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What is Paan Masala?

Available in brands in India like 'Raj Darbar', 'Paan Bahar', 'Goga', 'Rajnigandha', 'Tulsi', the paan masala is consumed by all age groups and social classes.

Most people across the world eat some mouth freshener after their meal or during leisure time. In the western countries, chewing gum is the common practice whereas in the Asian sub continent paan or paan masala is consumed. Today readymade packets of paan masala are available in western countries too.

Active Compounds in Paan Masala

The active chemical compounds of betel nut are alkaloids called arecaine and arecoline, arecaidine, arecolidine, guracine (guacine), guvacoline, etc. which are comparable to nicotine due to their stimulating and mildly intoxicating characteristics.

What is Paan?

Paan is a type of Indian snack, which consists of fillings of areca nut and pan masala, wrapped in a triangular package using betel leaf that is held together with a toothpick or a clove. It is chewed as a palate cleanser and a breath freshener usually taken after meal and during leisure hours. Paan is available in different flavours, viz. tobacco (tambaku paan), betel nut (paan supari or sada paan), sweet (meetha paan), etc.

What is Masala?

The term 'masala' refers to the spicy ingredients which one uses as a mixture in cooking, chewing of betel nuts, etc. In paan, the fillings of the masala enhances the taste and flavour, heightening the chewing effect. Paan without paan masala seems tasteless, hence paan and masala are interdependent terms.

The problems caused by consumption of pan masala are manifold. These include loss of ability to communicate and poor functioning of the nervous system. Lifelong addiction is another problem. The habit of chewing pan masala not only poses a serious health hazard for the individual, but it poses a problem to society at large. Public places defaced with the red spittle are something we should be ashamed of.

Strict laws are necessary to arrest the growth of pan masala culture among the youth. Mere statutory warning is not enough. The warning `selling tobacco products to those below 18 is punishable' is displayed at shops. These, however, serve as indirect advertisement that pan masala is available there. So The Government should enact new laws to regulate companies that promote the sale of pan masalas. It can also ban such products as they pose a threat to the lives of people.

Status Symbol

Today, paan as well as paan masala stands as a symbol of status and distinction.

Edited by: **Dr. K. Nandakumar,** Hon. Editor • Published By: **Dr. Shibu Rajagopal,** Hon Secretary • **For IDA, Kerala State Branch** • Production: **Suman Graphics,** sumangfx@gmail.com

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Contents

President's Message

Dr. Santhosh Sreedhar

Welcome you all to the third issue of our Official publication. Eight months have already elapsed in this IDA year and I feel proud and happy about the successful programmes conducted in the last three months. Notable among them are State level Student Convention - DENTA FEST 2011, Observation of Anti-Tobacco day, International Tour, State Level CDE programmes on "Practice Management and "Fixed Prosthesis", Oral Hygiene day celebrations, Cultural Meet - CHILAMBOLI 2011 etc., etc…. I wish to congratulate the President & Members of IDA Kodungallur, Alappuzha, Central Kerala Kottayam, Malanad and Quilon for Organizing the State Programmes in an excellent Manner. Let me also place it on record my heartfelt gratitude to all the State Office bearers for their sincere efforts. By and large, all their efforts have served to give our association and profession a better reflection.

The main forth coming events are Inauguration of new IDA Branch (IDA Valluvanad), CDE Programme on Periodontics, Observation of World Oral Health Day, Sports Meet, FDI-IDA CDE programme etc., etc….

"Nothing great is ever achieved without enthusiasm" So with all of you to support there is always scope for more Projects and Programmes. My thanks to you all for the timely feedback, continued support and advices which enabled me to improve and upgrade the quality of our IDA activities.

I wish you all Happy Id and Happy Onam.

Dr. Santhosh Sreedhar
President, IDA Kerala State.

Four, Four and a half or Five

Dr. K. Nandakumar

The history of India as an advanced civilization goes back to 5,000 years. Dentistry in some form has been practiced since the era of the Indus valley civilization. Ancient medical literature of Ayurveda such as Susrutasamhita described treatments of diseases of the oral cavity and emphasized the importance of oral hygiene. Beginning of dental education could be traced back to 1883. Dr. Rafiuddin Ahmed established the first official, fully functional, autonomous dental institution in Calcutta in 1920. This institution offered a diploma of licentiate in dental science (L.D.Sc.) upon successful completion of a two-year program. In 1926, the duration of the institution's program of study increased to three years for the L.D.Sc. and to a four-year program for a bachelor of dental surgery degree (B.D.S.) in 1935. The Dental Council of India was constituted on 12th April 1949 under an Act of Parliament - the Dentists Act, 1948. Ever since the constitution of DCI, the four year programme was popularly adopted by all the universities of India. In the initial phases, one year house surgeoncy (internship) was optional but later it has become compulsory. Four years ago a new scheme was introduced and which contained a five year programme but at the same time excluded the internship. The first batch is yet to come out under the new regulation. Now it is reliably learnt that the DCI is contemplating on reverting back to the four year programme. Internship is probably getting a re-entry much to the consolation of many who have argued on the relevance of internship. But going back to the four year programme without even assessing the feed back of the recently introduced system is not based on any rational principle. Fifteen years ago Kerala University has realized the importance of including advanced areas of clinical science into the BDS programme and enhanced the duration of the course to four and a half years. Enough clinical training could be given to the students because the final BDS programme was extended for one and a half years and the one year internship was retained. It was a very successful programme liked both by the students and teachers alike.

Internship was eliminated on the ground that colleges are not running it properly for want of patients. This is a frivolous ground to cancel a well thought out programme. Other arguments to cut short the course back to four years are- many students are not opting for the course, burden on the parent, girls cannot get married at the right age, many exams are stressful to the students and they will learn later. These arguments are ridiculous. Are we not creating dentists for the health needs of the country? Don't we require quality of service? Are we not serious in ensuring the quality of our professions? Reducing the quality of the dental graduates under some pretext can only be equated to criminal offence. Four and half year with one year internship is the gold standard which was time tested in the state of Kerala. DCI recommends the minimum requirements. The Kerala Health University should exercise its wisdom to retain the time tested programme for the health of the country; for the betterment of the professional standards.

Dr. K. Nandakumar
Editor, KDJ

Areca nut consumption as a risk factor for oral cancer

* Babu Mathew, ** Ani John

Oral cancer is the commonest cancer in men and the third cancer in women in India. It is estimated that there will be 96,000 new oral cancer patients in 2010 in our country alone.[1] For the purpose of this article, oral cancer is defined as squamous cell carcinoma arising from the oral tongue, gum, floor of the mouth, palate, buccal mucosa, vestibule of the mouth and retromolar area – ICD 10 – codes 02-06. Globally oral cancer is the 8th most frequent cancer among men, out of which two- third are seen in developing countries.[2] The etiological factors of oral cancer were well identified even a century ago, the habit of chewing betel leaf, areca nut, slaked lime and tobacco is the most important etiology factors in south India. The role of areca nut in the genesis of oral cancer was identified only recently.

