpleasant condition experienced by most of the individuals [1]. It is broadly used to describe any unpleasant or disagreeable odour in expired air [2]. Many terms have been used synonymously for halitosis like fetor ex ore, fetor oris and stomatodysodia (dysodia in Greek refers to stench) [4]. Many factors contribute to halitosis like tongue coating, deep dental caries, periodontal disease, oral infections, periimplantitis, pericoronitis, mucosal ulcerations, denture stomatitis, reduced salivary flow rate and poor oral hygiene.

The major compound causing intra-oral halitosis is mercaptan whereas dimethyl sulphide (C_2H_6S) is responsible for extra-oral or bloodborne halitosis. Volatile sulphur compounds (VSCs) like hydrogen sulfide (H_2S), methyl mercaptan (CH_3SH) and dimethyl sulfide $(CH_3)_2S$ produced by the proteolytic degradation of various substrates from mouth constitutes a major portion of exhaled air which is responsible for bad breath [2].

Halitosis has been classified into three main categories based on the perception level: genuine, pseudo-halitosis, and halitophobia halitosis. The three main methods of analyzing halitosis are organoleptic measurement, gas chromatography (GC) and sulphide monitoring. Organoleptic measurement is a sensory test scored on the basis of the examiner's perception of a subject's oral malodour. Based on previous literature studies most reliable and practical procedure for evaluating a patient's level of halitosis is organoleptic measurement [4]. Halitosis can cause social stigma, affects interpersonal relationship, hampers self confidence and even lead to depression [5]. Many patients consider it to be a personal problem, apart from personal and social problems it also causes low levels of tissue toxicity and damage to periodontal tissues [6].

It becomes important to enhance the knowledge of self-perception of oral and general health among the population. In addition, current social norms emphasize the importance of personal image and interpersonal relationships. Hence the aim of the study was to assess the prevalence of halitosis and its relationship with oral hygiene practices, oral habits and oral health status.

MATERIALS AND METHODS

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Dentistry Section

Case Report

Carcinoma of Maxillary Sinus Masquerading as Odontogenic Infection

ASHIR KOLIKKAL RAMACHAMPARAMBATHU[1], MANOJ VENGAL[2], ABDULLA MUFEED[3], NIZARO SIYO[4], ANIS AHMED[5]

ABSTRACT

Malignant tumours of maxillary sinus are rare. They are usually diagnosed in the late stages when they perforate the sinus walls. The presence of large air space in the maxillary sinus facilitates asymptomatic growth of the sinus malignancy. The clinical presentation of these tumours depends on the sinus wall involved by the disease. The medial wall is usually the first to become eroded, leading to nasal obstruction, epistaxis or discharge. Rarely, symptoms of maxillary sinus carcinoma can resemble dental infection and the affected patients may visit dental clinic seeking treatment. This report presents a case of carcinoma of maxillary sinus mimicking odontogenic infection. Computed tomographic findings explained the reason for the present lesion to masqurade as an inflammatory condition. The importance of advanced imaging modalities for prompt identification of such lesions is discussed.

Keywords: Asymptomatic, Computed tomography, Squamous cell carcinoma

CASE REPORT

A 53-year-old male presented at the dental out-patient department with pain and swelling on the right side of the face of one month duration. Pain started after biting hard food on the grossly decayed tooth on the same side. The tooth was extracted for the same reason by a local dentist but the pain aggravated with the development of a swelling in the region. There was no significant response to antibiotics. Patient did not experience any bleeding or discharge from the swelling. The past medical, dental and personal history was unremarkable except for the habit of smoking bidis (A traditional form of tobacco commonly used among villagers in India) for the past 30 years. On examination, a diffuse swelling was evident over the mid face extending superiorly from the lower border of the orbit and inferiorly along the angle of mouth [Table/Fig-1]. The skin over the swelling was erythematous, stretched and shining. The lesion was bony hard in consistency; tender and local temperature was elevated. Intra-orally, the edentulous ridge of maxilla from right canine to right third molar region had healed satisfactorily. However, a diffuse swelling was seen on the slope of the edentulous ridge with obliteration of sulcus in relation to maxillary right second and third molar [Table/Fig-2]. Based on the history and clinical findings, a differential diagnosis of infected residual cyst and chronic osteomyelitis of right posterior maxilla was considered.

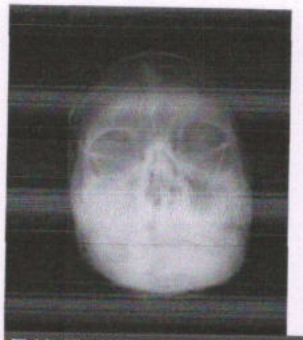


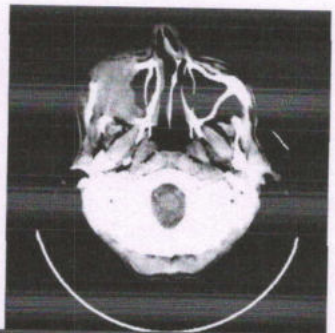


[Table/Fig-1]: Diffuse swelling on the mid-facial region. **[Table/Fig-2]:** Swelling along the edentulous ridge with vestibular obliteration.

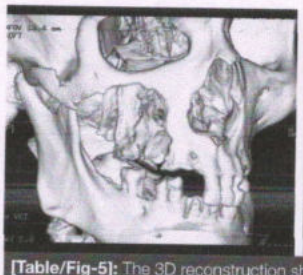
An Intraoral Periapical Radiograph (IOPAR) of the right maxillary posterior region was obtained which showed diffuse radiolucency with loss of continuity of the floor of sinus. Para Nasal Sinus (PNS) view exhibited diffuse haziness of the right maxillary sinus [Table/Fig-3]. Contrast enhanced Computed Tomography scan (CT) revealed lobulated infiltrative soft tissue attenuation mass lesion in the right maxillary sinus causing erosion of the floor, anterior and lateral wall of sinus with extension to maxillary region [Table/Fig-4,5].

Incisional biopsy of the lesion was performed through intraoral approach and the specimen was subjected to histopathological





[Table/Fig-3]: Para nasal sinus view showing diffuse haziness of the right maxillary sinus. **[Table/Fig-4]:** Axial CT showing soft tissue infiltration and destruction of bony margins.





[Table/Fig-5]: The 3D reconstruction showing aggressive bone destruction. **[Table/Fig-6]:** Histopathology showing malignant epithelial islands in the connective tissues.

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Closure of Relapsed Spaces with Composite Lingual Buttons – Two Case Reports

Rasool Karim Nizaro Siyo[1], Binu Purushothaman[2], Sameer Cherote[3], Rahul. C. S[3]

ABSTRACT

Introduction: It is interesting to note that patients who have strictly followed retention protocols and those who have violated the same have met with relapse in varying degrees. The reasons can also be varied like, periodontal ligament traction, continued abnormal growth pattern after orthodontic therapy, lack of adequate stabilization of teeth by surrounding bones in new position etc. The correction of relapsed malocclusions can be done with simple procedures like composite lingual buttons

Case report: Two patients one female aged 27 years and one male 29 years came to department of orthodontics with complaint of anterior spacing after treatment with fixed appliance therapy and chief complaint of open bite and spacing between upper and lower anteriors respectively. Both patients were treated with composite lingual buttons and satisfactory results were obtained.

Conclusion: In this era of peak advancement in orthodontic technology with lasers, self-ligating brackets, lingual braces, CADCAM technology, nanotechnology and robotics orthodontists should be aware of or should not ignore such simple, economical and effective techniques to tackle certain situations and ward of few disappointed patients to retain and uphold our faith in the society.

Keywords: Composite lingual button, relapse, Orthodontics, invisible

INTRODUCTION

It is interesting to note that patients who have strictly followed retention protocols and those who have violated the same have met with relapse in varying degrees.[1] The reasons can also be varied like

1. Periodontal ligament traction
2. Continued abnormal growth pattern after orthodontic therapy.
3. Lack of adequate stabilization of teeth by surrounding bones in new position.
4. Muscular imbalance at the end of orthodontic therapy.
5. Cause of malocclusion un-eliminated at the end of treatment.
6. Third molar eruption after the orthodontic treatment leading to late anterior crowding.

A simple technique to close relapse of anterior spacing in pre – treated cases can be done with composite lingual button as follows. Patient having anterior spacing with adequate incisal clearance is considered ideal case.

Procedure

a. **Fabrication of composite lingual button[2]:** After appropriate case selection 6 elastic separators are placed on a mixing pad. A cut is made on each separator with scalpel to facilitate easy removal after curing it on teeth. Each separator is filled with flowable composite and cured for ten seconds (Figure-1).

b. **Teeth preparation:** Palatal / lingual surfaces of selected anteriors are properly prophylaxed, and then etched with 37% phosphoric acid for 10-15 seconds and dried properly. Bonding agent is then applied and cured. A thin amount of flowable composite is applied on the prepared teeth surface. After completing these procedures the cured composite buttons are placed with gentle pressure to remove excess composite and cured for 10 seconds on each side. The separator can be removed at this stage (Figure-2). The pre-cut made on the separator facilitates easy removal. The space occupied by the separator forms the groove for E-chain engagement (Figure-3). The same procedure is repeated in the lower arch if the case demands. Patient to be reviewed after 1 week. Change of E-chain can be considered if necessary.