The habit of chewing betel nut (*Areca catechu)*, betel leaf with other spices known as "Thamboola charavana" was prevalent in south East Asia for more than 3000 years. Archeological evidence shows that this habit was existing in Indonesia, Thailand and the Philippines.[3] In the Pune national museum nut crackers with royal insignium used by the rulers of 1000 – 500 BC are on display. Areca nut is considered as an auspicious ingredient in "dakshina" in most of the cultural functions of the Indians. The chewing of areca nut alone or with betel leaf and spices is an accepted social norm even today. Therefore, the consumption of areca nut cannot be controlled by general awareness alone.

The major composition of areca nut is as follows 1. Alkaloids: arecoline, arecaidine, arecolidine, guyacoline and guvacine. 2. Flavanoids: tannin, cetechins, gallic acid, a fixed oil gum, a little trepineol, lignin and various saline substances.[4] In addition to the alkaloids and flavanoids areca nut is rich in copper. The average copper content in areca nut is 302 nmol/g. KG Pillai et al has reported that the level of copper in saliva and oral mucus membrane of areca nut chewers are higher than those of non chewers.[5]

Towards the last quarter of the 20th century pan masala was invented and marketed in sachet. Panmasala does not contain any paan or betel leaf. It contains mainly roasted areca nut, catechu, calcium hydroxide and flavouring agents. Many brands of pan masala contain gutka (tobacco). The marketing of panmasala in sachet have resulted in the phenomenal increase in the consumption of areca nut[6]. This has resulted in an alarming increase in the incidence of commonest areca nut related oral disease namely Oral Submucus Fibrosis (OSF).[7] It is also noticed that oral cancer develops in habitual users of panmasala with gutka with in much shorter time than in conventional betel quid chewers.

Areca nuts are not only chewed along with betel leaf but are also used in the preparation of Ayurvedic and traditional Chinese medicines. Powdered areca nut is used as a constituent in tooth powder. Other medicinal uses include as an appetite stimulant, a flatus reliever, diuretic, laxative, the removal of tapeworms and other intestinal parasites by swallowing a few teaspoons of powdered areca nut, drunk as a decoction or by taking tablet containing the extracted alkaloids.[8]

The IARC has published a monograph in 1998 which points out the action of areca nut in humans and experimental animals.[9] Areca nut per say do not contain any strong carcinogens; however it contain four nitrosoamines namely 3-Methylnitrosaminopropionaldehyde (MNPA), 3-Methylnitrosaminopropionitrile (MNPN), N- Nitrosoguvacine (NGC) and), N-Nitrosoguvacoline (NGL) and some co- carcinogens.[10]

The pathogenesis of OSF had been worked out in the last two decades. It is a disease affecting collagen metabolism.[11] There is increased production of collagen with increase maturation of collagen fibres resulting in abundant formation of triple helix, insoluble collagen bundles in the lamina propia of oral mucosa. The degradation of collagen is retarded and the cellular matrix becomes hyalinised. The mechanisms involved in this process are as follows.

The irritants from area nut preparation initiate a chronic inflammatory response in the oral mucosa. The long standing chronic inflammatory response results in altered local immunological response as well. Both these processes result in the local synthesis of many kinins like interleukin 6, tumour necrosis factor, interferon β, growth factor and TGFβ[12]. Gradually there is increased deposition of collagen mediated by the action of transforming growth factor β (TGFβ). The degradation of collagen is retarded due to altered metalloproteinase (MMP) which are regulated by LOX. This results in the strangulation of blood vessels supplying oxygen and nutrients to the surface epithelium resulting in the atrophy of the epithelium. Collagen production is modulated by TGFâ through three events

1. Activation of procollagen genes.
2. Activation of procollagen proteinase level.
3. Up regulation of lysyl activity.

And collagen degradation is inhibited by TGFβ through activation of tissue inhibitors of matrix metalloproteinase gene and activation of plasiminogen activator inhibitor gene resulting in collagen build up in the sub epithelial tissue in OSF.

Panmasala with gutka cannot be sold to minors and it cannot be advertised in any media. The manufactures of major brands are marketing "mouth fresheners" which have the same taste and smell of pan masala. These mouth fresheners are legally sold from outlets near the schools to children. A child who is used to the smell and taste of so called mouth freshener will have no hesitation to use pan masala when it becomes handy to him.

From 1 April 2011 there is a Supreme Court ban on the sale of pan masala in the plastic sachet in a few states. The pan masala lobby will circumvent this ban by legal battles or by introducing new packets.

The production, storage and sale of pan masala containing gutka can be legally stopped as gutka is an adulterant in panmasala. Control of this habit can be effectively achieved by the following processes:

1. Awareness of the health and economic hazards of panmasala through formal education and co-curricular activities and also by CMEs to the medical specialists.
   a. Use of electronic and print media to repeatedly remind the hazards of this menace.
   b. Prevent surrogate advertisement of panmasala in all media.
   c. In all places where larger number of tribal and illiterate people live, there popular art form can be used to propagate the health warning on pan masala.

2. Legislation: Tax on pan masala should be increased regularly. A good percentage of such tax should be used for improving the facilities to treat panmasala related diseases and research on pan masala.

3. Establishment of de-addiction clinics throughout the state in an equitable fashion.

Earlier, areca nut alone was not considered as a causative factor for oral cancer but evidences from recent studies prove areca nut to be a significant independent risk factor for oral cancer. So if we do not act now we will be facing an epidemic of pan masala related oral cancer by 2020. Co-ordinated effect is solicited from politicians, policy makers, professionals and people at large to control pan masala.

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Case report

Granular cell tumor of the buccal mucosa

* Vikash Goyal, ** C.R. Sobhana, *** Mohan. S

Abstract

Granular cell tumors often occur in the tongue, rarely in the buccal mucosa in the oral cavity. A case of granular cell tumor in the right buccal mucosa of a 64 year-old female is described. A firm mass about 1.5 cm in diameter was palpated under the right buccal mucosa. It was well-defined from the proximal tissues and adhered to part of the buccal mucosa. The tumor was resected together with the surrounding tissues under local anesthesia. Histopathological examination revealed a mass of closely packed proliferating granular cells in lamina propria. The tumor cells were also reaching deep into the submucosa in between the muscle cell and adipose tissue cells.

Introduction

Granular cell tumor is a rare benign soft tissue neoplasm of unknown aetiology[1,2], first described on the tongue [3] and was named granular cell myoblastoma because of the apparent association between granular cell and skeletal muscle[3] (Arbikossoff 1926).

Granular cell tumor seems to be a type of benign neural tumor with lysosomal alterations producing the granular appearance. The lesion will present as an asymptomatic mass usually in the sub mucosa of the tongue or floor of the mouth but rarely occurs in buccal mucosa [4] or in dermal subcutaneous level of the chest, back or axilla. A about 10-15% of patients will have more than one lesion. The granular cell tumor is benign tumor but malignant cases have been reported.

Case report

A 64 year-old female, presented with a solitary, asymptomatic, immovable, sub mucosal mass in the right buccal mucosa of approximately 2 year duration. The lesion measured approximately 1.5 cm in greatest dimension, and was firm on palpation. No specific history could be elicited, and noted that, she was on ayurvedic treatment. The differential diagnosis of the submucosal mass, considered at the time, included granular cell tumor, schwannoma, neurofibroma, irritational fibroma and lipoma. (Fig 1)

Incision biopsy was taken and histopathological examination showed fibrous hyperplasia. The lesion was surgically excised under local anesthesia, revealing a firm mass suggestive of fibroma. Clinically the lesion was intimately involved with the underlying musculature of the buccinator muscle. (fig 2)

Histopathological examination revealed a mass of closely packed proliferating granular cells in lamina propria, characteristic polygonal to rounded cells with clear eosinophilic granular cytoplasm and spherical nuclei. The tumor cells also reaching deep into the submucosa in between the muscle cell and adipose tissue also. (Fig 3) the patient was disease free for one and half year.

Discussion

Granular cell tumor typically manifests as a solitary slow growing asymptomatic firm mass in the sub mucosa, of less than 2 cm diameter[5]. Multiple, separate tumors have been observed involving different sites intraoral, or arise simultaneously in the oral cavity and other organs. Clinically, the colour may vary from characteristically pink to occasionally yellow in appearance with normal overlying epithelium. Oral granular cell tumors occur in a range of patients from children to the elderly, with the mean age of development between the fourth and sixth decades of life, and are rare in the first decade. Studies have shown a predilection for females of 2:1.[6, 7]

Granular cell tumors often lie close to muscle bundles and it was formerly believed to be of skeletal muscle origin; hence the term granular cell myoblastoma [8]. The close relationship with muscle fibers was evidenced in our case both during excision of the lesion and on histopathology examination. However, the histogenesis of these lesions has repeatedly been demonstrated to be derived from Schwann cells or neuroendocrine cells; hence the proposed term granular cell schwannoma. The uncertainty of the histogenesis of this entity leads to the designation of granular cell tumor.

Some authors have suggested that the distinction between benign and malignant types is fairly difficult because there is striking histological similarity between both varieties and a lack of reliable criteria to provide a

Fig.1 Clinical appearance of granular cell tumor presenting as solitary, asymptomatic, immovable, sub mucosal firm and granular mass in the buccal mucosa.

Fig.2 Surgically excised submucosal mass which was closed with buccinators muscle.

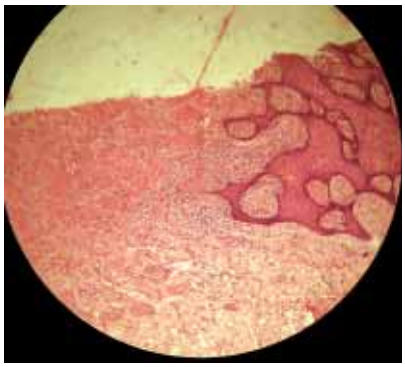

Fig.3 H & E stain shows mass of closely packed proliferating granular cells in lamina propria, the tumor cells also reaching deep into the submucosa in between the muscle cell and adipose tissue also.

prediction of development of a malignant behavior[9] and therefore, only the presence of regional and distant metastasis will aid in differentiating benign granular cell tumor from its malignant counterpart[8]. However, other authors report that malignancy of granular cell tumor is suggested by its rapid growth, broad dimensions (>4 cm) and the presence of necrotic and hemorrhagic areas, high mitotic index and cellular and nuclear pleomorphism.[10, 11] Cases of metastasis of malignant granular cell tumors have been discovered 14 years after the identification of the primary lesion.

Surgical excision is the treatment of choice for oral granular cell tumor, and recurrence is rare, Recurrence is uncommon and is, frequently, a result of incomplete excision of the original lesion. However, Becelli et al[10] reported only 15% recurrence rate following incomplete excision while Lack et al[11] reported that 19 out of 48 cases of incompletely excised margins did not have any recurrence.

Radiation and chemotherapy are not recommended for the benign lesions because of the resistance of the tumor and potential carcinogenic effect of such treatment,[8] but are recommended for treatment of malignant forms of the lesion. Spontaneous regression of the benign forms of granular cell tumor has also been reported.[12]

This case shows the need for careful histological examination of all oral lesions and long term follow up.

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Drug induced gingival enlargement

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Abstract

An increase in the size of gingiva is known as gingival enlargement or gingival overgrowth. Some drugs like anticonvulsants, immunosuppressants, and calcium channel blockers are well known to induce gingival enlargement. This article highlights the diagnosis and management of drug induced enlargement with a brief review on etiopathogenesis.

Introduction

Currently more than 20 prescription medications are associated with gingival hyperplasia[1]. Of this main group of drugs known to cause gingival hyperplasia are anticonvulsants[2], anti hypertensives [3], calcium antagonist[4]. There is high rate of prevalence of gingival hyperplasia reported in patients on nifedipine[2]. But amlodipine is rarely reported as a potential etiology for gingival hyperplasia[3, 5, 6, 7, 8]. Although the pharmacological effects of the drugs are different and directed towards various primary targeted tissues, all of them seem to act similarly on a secondary target tissue that is the gingival connective tissue causing common clinical and histological findings.[9]

Calcium channel blockers are used in the management of arrhythmias, angina pectoris and hypertension. The three important classes of calcium channel blockers include phenylalkylamine hydrophilic papaverine congener (e.g. Verampamil), dihydropyridine (including nifedipine, nicardipine, felodipine amlodipine, lucidipine and nimodipine) and hydrophilic benzothiazepine (diltiazem). The dihydropyridine are most potent calcium channel blockers. The subjects taking nifedipine appeared to be at more risk for developing enlargement than those taking amlodipine. But rarely amlodipine induced hyperplasia is also seen. [2, 4, 6, 10]

Prevalence of drug induced gingival enlargement

Although the prevalence varies greatly in different reports, the gingival enlargement prevalence in phenytoin treated non institutionalized patients is about 50%, nifedipine accounts 15-85%[11,12], amlodipine induced gingival hyperplasia accounts about 3.3%[13]. The prevalence with verampamil, diltiazem, felodipine is even significantly smaller.

Contributory factors to drug induced gingival enlargement

Severity of gingival enlargement in patients taking these medications correlates well with poor plaque control. As with most periodontal disease a multi factorial model appears to best explain the occurrence and distribution of gingival overgrowth in patients receiving medications associated with this condition. Other factors include gender with males being 3 times more likely to have the overgrowth[8] and age which is inversely correlated[14, 15, 16]. Genetic predisposition is also found to be a contributing factor to it.

Clinical manifestation of gingival enlargement

It frequently appears within 1-3 months after the initiation of treatment[17]. The overgrowth starts as a painless bead like enlargement of interdental papilla and extents to the facial and lingual margins. It is more frequently found in the anterior segment of labial surfaces [7,18]. As the condition progresses the marginal and papillary enlargement unites and may develop in to a massive tissue fold covering a considerable portion of crown and may interfere with esthetics, mastication and speech[19].

When uncomplicated by inflammation the lesion is mulberry shaped pale pink and resilient with a minutely lobulated surface and no tendency to bleed. The enlargement characteristically appears to project beneath the gingival margin from which it is separated by a linear groove. The presence of enlargement make plaque control difficult often resulting in a secondary inflammatory process that complicate the overgrowth caused by the drug. The resulting enlargement then becomes the combination of increase in size caused by the drug and inflammation caused by the bacteria. Secondary inflammatory changes not only add to the size of the lesion but also produce a bluish red discolouration, obliterate the lobulated surface demarcations and increase the bleeding tendency.