In the subsequent visits after correction, replace the E chain with ligature wire in figure of eight mode around composite button to form a permanent lingual retainer. Either prefabricated invisalign buttons or bondable metal buttons can be used as alternatives to composite.

Cases with mild to moderate anterior spacing can also be managed by the same method. Cases without adequate incisal clearance can be done by increasing the occlusal clearance with composite on the functional cusps.

CASE REPORT

Case 1

A female patient aged 27 years came to KMCT dental college with complaint of anterior spacing after treatment with fixed appliance therapy (Figure-4). She was very much reluctant to wear braces or removable appliance again. The option of closure of anterior spaces with composite lingual buttons was offered and complied by the patient. Since spacing was largely confined to, 11, 12, 21 and 22 lingual composite buttons were placed only on them.

At 2nd week almost half of the space was closed. Composite lingual buttons was given on lingual side of all lower anteriors. The elastomeric chain was replaced for upper anteriors and newly engaged for lower anteriors. During 3rd week only negligible space was remaining, which was closed by the 4th

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REVIEW ARTICLE

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Role of Lectins

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ABSTRACT

Introduction: The study of lectins began with the work of Hermann Stillmark in the year 1888. Lectins are carbohydrate-binding proteins of nonimmune origin and find application in diagnostic pathology.

Objectives: Recent research work shows a remarkable development in lectin science. This comprehensive review tries to emphasize the historical aspects, biological sources, classification, applications, and recent advances of lectins.

Materials and methods: Electronic database searches for published literature were performed. The following electronic databases with no language and publication date restrictions were searched: MEDLINE (via Ovid and PubMed), EMBASE (via Ovid), the Cochrane Oral Health Group's Trials Register, and CENTRAL.

Results: Lectins have been proven to be effective in *in vitro* trials for combating many medical conditions like cancer, autoimmune disorders, etc.

Conclusion: Lectins could be the next generation therapy if efficient research work is contributed to the understanding of their behavior.

Keywords: Carbohydrate, Drug delivery, Immunohistochemical markers, Lectins.

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INTRODUCTION

Lectin is a carbohydrate-binding protein or glycoprotein of nonimmune origin, which agglutinates or precipitates glycoconjugates or both.[1] "Lectin" hails from the Latin word "legere," which means "to select," and was coined by William Boyd in 1954.[2] Proteins that have the ability to agglutinate red blood cells with known sugar specificity are referred to as "lectins" and the term "hemagglutinins" is used when the sugar specificity is unknown[3] Lectins have the unique property of specific recognition and reversible binding with the carbohydrates and sugar-containing substances without altering the covalent structure of any glycosyl ligands.[4]

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Milestones in the History of Lectin Exploration

The study of lectins commenced with the work of Hermann Stillmark in the year 1888. He noticed that the crude extracts of castor beans (*Ricinus communis*) contained a toxic substance named ricin that agglutinated both human and some animal red blood cells. Reversibility of hemagglutination activity by heat was confirmed with the research of Landsteiner in 1902. Boyd and Sharpleigh in 1995 introduced the term "lectin" and Aub in 1963 discovered the property of agglutination of malignant cells by lectins.[1,2] In 2005, the concept of lectin microarray and lectin-based biosensors were put forth.[5,6]

Biological Sources

Lectins are widely distributed in nature in most of the edible plants and in some animals. The majority of plant lectins are present in seed cotyledons, rhizomes, and leaves. Legume seeds are rich sources of lectins. More research work has been concentrated on lectins that have been isolated from plants, particularly those extracted from members of the Leguminosae family.[1,3]

The common sources of plant lectins include the jequirty bean, common mushroom, mimosa tree seed, Japanese beetle, aloe plant, peanut, jack bean, and mango fruit seed. Animal lectin sources include eels, molluscs from Mediterranean sea and horseshoe crabs.[1,3]

Classification

- Sharon et al classified lectins based on the type of monosaccharide ligand into five groups:[5]
  1. Mannose
  2. Galactose/N-acetylgalactosamine
  3. N-acetylglucosamine
  4. Fucose
  5. N-acetylneuraminic acid
- Based on the structure, lectins are classified into:
  - *Merolectins:* These are composed of single carbohydrate-binding domain, incapable of precipitating glycol conjugates or agglutinating cells.