Histopathology of lesion

The lesion demonstrates parakeratinised epithelium of variable thickness covering the connective tissue stroma and epithelial ridges penetrate deep in to the connective tissue. The predominant type of infiltrating inflammatory cell is the plasma cell and increase in number of fibroblast remains controversial. Acanthosis of epithelial lining, elongation of rete ridges and sparse fibroblasts in a dense collagenous matrix are the underlying histological changes[20].

Fig. 1 Preoperative view of a rare case of amlodipine induced gingival enlargement

Fig. 2 During surgery – Internal bevel gingivectomy.

Fig. 3 Healing after two weeks.

Fig. 4 After 6 Months [note the re-appearance of stippling on gingiva]

Pathogenesis

1) Role of fibroblast: It has been hypothesised that some individuals have fibroblasts with an abnormal susceptibility to the drug. The overgrown gingiva is characterized by elevated levels of protein synthesis most of which is collagen[21]. It has been proposed that susceptibility to pharmacologically induced gingival enlargement may be governed by the existence of differential proportions of fibroblast subsets in each individual which exhibit a fibrogenic response to these medications [21, 22]. In support to this hypothesis it has been shown that functional heterogeneity exists in gingival fibroblasts in response to various stimuli [23].

2) Role of inflammatory cytokines: A synergistic enhancement of collagenous protein synthesis by human gingival fibroblasts was found when the cells are simultaneously exposed to calcium channel blockers (nifidipine) and interleukin 1 beta (a proinflammatory cytokine) [24]. In addition to IL-1beta, IL-6 may also seem to play a role in the fibrogenic response of gingiva to these medications[25].

3) Role of matrix metalo proteinases (MMP): Most type of pharmacological agents implicated in gingival enlargement has negative effect on calcium ion influx across the cell membrane. It was postulated that such agents may interfere with the synthesis and function of collagenases[25].

Prevention of gingival enlargement

In a susceptible patient the drug associated gingival enlargement may be controlled but not prevented by elimination of local factors, meticulous plaque control and regular periodontal maintenance therapy. A three month interval for periodontal maintenance therapy has been recommended for patient taking the drug associated with gingival enlargement. Each recall appointment should include detailed oral hygiene instructions and complete oral prophylaxis with supra and subgingival calculus removal as needed.

Treatment modalities in drug induced gingival enlargement[26]

I. Discontinuation of the drug or changing the medication

The most effective treatment is withdrawal or substitution of the medication. These possibilities are examined with patient's physician. When the treatment approach is taken it may take 1-8 weeks for resolution of the gingival lesions.

II. Nonsurgical treatment

The clinician should emphasize plaque control as the first step of treatment. Good oral hygiene and frequent professional plaque control decreases the degree of gingival enlargement and improves overall gingival health. Drug induced gingival enlargement may be associated with psuedopocket formation, frequently with abundant plaque accumulation which may lead to development of periodontitis. Meticulous plaque control therefore helps to maintain the attachment levels. Also adequate plaque control may aid in preventing the recurrence of gingival enlargement in surgically treated cases.

III. Surgical periodontal treatment

Because the anterior labial gingiva is frequently involved, surgery is commonly performed for aesthetic reasons before any functional consequences are present. The classical surgical approach has been the external bevel gingivectomy. A total or partial internal gingivectomy approach has been suggested as an alternative. It has the benefit of limiting the large denuded connective tissue wound that result from external bevel gingivectomy, thereby minimizing post operative pain and bleeding.

The use of carbon dioxide lasers has shown some utility for reducing the gingival enlargement, an approach which provides rapid postoperative hemostasis.

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The relationship between periodontitis and hyperlipidemia- causal or casual?

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Abstract

In the recent years, the Concept of the pathogenesis of atherosclerosis and cardiovascular event have broadened from a lipid- centric view of etiology to the appreciation of the importance of the inflammatory process. Periodontitis-induced bacteremia/endotoxemia has been shown to cause elevation of serum proinflammatory cytokines such as Interleukin-1b (IL-1β) and Tumor Necrosis factor-alpha(TNF-α), Which have been demonstrated to produce alteration in lipid metabolism leading to hyperlipidemia.Thus the relationship between periodontitis and hyperlipdemia provide an example of systemic disease predisposing to Oral infection and Once that Oral infection is established, the Oral infection exacerbates systemic disease. The purpose of this review paper is to present the back ground, supporting data, and hypotheses related to this Concept. Keywords: Cardiovascular disease, Inflammation, periodontitis, Cytokines, lipid metabolism, cholesterol, Hyperlipidemia, Lipopolysaccharide, High-and low-density lipoproteins

Introduction:

Periodontal disease is a complex, chronic inflammatory condition affecting the supporting tissues of the teeth.[1] It produces a local and systemic host response that may play a role in systemic disease. Periodontal infections may be risk factors or risk indicators for important medical outcomes representing a paradigm shift in thinking about a causality and the directionality of oral and systemic associations. This paradigm shift is encapsulated by the term Periodontal medicine which refers to the perspective that periodontal disease is interrelated with systemic health in many important ways.[1]

The search for cellular/molecular mechanism linking periodontitis to systemic disease has resulted in the evolution of new area of lipid research which establishes a link between periodontal disease with systemic disease like cardiovascular disease.[2]

Periodontitis induces changes in immune-cell function causing metabolic dysregulation of lipid metabolism through mechanisms involving pro-inflammatory cytokines.[3] The main features of this altered metabolism are hypertriglyceridemia and lipid oxidation that forms the pathologic basis for cardiovascular disease.[3,4]

This review highlights the supporting data and hypothesis related to the cause-effect relationship between periodontal disease and impaired lipid metabolism.

Effects of Periodontal disease on Lipid metabolism

a. Cytokine mediated effects on lipid metabolism

It is generally accepted that much of the periodontal destruction observed in periodontitis is host mediated through the release of pro-inflammatory cytokines by local tissues and immune cells in response to the bacterial flora and its products/metabolites especially LPS[5]. There have been several pro-inflammatory cytokines implicated in the immunopathology of periodontitis however, the most convincing evidence for destruction of the periodontium involves IL-1β and TNF-α[3]. Studies have suggested that in advanced periodontitis, levels of IL-Iβ and TNF-α are sufficiently elevated in crevicular fluid to be "dumped" systemically falling within the detectable range of biologic serum assays. This Increase in plasma concentration of cytokines leads to a state of altered lipid metabolism.[6] It has been demonstrated in humans and animals that proinflammatory cytokines (IL-1β, TNF-α) exert effects on lipid metabolism by influencing production of other cytokines, altering hemodynamics/aminoacid utilization of various tissues involved in lipid metabolism, or modifying the hypothalamic-pituitary-adrenal axis increasing plasma concentrations of adrenocorticotropic hormone, cortisol, adrenaline, Noradrenaline and glucagon.[4] The above modifications in turn lead to enhanced hepatic lipogenesis,increased synthesis or reduced clearance of triglycerides and low density lipoprotein cholesterol.[7,4] It has been reported that IL-β and TNF-α induces a rapid increase in serum triglyceride, very low density lipoprotein(VLDL) and cholesterol level in humans. The mechanism by which these cytokines increase serum cholesterol levels may be due to an increase in the activity of 3-hydroxyl-3methyl glutaryl Co-enzyme A (HMG-CoA Reductase).[8]

b. Effects of bacterial endotoxins on lipid metabolism

Studies in animals showed that low doses of lipopolysaccharide(LPS) obtained from Porphyromonas gingivalis rapidly stimulate VLDL production by increasing adipose tissue lipolysis and hepatic fatty acid synthesis.[5]

It has been reported that low concentrations of LPS inhibit the expression of scavenger receptor activity on human monocyte derived macrophages.[9] LPS binds to Lipoprotein in direct proportion to their cholesterol content and that the LDL-LPS complex once taken by macrophages is not degraded and is retained in the arterial wall.[6] In contrast high density lipoprotein (HDL) is not retained and may initiate atherosclerosis. LPS alters reverse cholesterol transport pathway and decreases the enzymes involved in HDL metabolism there by reducing the anti-atherogenic property of HDL.[10]

Effects of PMNs(polymorphonuclear neutrophils) on low density lipoproteins

Hyperlipidemia is known to cause a hyper activity of PMNs.[11] Hyperactivity of PMNS can cause increased production of Oxygen radicals which have been shown to be frequently associated with periodontitis in humans.[4] Presence of free radicals can enhance lipid peroxidation leading to production of oxidized (OX-LDL).[11] OX-LDL is taken up by macrophage scavenger receptors leading to the production of foam cells, the hall mark of the atherosclerotic process.[9]

It has been reported that hyperresponsive monocytes can cause increased oxidative stress in generalized aggressive periodontitis, this inturn can reduce activity of platelet activating factor-acetylhydrolase(PAF-AH).[12] (PAF-AH), an enzyme that is associated with LDL and HDL. PAF-AH is able to breakdown some of the inflammatory, atherogenic components of LDL. Thus the observed decrease of LDL associated PAF-AH activity in patients with severe periodontitis may increase the cardiovascular risk of these patients.[12] Studies have demonstrated that elevated serum lipids induced by periodontitis, high fat diet or metabolic disorders such as Type 2 diabetes increase PMNs production of pro-inflammatory cytokines and inhibit macrophage production of essential polypeptide growth factors such as platelet derived growth factor (PDGF) TGF- B1 and b FGF both in Vitro and at sites of injury reducing the tissue capacity for repair.[4]

Effects of periodontal infection on lipid parameters.

The findings of a large cohort study (10, 5000 cases) revealed that the presence of periodontal pocket as measured by CPITN Index was positively associated with total cholesterol and LDL-C. This study support the reports linking increased prevalence of cardiovascular mortality among patients with periodontal disease. A case control study on 39 patients with periodontitis and 40 healthy individuals showed that serum levels of total cholesterol, triglyceride and LDL were higher in patients compared with those in the control group.[13] In another study, higher serum levels of total cholesterol, LDL-C, and triglycerides have been found in subjects with periodontal disease,and hyperlipidemic patients have a significantly higher percentage of sites with probing depth greater than 3.5mm than subjects with normal metabolic status.[14] Thus severe periodontitis can alter plasma lipid profile and increase the metabolic risk factor for periodontal disease.

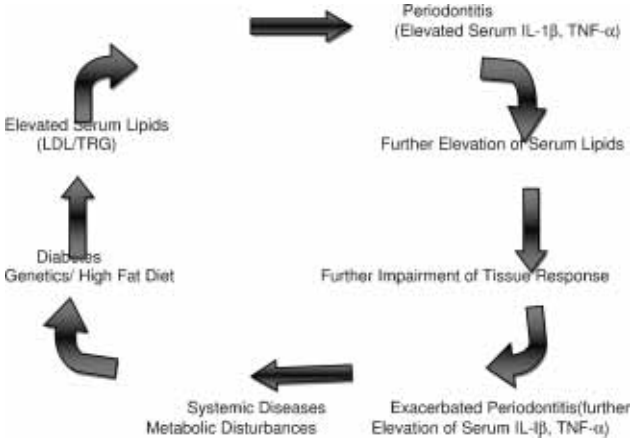
Effects of periodontal therapy on lipid metabolism.

The studies which evaluated the effect of periodontal therapy on serum lipids and lipoprotein associated inflammatory mediators suggested that the treatment of periodontal disease have beneficial effects on lipid metabolism.In one study demonstrated that there were statstically significant decreases in C-reactive protein and serum amyloid A levels after periodontal treatment in systemically healthy subjects with periodontitis.10 This study also suggested that periodontitis diminishes the anti-atherogenic potency of HDL and increases the risk for coronary heart disease. In a similar study 65 subjects presenting with severe generalized periodontitis were assessed. Subjects were divided into 3 groups,G1: consisting of untreated control G2: standard periodontal therapyG3: and an intensive periodontal treatment including standard periodontal treatment with adjunctive local delivery of minocycline. In this study both standard periodontal therapy and intensive periodontal therapy resulted in significant reductions in serum C-Reactive Protein (CRP) compared with the untreated control and the intensive periodontal therapy group also showed a decrease in total and LDL cholesterol after 2 months following the periodontal treatment.[15] The finding that periodontal therapy brought about significant changes in the lipid profiles of study subjects reinforces the hypothesis that there exists a relationship between periodontitis and cardiovascular disease.

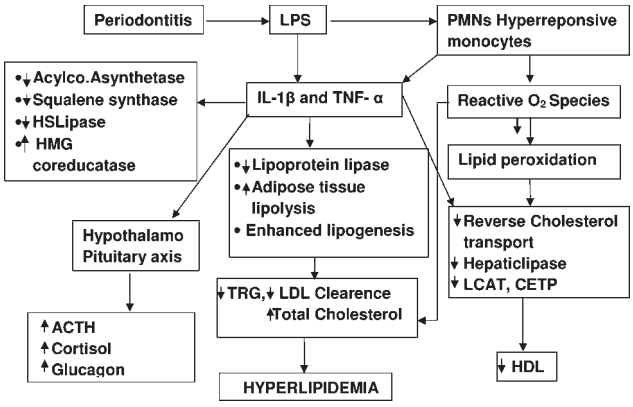
It has been reported that there exists a cyclic relationship between Periodontitis and Hyperlipidemia. Elevated serum lipids may cause a systemic monocytic hyper responsive trait leading to maintained elevations of serum lipids through systemic actions of pro-inflammatory cytokines. This leads to further impairment of tissue response and more severe periodontitis. Overtime, chronic advanced periodontitis may cause and /or contribute to systemic disease through continual high serum levels of proinflammatory cytokines. Alternatively in some patients, the cycle may actually begin with periodontitis which leads to elevated serum lipid levels leading to metabolic disturbances.[4]

Conclusion

Periodontitis induces changes in immune cell function causing metabolic dysregulation of lipid metabolism through mechanisms involving pro-inflammatory cytokines. Sustained elevations of serum lipids and / or



(Anthony. M.Iacopino and Christopher W.Cutler [4])



(Anthony. M.Iacopino and Christopher W.Cutler[4], Memon R.A etal[19], Ozlem fentoglu etal[6], Machado etal[20], Moientaghavi. A etal[21],)

pro-inflammatory cytokines may have a serious impact on systemic health. The association of periodontal disease and impaired lipid metabolism is a cause- effect interrelationship and needs to go for a evidence- based mechanistic research which in turn forms the basis for establishing true association between periodontitis and hyperlipidemia.