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ELECTRONIC APEX LOCATORS : A REVIEW

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****Dr. Ravi S.V, *****Dr. Sandeeplal

Abstract

The establishment of a correct working length is one of the fundamental parameters for endodontic success. Traditionally this has been determined using radiography, but electronic apex locators are increasingly being used. Electronic apex locators reduce the number of radiographs required and assist where radiographic methods create difficulty. The use of an electronic apex locator in combination with the radiograph is greater precision in the determination of root canal length. They may also indicate cases where the apical foramen is some distance from the radiographic apex. Other roles include the detection of root canal perforation.The aim of this paper is to review the electronic determination of the length of the root canal.

Keywords: working length,endodontics, apex locators

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Introduction

The success rate of conventional root canal treat ment is predictably high, as long as the basic principles of endodontic treatment are followed. Accurate determination of root canal length is particularly important to the success of root canal treatment. The outcome of treatment of roots with necrotic pulps and periapical lesions is influenced significantly by the apical level of the root filling. [1]

Traditionally, the point of termination for endodontic instrumentation and obturation has been determined by taking radiographs. The development of the electronic apex locator has helped make the assessment of working length more accurate and predictable. [2] The electronic method eliminates many of the problems associated with radiographic measurements. It is most important advantage over radiography is that it can measure the length of the root canal to the end of the apical foramen (AF), not to the radiographic apex.[3]

The aim of this review is to examine the variety of apex locators available and overview their development.

Morphology of the root canal terminus

Kuttler (1955) concluded that a root canal had two main sections, a longer conical section in the coronal region consisting of dentine and a shorter funnel-shaped section consisting of cementum located in the apical portion.[4] The shape of this apical portion is considered to be an inverted cone (Fig. 1); its base being located at the major apical foramen. The apex of the inverted cone is the minor foramen that is often thought to coincide with the apical

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NUTRIGENOMICS IN PERIODONTICS-WILL YOUR GENE SAY WHAT YOU SHOULD EAT?

*Dr. Fazeela Beegum, **Dr. Harish Kumar V.V, ***Dr. Santhosh V.C, ****Dr. Sreekanth Puthalath, ****Dr.Sameera G Nath, *****Dr.Shabeer Mohamed Madani

Abstract

Health of an individual is reflection of his nutritional status. Nutrition may be important in redressing the balance between microbial challenge and the host response because it has been implicated in a number of inflammatory diseases and conditions, including type II diabetes mellitus, cardiovascular diseases and rheumatoid arthritis all of which have also been associated with periodontal diseases. The observed differences in the response of an individual to dietary modification can be attributed to differences in their genetic make-up, which emphasizes the importance of exploring the role of nutrient–gene interactions in the development of chronic diseases. Nutrigenomics has emerged as a rapidly developing research area with great potential to yield findings that could change the way dietary guidelines for populations and recommendations for individuals are established and advised in the future.

Keywords: Nutrigenomics, Metabolomics, Proteomics, Transcriptomics, Periodontitis

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Introduction

"Leave your drugs in the chemist's pot if you can heal the patient with food."

Hippocrates

Since the times of the renowned Greek physician Hippocrates, nutrition has clearly had a predominant and recognizable role in health management. The health of an individual is reflection of his nutritional status. It is not only naïve, but also likely dangerous, to assume all individuals will respond identically to the foods they consume. The observed differences in the response of an individual to dietary modification can be attributed to differences in their genetic make-up. And this difference emphasizes the importance of exploring the role of nutrient–gene interactions in the development of chronic diseases.

Nutrition is identified as one of the key factors modulating host immune response. It has been studied for many years that nutritional intake has an effect on the levels of inflammation in various inflammatory diseases including periodontitis.[1] The interaction between genetic and dietary influences can result in a higher risk of disease in certain individuals and populations.[2]

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REVIEW ARTICLE

Clinical Photography in Orthodontics

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ABSTRACT

Clinical Photography has evolved as an important aid to become a very important aid and requirement for better clinical diagnosis, treatment planning and case documentation in modern Orthodontics and General Dentistry. The application of photography in dental practice is simple, quick and particularly useful in documenting of work, assisting in patient education and helping in clinical investigations, thus benefits dentists and patients. Its widespread application include self-checking of one's own results, illustration of lectures and publications, marketing and accomplishing electronic tele dental systems. This paperwork aims to assist practitioners to capitalize on the domain of digital dental photography in everyday practise thus making better quality treatment possible. This article attempts to give an overview of importance of clinical digital photography in day-to-day orthodontic practice, a moderate description of main equipment, present an outline of essentials and best-practices for maintaining high quality photographic records in a clinical setup.

KEYWORDS: Dental Photography, Digital Documentation, Clinical Photography, Photography In Orthodontics

INTRODUCTION

The word photography comes from Greek word meaning *"to write or draw with light."* The word "photography" was coined by Sir John Herschel in 1839.[1] Photography is the process of making pictures by means of the action of light. Light reflected from an object forms a picture upon a material sensitive to light. This picture is then chemically processed into a photograph; which provides a representation of the object.