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Immediate extraction implant placement

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Abstract

Immediate implant placement after tooth extraction has presently emerged as a common clinical therapeutic approach, alternative to a staged surgical protocol. The reduction in the number of surgeries needed and the advantage of a shorter time to rehabilitate function and aesthetic has provided an impetus to studies on this surgical approach. This article is a case report of an immediate implant placement in the extracted site of a failed root canal treated tooth. The clinical procedures, contraindications, advantages and the specific indications which may permit this approach are presented.

Introduction

The term 'post-extraction implant placement' implies to the placement of the implant immediately after the extraction as a part of the same surgical procedure [5]. Immediate implant placement after tooth extraction has been advocated to preserve the dimensions of the alveolar ridge regardless of the mode of tooth failure [19,11].The use of immediate post-extraction implants presents several advantages in terms of reduction of surgical steps and time required to conclude the therapy.

This approach has also been widely reported and seems to be predictable if the case selection is appropriate. Particularly important is the possibility to minimize the bone loss that otherwise would occur in the physiologic healing of the alveolus.Studies conducted by Tolman & Keller (1991) and Krump & Barnett (1991) showed success rates of 96-99% and 92.7% respectively demonstrating the efficacy of immediate implant placement[23,8]. Over the past 16 years numerous studies have confirmed the reliability of implants placed at the time of tooth extraction

Case report

The patient, a 32-year-old female, presented with a request to assess a failed root canal treated maxillary left first premolar tooth with a fractured buccal cusp[Fig:1], with a view to either restore, or to discuss the options for prosthetic replacement. A complete medical and dental examination was done before the treatment revealed no significant present or past medical history, no medications were being taken. Maxillary and mandibular study models were mounted on the articulator. Evaluation of the surgical site was done by making a wax up of the hard and soft tissues that were to be replaced. An IOPA of the failed root canal treated tooth was taken [Fig:2].The root canal was reattempted but not completed.

The surgical procedure was performed under local anesthesia 2 per cent lignocaine, 1:80,000 adrenaline.Sulcular incisions were then made around the circumference of the tooth and a mucoperiosteal flap raised.

The tooth was luxated using a periotome carefully so as to maintain bone [Fig: 3] and then removed atraumatically. [Fig:4]. The socket was thoroughly debrided to remove granulation tissue and remnants of periodontal ligament. An IOPA was taken [Fig:5]

The site was prepared with osteotomy drills [Fig 9, 10]. Care is taken to avoid perforation of the sinus floor. [Fig:6] (13mm * 4.3mm Nobel Biocare implant) [Fig:7] Initial primary stability of the implant was achieved utilising the sinus floor. The micro gap[Fig:8] was filled using a demineralised freeze dried bone (DFDB) allograft material[Fig:9]. Flap closure was achieved with 4-0 Non absorbable surgical suture (Merisilk). A periapical radiograph of the implant was obtained at this time [Fig: 10].

A twice daily rinse with 0.2 per cent chlorhexidine (Periogard) was prescribed for two weeks post-operatively. In this period the patient was instructed to cease mechanical plaque removal at the implant site. Sutures were removed 10 days later, and at four weeks a review was scheduled to assess soft tissue healing.

Discussion

Placing an implant into a fresh extraction socket seems to offer many advantages for the patient and for the clinician. Since, the first 6 months post extraction is the time when there is the highest rate of bone resorption, immediate placement is considered the best as it reduces the post extraction bone loss. Anatomically, bone resorption occurs both bucco-lingually and apico-coronally, and the ûrst 6 months post-extraction are critical, carrying the highest rate of bone resorption in

Fig. 1 Pre-operative photograph

Fig. 2 Pre-extraction radiograph

Fig. 3 Atraumatic extraction using periotome

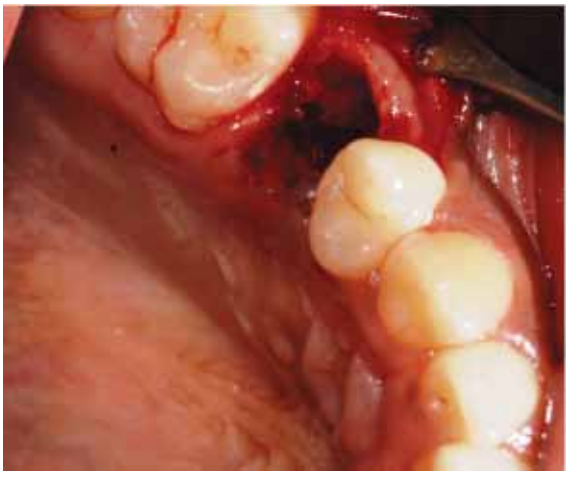

Fig. 4 Post extraction socket photo

Fig. 5 Radiograph of the empty post extraction socket

Fig. 6 Osteotomy – Radiograph of the drill in place

either direction [11]. Major changes in bone volume take place during the 12 months following extraction, with a reduction of 50% of the initial volume. Two-thirds of this reduction occurs during the first 3 months [3, 21]. Anticipating this resorption the implant should be placed 2mm below the crest of the existing alveolar bone.

Implants placed immediately into fresh extraction sites engage precisely into the prepared bony walls only in their apical region, whereas the coronal space is filled by the end of the healing phase.

Studies show good results with the single-implant immediate-replacement procedure [7,12]. The absence of implant micromovements is one of the most critical factors involved in the osseointegration process [17].When dealing with immediate restoration of implants placed immediately after tooth extraction, the achievement of primary stability is of utmost importance because the mechanical stresses that the implant may have to undergo during the healing period and because there is often a bone defect that reduces initial bone to implant contact [20]. As circumference of the socket is usually larger in diameter than the diameter of the implant placed, implant acquires its primary stability and intimate contact with bone from the apical portion of the socket. Usually, the general trend is to prepare the osteotomy 2mm beyond the socket to obtain this primary stability.It has also been found that tapered implants are more suitable for placement in fresh extraction sockets [10, 16].

Diagnosis and treatment planning are key factors in achieving a successful outcome after placing and restoring implants immediately after tooth extraction. The most important step in treatment planning is determining the prognosis of the tooth in question and the dentition as well.Some of the indications of an Immediate implant placement may include, but are not limited to, all tooth extractions free of infection, in tooth with endodontic complications indicating extraction, post orthodontic root resorption and anterior / aesthetic regions of maxillae / mandible [18].