Photography has played a significant role in medicine from the very beginning. One of the first photographs taken over 150 yrs ago was a microscopic picture of human bone. Digital photographic technique has been available since 1981. Photography also plays a major role in orthodontics. The aims of dental photographs are documentation and evaluation of craniofacial and dental relationship, Assessment of soft tissue profile, Monitoring of treatment progress etc. [2]

PHOTOGRAPHS IN ORTHODONTIC CLINICS

Intra-Oral Photographs: The major purpose of intra-oral photograph is to enable the orthodontist[3]:

- To review the hard and soft tissue at clinical examinations.
- To record hard and soft tissue condition as they exist before treatment

(Patient with white spot lesions of enamel, hyperplastic areas and gingival cleft are essential to document)

American Board of Orthodontics Requirements for Intra Oral Photographs are[4]:-

- Quality, standardized intra oral prints in color
- Patient dentition oriented accurately in all three planes of space
- One frontal view in maximum intercuspation.
- Two lateral view right and left.
- Optional two occlusal view maxillary and mandibular
- Free of distraction - check retractors, labels, and fingers
- Quality lighting which reveals anatomical contours and makes image free of shadows.
- Tongue retracted
- Free of saliva and bubbles
- Clean dentition.

GUIDELINES

- It is important to get permission from the patient before taking photograph
- Patient should be seated, leaning back slightly in the chair.
- Height of chair should be adjusted such that the patient's head is lower to that of photographer's
- All standard views should be done in horizontal frame
- A stable position of photographer is mandatory (since camera is handled and not placed on a tripod)
- The upper arm held against upper part of body with the left hand supporting front of lens
- The eye is not pressed against the eyecup but slightly in back of it. The other eye to be open
- Photographer leg should be supported by outside edge of the patient chair in order to find secure, comfortable position.
- Select magnification ratio according to the desired frame and focus by moving camera back and forth.

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INFORMATION

Is genotyping the next frontier of orthodontic treatment?

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Abstract

The relative influence of genetics and environmental factors in the etiology of malocclusion has been a matter for discussion, debate and controversy in the orthodontic literature. The term 'personalized medicine' give emphasis to human genome, which helps to provide treatment based on individual variation versus population trends. The views presented here are based on the central dogma that applying genetic knowledge to the field of orthodontics will undoubtedly change the way clinicians choose therapeutic modalities in the future. Currently there is increasing focus on gene therapy to treat wide variety of inherited and acquired diseases. If we can successfully sort patients based on their genotypes, we can start to propose targeted clinical treatment (i.e. personalized medicine in orthodontics). The clinician will be more aware of the unique genetic signatures of orthodontic patients enabling them to devise better treatment modalities customized according to the individual. This paper reviews the literature and summarizes the evidence for the influence of genetics in dental anomalies, malocclusion and emerging future trends in orthodontics.

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"We used to think our fate was in stars. Now we know, in large measure, our fate is in genes"- James Watson

Introduction

Every person has a unique variation of the human genome. An individual's health stems from genetic variations and influences from the environment. Advances in genome technologies have fueled expectations for this proactive healthcare approach.

Personalized medicine is a medical model that separates patients into different groups with medical decisions, practices, interventions or products being tailored to the individual patient based on their predicted response or risk of disease. "Personalized medicine" is based initially on pharmacogenetics and now exploding as genome-wide association studies are undertaken. The same may be projected for the future of orthodontics. The understanding of the combination and interaction of nature (environment) and nurture (genetics) together that influence the treatment response of our patients is fundamental to the evidence-based practice of orthodontics.[1]

Is genotyping the next frontier of orthodontic treatment?

Multiple factors and processes contribute to the response to orthodontic treatment. Genome-wide association studies are necessary to further the evidence base for the practice of orthodontics. Currently the diagnosis and treatment of most types of malocclusion is fraught with inconsistencies concerning the timing, duration and type of treatment. Therefore, the first and most critical step in the application of genetics to clinical orthodontics must be to develop a phenotypic categorization, which can subsequently be correlated with genotyping experiments.

The significance of genetics in malocclusion has been known for centuries and has always been a topic of great debate and a little controversy. Lundstrom and others examined the question of 'nature versus nurture' and found that both influenced the development of malocclusion to some extent, with genetics accounting for up to 50% of malocclusion.[2]

Inheritance of malocclusion

Malocclusion may be defined as a significant deviation from what is defined as normal or 'ideal' occlusion. The term 'normal occlusion' occurs in only 30–40 per cent of the population. There is dental anthropological evidence that population groups that are genetically homogeneous tend to have normal occlusion. In pure racial stocks, such as the Melanesians of the Philippine islands, malocclusion is almost non-existent.