Teeth requiring root amputation, hemisection or advanced periodontal procedures may have a questionable prognosis and patients should be given reasonable options before implementing such treatments. In the esthetic zone, the scallop of the periodontium, level of crestal and interproximal bone, smile line, and

Fig. 7 Immediate implant placement

Fig. 8 Micro-gap

Fig. 9 Micro-gap loosely filled with DFDB

Fig. 10 Post implant placement radiograph. Implant engaging the sinus floor

morphology of the gingival tissues must be considered before initiating treatment [2]. Radiographic examination should evaluate the availability of native bone and bone quality, shape, quantity, bone height and bone width. A minimum of 4–5 mm of bone width at the alveolar crest, and at least 10 mm bone length from the alveolar crest to a safe distance above the mandibular canal are recommended [25].To avoid damaging the buccal plate, care must be exercised not to luxate buccal–lingually while extracting the tooth. Hence, a periotome is used to severe the periodontal ligament thus separating the tooth atraumatically from the surrounding bone before extraction. Excessive torque should not be applied to the implant because this may strip the implant threads or exert excessive compression on the adjacent bone, potentially leading to bone necrosis and implant loss.

A marginal gap that occurs between the implant and the bone tissue (micro gap) following implant installation in an extraction socket may predictably heal with new bone formation and defect resolution. Localized marginal defects that occur following implant placement in extraction sockets may heal without the use of space maintaining barrier membranes or ûller material. In extraction sites where the gap, called the jumping distance, is less than1.5 - 2mm [small gaps] bone fills between the implant and the bone, with or without the use of grafting material or barrier membranes [22].

It is seen that connective tissue forms between the coronal implant aspect and the surrounding bone in cases of wide jumping distance [1].

A small amount of allograft is loosely packed between the bony margin and the implant abutment and a barrier membrane place when wide jumping distance exist.

Presence of adequate quantity and quality of native bone is required to achieve primary stability. There needs to be sufficient mesio-distal space for implant placement [>7mm] and also at least 2 mm of keratinized mucosa to allow surgical manipulation and suturing according to the protocol [14].

Immediate implant placement is contraindicated in some cases[11] for instance those patients with a medical history that contraindicates dental treatment, heavy smokers, patients with a history of radiotherapy in the head and neck region, leukocyte diseases at the time of the surgical procedure, uncontrolled diabetes, periodontal diseases with bone loss greater than 20% near the surgical site, sinus pathology, cases where ridge defect where initial stabilization of implant cannot be achieved, symptomatic periapical radiolucencies, acute abscesses or chronic sinus tracts at the site of extraction,etc.

Immediate replacement of maxillary /mandibular posterior teeth (especially molars) with implants represents a challenge to clinicians. Situations such as the close association of the maxillary sinus floor to the maxillary molars, multiple roots, the remaining interradicular bone, and the presence of pathology makes it frequently impossible to consistently extract multirooted teeth and immediately place implants. When these limitations are present, the clincian usually to uses bone-grafting material and/or membranes, wait for 6-8 months, evaluate proper healing, afterward in a second surgery, the implant is placed.

Some of the advantages of immediate implantation is that the post-extraction alveolar process resorption is reduced, thus affording improved functional and esthetic results.Likewise,there is a shortening in treatment time, since with immediate placement it is not necessary to wait 6-9 months for healing and bone neoformation of the socket bed to take place [14].It is patient-friendly because it reduces treatment time, the number of appointments and patient's discomfort [16].There is preservation of the vestibular cortical component allowing precise implant placement, improves the prosthetic emergence profile and more over preserves the morphology of the peri-implant soft tissues thereby affording improved esthetic-prosthetic performance[14].

Studies state that success can be achieved in immediate implant placement for replacement of teeth with periapical lesions if certain preoperative and

postoperative measures are followed [13, 15]. Such measures include: antibiotics administration, meticulous cleaning, and alveolar debridement, before the surgical procedure. Moreover, the use of laser technology, especially the use of hydroacoustic effects kill bacteria more than 1,000 μm^2 when compared to the use of chemical means that can only kill bacteria at a 100-μm level [9].Though not much study has been done in relation to this approach, the results of the initial studies are quite promising. The procedures may be safely used in selected cases with minimal additional risks for implant success

Conclusion

Immediate placement of implants in extraction socket seems to be a safe and reliable procedure reducing treatment time when a strict protocol is respected. It is important to realize that the risk and benefits have to be weighed on an individual basis.

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Full mouth rehabilitation of a patient with Chronic Periodontitis

* Jose Julian, ** Senny Thomas Parackal, *** Smily P.K, **** Miriam Mathew

Abstract

The expected outcome in managing a periodontally compromised condition is to establish a stable environment for the support of prosthesis. To obtain successful results following treatment of chronic periodontitis conditions, it is mandatory to regulate its progression. After the completion of periodontal therapeutic procedures, there is a basic need to provide a prosthetic replacement that enables easy maintenance by accommodating freedom in designing. This case report brings to view the effective treatment and rehabilitation of a case of chronic periodontitis using a cast partial denture which was found to have profound advantages over fixed prostheses.

Introduction

Fixed partial dentures hamper patient's ability to maintain oral hygiene in restorations of periodontally compromised dentions. Plaque accumulation in these areas can have adverse effects on the periodontium. In order to maintain a healthy periodontium, cast partial dentures seem to be more beneficial with regard to the maintaining oral hygiene apart from distribution of masticatory load equally and selectively on teeth. This case report brings to light the advantages of cast partial denture over a fixed prosthesis in rehabilitation of a chronic periodontitis patient.

Procedure

The primary aim in the treatment protocol is to obtain a sound foundation on which the placement of the final prosthesis is possible[1]. The majority of patients with common forms of periodontal disease respond predictably well to conventional therapy whereas patients with deep pockets often do not respond well with scaling and root planning alone[2]. Flap surgery may be indicated to make a healthy and contusive periodontal environment for a stable prosthesis in the mouth. This present case deals with the accomplishment of restoration of the healthy dentition and it's supporting structures by a joint periodontic, endodontic and prosthodontic inter disciplinary approach.

Following are some of the benefits of cast partial dentures over fixed partial dentures which we found in treating a chronic periodontitis patient.

- Ease of maintenance (can be taken out and cleaned, need not be worn over night)
- Wide distribution of occlusal load over the extensive denture base area, thereby reducing occlusal forces on the weaker teeth. (CPD promotes a group function than individual tooth loading.)
- CPD enables strategic designing in which occlusal load can be carried to a distant tooth if the abutment near the edentulous area is weak for support. (in case of a FPD, the only option for an abutment is the adjacent tooth)
- Prevention of lateral component of force is possible with circumferential clasp design and occlusal rest by reciprocation.(Majority of periodontal ligaments being oblique in direction enables the tooth to withstand more force in axial direction)
- Possible to add on one or more teeth onto the CPD in case of further tooth loss in the future.

First Step: The fit step in fabricating a CPD is designing the rest seat[4]. The rest seat should be prepared on the occlusal surface so as to deliver the force in axial direction. Rests should preferably be on multi-rooted teeth. In a tissue and tooth supported cast partial denture both the abutment teeth and edentulous ridge areas provide combined support. If the rest seat is located distant to the abutment teeth, the denture base areas become more tissue supported. Hence all these characteristic features need to be incorporated in order to allow uniform load distribution.

Second step: Major and Minor connector design and location[4].

Rigidity of major connectors enables effective distribution of forces to the supporting structures when forces are applied to any part of the denture. The margin of the major connectors can be fabricated in such a way that it encircles the cervical part of the tooth in a collar- like manner for maximum stability of the tooth from the palatal or lingual aspect (Fig 5 and 6).