Dental crowding is a problem for both adolescents and adults in modern society. Some studies suggests an association for the genes EDA and XEDAR in dental crowding. EDA (ectodysplasin) was shown to act in a morphogenetic role in teeth and other ectodermal organs. Mutations results in differential gene expression which causes large tooth phenotype. This ultimately results in crowding.[3]

Class II division 2 malocclusion is a distinct clinical entity and is considered as a 'syndrome' than the other malocclusion types. Familial occurrence of class II div 2 has been documented is several published reports including twin and triple studies by Kloeppel in 1953 and Markovic in 1992. Twin studies have shown 100% concordance rate for monozygotic twins and 90% discordance rate for dizygotic

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Compound Odontoma – A Case Report

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ABSTRACT

Introduction: Odontomas constitute about 22% of all odontogenic tumors of the jaws. They are considered to be hamartomas rather than neoplasms and are composed of the tissues native to teeth i.e. enamel, dentin, cementum and pulp tissue. Odontomas are generally asymptomatic and rarely diagnosed before the second decade of life.

Case report: A male patient of age 19 years came to the department of Orthodontics, with a chief complaint of malaligned upper front teeth. Intraoral examination revealed the presence of the primary teeth 63. Panoramic radiograph and a maxillary occlusal radiograph revealed the presence of multiple small radio opaque teeth like structures in the apical region of 63 and 21. These structures had disrupted eruption of the respective permanent tooth. The odontoma was surgically removed and orthodontic traction was used to correct the position of impacted permanent tooth.

Conclusion: Early diagnosis and absolute management of odontomas is necessary to prevent later craniofacial complications and other developmental problems. Orthodontic treatment may be indicated to correct the malocclusion resulting from impactions due to odontomas.

Keywords: Compound odontoma, orthodontic traction, odontogenic tumour, treatment.

INTRODUCTION

The title odontoma was originally coined by Broca in 1866, who defined it as a tumor formed by overgrowth of complete dental tissue. These odontogenic tumors can be found in any region of the dental arches. Odontomas constitutes about 22% of all odontogenic tumors of the jawbones and are considered to be hamartomas rather than neoplasms as they are composed of the tissues native to teeth i.e. enamel, dentin, cementum and pulp tissue.[1] According to WHO classification of odontogenic tumors (2005), odontomas are classified into two types, compound and complex odontomas. Odontomas can also be classified as central odontoma i.e. inside the bone, peripheral odontoma; which is present in the soft tissue envelope of the tooth-bearing areas of the jaws, and erupted odontoma based on their clinical presentation.[2]

The complex varieties of odontomas are seen less commonly when compared with the compound variety in the ratio 1:2. Most of the odontomas which are located in the anterior maxilla are of the compound variety, while the great majority of odontomas located in the posterior areas of the jaw bones, especially in the mandible, are found to be complex odontomas. Odontomas are usually asymptomatic and are rarely diagnosed before the second decade of life.[3]

The exact etiology of the odontoma is considered to be unknown. However, it has been proposed that trauma and infection at the location of the lesion offers optimal conditions for its appearance. Many a time odontomas are found in conjunction with unerupted/impacted teeth. In general they are not symptomatic, slow growing and rarely exceed the size of a tooth; nevertheless, when large they can cause expansion of the cortical bone. The cuspids, followed by upper central incisors and third molars, are the most frequent teeth impacted by odontomas. Few instances in which odontomas related to missing teeth have been reported. Generally these aberrations are intrabony, but now and again they may erupt into the oral cavity.[3]

Odontomas can also manifest as part of syndromes, like Gardner syndrome, familial colonic adenomatosis, Gorlin syndrome, Tangier disease or Hermann syndrome. The differential diagnosis should be established with ameloblastic fibroma, ameloblastic fibro-odontoma and odontoameloblastoma.[4]

CASE REPORT

A male patient of age 19 years came to the department of Orthodontics, with a chief complaint of malaligned upper front teeth (Figure-1). The clinical history of the patient was taken in detail to rule out any associated systemic pathology.

Intraoral examination of the dental arches showed the retention of the primary teeth 63. A panoramic radiograph and a maxillary occlusal radiograph (Figure-2) were obtained, which revealed the presence of multiple small radio opaque teeth like structures in the apical region of 63 and 21. These structures had disrupted eruption of the respective permanent tooth. These tooth-like structures were carefully excised, as well as tooth 63, under local anesthesia, without disturbing the un-erupted tooth (Figure-3). The impacted teeth 22 had an orthodontic device for traction attached during the operation. Specimens were then sent for histopathological examination which confirmed the diagnosis of compound odontoma. The patient was regularly examined, and two months after surgery an intra-oral periapical radiograph (Figure-4) was taken to view eruption of 22, which was found to be already in a more occlusal position.

DISCUSSION

Odontomas are generally asymptomatic, comparatively common odontogenic lesions, which are very rarely diagnosed before the second decade of life. Odontomas many a time leads to impactions and delayed eruption of permanent teeth.[5,6] The treatment according to published literature is surgical removal with complete excision of any affiliated soft tissues, since the

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ORIGINAL ARTICLE

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Submental intubation: alternative short-term airway management in maxillofacial trauma

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Abstract (J Korean Assoc Oral Maxillofac Surg 2016;42:151-156)

Objectives: To assess submental route intubation as an alternative technique to a tracheostomy in the management of the airway in cranio-maxillofacial trauma, along with an assessment of its morbidity and complications.

Materials and Methods: Submental intubation was performed in 17 patients who had maxillofacial panfacial trauma and management was done under general anesthesia during a period of one year from 2013 to 2014 at Departments of Oral and Maxillofacial Surgery and Dentistry, the Malankara Orthodox Syrian Church Medical College, Kochi, India.

Results: In all 17 cases, the technique of submental intubation was found to be simple and reliable. Hypertrophic scars were noted in three cases, oro-cutaneous fistula and mucocele in one case each. All these complications were managed comfortably without significant morbidity to the patient.

Conclusion: Submental intubation is a good technique that can be used regularly in the management of the airway in cranio-maxillofacial trauma, but with some manageable complications.

Key words: General anesthesia, Oral intubation, Submental intubation, Tracheostomy, Maxillofacial trauma

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I. Introduction

Early reconstruction by open reduction and rigid internal fixation has become the standard of care in the management of panfacial fractures[1]. Airway reconstruction and maintenance should be given equal importance during surgery. However, in cases of panfacial fracture, surgeons and anesthesiologists essentially compete for the same space. Surgeons require an unobstructed view for reconstruction and maxillo-mandibular fixation, if needed[2,3]. In such cases, oral intubation cannot be performed, as it may interfere with maxillomandibular fixation. Previously, in situations where oral and nasal intubation are contraindicated, a cricothyrotomy or tracheostomy has been used for airway maintenance[4].

In 1986, Hernández Altemir[5] introduced the submental route for intubation as an alternative technique for airway management in cranio-maxillofacial trauma. In this technique, a tube is passed through the anterior floor of the mouth in order to allow free intraoperative access to the oral cavity and nasal pyramid without compromising the airway in patients with skull base trauma. Submental intubation can be used for short-term airway control as an alternative to tracheostomy, but with minimal complications[6,7].

The purpose of this study was to investigate outcomes of submental intubation in a series of patients who underwent surgical intervention for management of panfacial trauma.

II. Materials and Methods

This was a prospective clinical study conducted at the

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Original Research

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An Evaluation of the Effect of Surface Treatment on the Bond Strength of Soft Denture Liners

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Abstract:

Background: The search for soft liners has narrowed down to the polymers. The guiding principle being that polymers, though not all have a characteristic property called glass transition temperature. Much controversy exists as to whether these materials are temporary or permanent. Because currently available materials do not meet all of the essential requirements for the ideal material, they are generally considered to be temporary expedients for the immediate solution of specific denture problems.

Materials and Methods: An *in vitro* study was carried out to evaluate the effect of surface treatment on the bond strength of soft denture liners. Poly methyl metha acrylate specimens were prepared and placed under four categories: (1) Control, (2) sandblasted with 50 µ aluminum oxide particles, (3) sandblasted with 150 µ aluminum oxide particles, and (4) sandblasted with 250 µ aluminum oxide particles.

Results: The soft liners used are Molloplast-B (Heat polymerizing), VLC soft reline material (Light polymerizing), and GC soft liner (Auto polymerizing). All the liners showed decrease in tensile strength and an increase in shear bond strength after sandblasting. There is no significant difference in bond strength when treated with different particle sizes.

Conclusion: Soft lining materials were applied to these surfaces and tensile and shear bond strength tests were performed. The results obtained were analyzed using a one-way analysis of variance. Tensile bond strength showed a decreased value after sandblasting, regardless of the material. Shear bond strength showed an increased value after sandblasting regardless of the material. No significant difference in the bond strength when treated with different particle sizes of aluminum oxide.

Key Words: Bond strength, poly methyl metha acrylate, soft liners

Introduction

Soft lining materials may be defined as soft compliant, viscoelastic materials which may be applied to the fitting surface of a denture base to assist in producing an even distribution of a functional load on the denture bearing mucosa.[1-3] The search for soft liners narrowed down to the polymers since it is only here, we find materials with high degree of resilience. The guiding principle being that polymers, though not all have a characteristic property called glass transition temperature (Tg).

Below the Tg, they are rigid like any processed acrylic denture base. Above this temperature, they behave like rubber. Tg of silicone base polymers is below mouth temperature, so they are rubbery at all times.[1] Tg of poly (methyl methacrylate) and poly (ethyl methacrylate) is above mouth temperature. So, they appear rigid most of the time. By adding chemicals called plasticizer, this temperature can be lowered.

Much controversy exists as to whether these materials are temporary or permanent. Because currently available materials do not meet all of the essential requirements for the ideal material, they are generally considered to be temporary expedients for the immediate solution of specific denture problems.

Heat activated materials are more durable and may be considered as long-term soft liners. These materials degrade over time and should not be considered permanent. Visible light cure soft reline resins has also been developed which has the advantage of direct intraoral relining of complete and removable partial dentures. Methacrylate, copolymers, silicones, and polyphosphazene have been used as long-term soft denture liners.[2]

In the case of plasticized vinyl and acrylic resins, the plasticizers gradually leach out, rendering these materials hard and changing their color. Silicone elastomers remain soft but adhere with difficulty to the acrylic resin base, become bleached, stain easily, and difficult to finish and polish. Other disadvantages are poor bond strength, colonization by candida albicans, porosity, and poor tear strength.[3] The bond failure also creates a potential surface for bacterial growth, plaque, and calculus formation. Therefore, frequent clinical evaluation and periodic replacement of a soft denture linear are generally required.

Although a number of materials are used as soft liner's, none of them fulfill the requirements of an effective soft denture

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Original Research Article

Comparative Evaluation of Apical Extrusion of E Faecalis Using Hand and Rotary Systems

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Abstract: The objective of the study was to evaluate the bacteria extruded apically during root canal preparation using hand and two rotary instrumentation techniques. The method include eighty freshly extracted mandibular premolars were mounted in bacteria collection apparatus. Root canals were contaminated with the pure culture of Enterococcus faecalis (ATCC 29212) and dried at 37 ^{0}c for 24 hour. Then teeth were equally divided into three experimental groups and one control group of 20 each. In group I teeth were instrumented with the hand stainless steel k files in group 2 instrumentation with rotary protaper universal in group 3-instrumentation with rotary protaper next and in group 4-No instrumentation is carried out.Then bacteria extruded were collected ,incubated in brain heart infusion broth for 24 hour at 37 ^{0}c and the colony forming units were counted.The result showed that all hand and rotary instrumentation technique extruded debris.Among all the instrumentation technique hand file extruded more number of debris and protaper next least number of bacteria.

Keywords: apical extrusion, E faecalis, hand file, protaper universal file, protaper next file

INTRODUCTION

The goals of endodontic instrumentation include thorough debridement and disinfection of the root canal system, in addition to creating a suitable shape to achieve a complete three dimensional obturation. In an effort to obtain these goals, debris such as dentinal shavings, necrotic pulp tissue, bacteria and their byproducts or irrigants may be extruded into the periradicular tissue. The extruded material has been referred to as a 'worm' of necrotic debris and has been cited as a major cause of mid-treatment flare-up [1].

Bacteria extruded mainly include gram positive, gram negative bacteria and obligate anaerobes. Microorganism seen in root canal failure cases include Enterococcus faecalis,propionibacterium alactolyticus and propionibacterium propionicum.E faecalis has been identified as a species most commonly recovered from post treatment cases [2].

Apical extrusion of debris has been associated with all types of instruments and instrumentation technique even when the preparation is maintained short of the apical terminus,with some instrumentation technique extrude less material than others.Various factors affect the quantity of apically extruded debris including instrumentation method ,file size and file types [3]. As all instrumentation technique produce some amount of apical extrusion, the choice of technique should also take into consideration how well the apical extrusion of debris can be controlled. Sonic and ultrasonic technique produces less apical extrusion of debris than hand instrumentation. Apical extrusion of debris tends to be greater with hand instrumentation than with technique that use rotary instrumentation because the file may act as pistons that push irrigating solution and debris towards the apex. Conversely rotary instrumentation may move debris along the files which may result in debris being expelled cervically [4]. Reddy and Hicks were the first to compare apical debris extrusion between manual instrumentation and engine driven technique [5].

Nowadays there are lots of rotary instruments. As they differ greatly in their design, type of blade use number of files and kinematics different amount apically extruded debris can be found between the system [6]. Previous study reported that protaper universal rotary file generated large amount debris that

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