Fig. 1 Pre-treatment

Fig. 2 Pre-operative Orthopantamogram

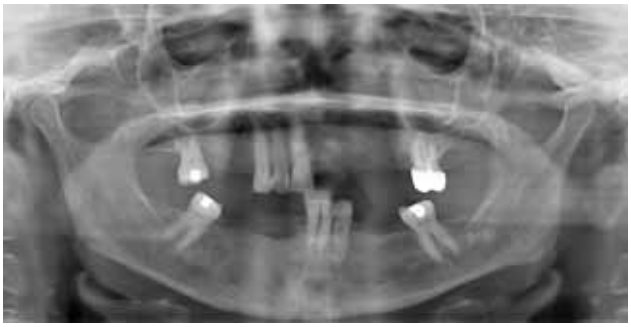

Fig. 3 Orthopantamogram after Phase 1 Therapy

Fig. 4 Orthopantamogram – Post-treatment

An 'I' bar and clasp also helps to stabilize the mobile teeth from the buccal aspect (Fig 7).

Minor connectors are designed to be placed on healthy and stable teeth, thus enabling transfer of functional stresses to specific abutment teeth. Location of the abutment tooth can be adjacent to or away from the edentulous area, thus allowing selective and calculated force delivery on the tooth, thereby enhancing the final outcome of the denture.

Third step: RPD retention

Retention is provided by clasps and the intimate relationship of the denture bases and major connectors with the underlying tissues. These clasps and denture bases enable retention and resistance against dislodging forces[5]. Direct transmission of tipping or torque forces need to be avoided. The design of clasp should be such that it is compatible with the undercut location, by delivering a passive retentive force (Fig 7, on teeth 37and 46).

Fourth step: Connecting the retention units to the support units. Proper functioning of the direct and indirect retainers requires rigid attachment to the major connector.

Fifth step: Outlining and connecting the edentulous areas to the already established design components. An extreme loss of residual alveolar bone may make it necessary to add fullness to the denture base to restore normal facial contours. In such situations, an acrylic resin base may be preferable to the thinner metal base[6].

Case report

A 65 year old female patient reported with a chief complaint of missing teeth and wanted replacement of the missing teeth for aesthetic and functional reasons. On examination there was bleeding on probing and moderate amount of pocket formation in relation to the remaining teeth. Her past dental history revealed extraction of lower anterior and few posterior teeth due to mobility.

On examination, secondary caries was detected on the restored 27(mesial aspect) in close proximity to the pulp. An OPG revealed a generalized, horizontal type of bone loss. The case was diagnosed as chronic periodontitis and treatment planned for complete rehabilitation of her compromised dentition.

The treatment plan included:

1. Restoration of all carious teeth.
2. Endodontic treatment of 27 and placement of a complete coverage metal restoration with a rest seat incorporated in the design.
3. Flap surgery to correct the periodontal pathosis.
4. Prosthetic rehabilitation with maxillary and mandibular cast partial dentures.
5. Supportive maintenance therapy and regular half-yearly and yearly reviews.

The teeth with good prognosis were identified and considered when planning the restorative treatment[3].The clinical decisions regarding the salvageable and hopeless


Fig. 5 Maxillary arch: Before and after treatment


Fig. 6 Mandibular arch: Before and after treatment

Fig. 7 Maxillary and Mandibular Cast Partial Denture Prostheses in occlusion

Fig. 8 Post- treatment

teeth were discussed in a common forum of Prosthodontic, Periodontics and Endodontic disciplines.

The steps enumerated previously in the discussion were followed sequentially in designing and constructing the cast partial denture for the patient.

First Step: In this patient the rest seat was incorporated within the cast metal crown of 16 for a more accurate fit of the rest. (Fig 5). Rest seats were prepared on the cingulum areas of 21 and 23 (which have comparatively longer roots) and on 26 (which is a multi rooted tooth) (fig 5).

Second step: Designing and location[4] of the Major and Minor connectors were completed.

Third step: Retention was provided by clasps and also enhanced by the intimate relationship of the denture bases and major connectors with the underlying tissues.

Fourth step: The retention units were connected to the support units as proper functioning of the direct and indirect retainers required rigid attachment to the major connector.

Fifth step: The edentulous areas were outlined and joined to the already established design components.

Conclusion

The overall prognosis of patients with chronic periodontitis depends on how effectively further progression of the disease is prevented after periodontal therapy. The longevity of cast partial dentures in a chronic periodontitis patient is determined by how effectively the prognostic features are incorporated in the design. However the rehabilitation of such patients with Cast partial dentures ensures improved oral hygiene maintenance and protection of the remaining teeth from deleterious forces during function. This paper highlights the significance of the interdisciplinary approach and an orchestrated execution of therapy in rehabilitating a mutilated dentition.

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Atraumatic retrieval of overextended gutta-percha

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Abstract

A case is described where grossly extruded gutta-percha at the apex of the maxillary left central incisor with an immature apex was successfully retrieved using thermal source (E&Q pen). The apical third of the canal was filled with mineral trioxide aggregate (MTA) and remaining canal was filled with thermoplasticized gutta-percha. At 6-month follow up examination, the tooth was asymptomatic and radiographically showed reduction in the periapical radiolucency.

Introduction

Incomplete root development caused by trauma, caries or other pulpal pathosis requires special attention and treatment.[1] The absence of a natural constriction at the end of the root canal makes the control of filling material difficult.[2] Injudicious obturation in such cases may result in extrusion of the filling material into the periradicular area. This produces additional tissue inflammation, neurotoxic effects and foreign body reaction with clinical symptoms of pain and swelling.[3]

Overinstrumentation and overfilling of teeth evoke persistent chronic inflammation with a tendency towards epithelial proliferation and cyst formation.[4] Nevertheless, in many clinical cases gutta-percha cones are extended into the periapical tissues for years in well obturated root canals without clinical or radiographic evidence of failure.[5]

Under optimal conditions, success rates of 96% and 74% have been reported following orthograde endodontic treatment[6] and retreatment[7], respectively. It is generally accepted that a higher failure rate is found in overinstrumented and overfilled teeth.[8]

Non-surgical endodontic retreatment represents a cornerstone of contemporary endodontic care. Safe and efficient removal of gutta-percha from the root canal system is essential to ensure a favourable outcome. Several techniques can be used to remove the gutta-percha, including the use of stainless steel hand files, nickel titanium (NiTi) rotary instruments, heat bearing instruments, and ultrasonics.[9] However, the retrievability of the grossly overextended gutta-percha cone non-surgically is a management challenge.

E&Q Plus system (E&Q plus; MetaBiomed Co Ltd, Cheongju, Korea) was introduced to make root canal filling easier and less time consuming. The system consists of a control unit with a pen-grip device holding a heating tip for the down pack and a gutta-percha injection gun for backfilling the canal after an apical seal is obtained with the down pack. To date, no report suggested the use of E&Q Plus system as an alternative for retrieval of grossly extruded gutta-percha.

This case report describes a novel technique for the retrieval of a completely overextended gutta-percha cone from the peri-radicular space using E&Q Pen as heat source.

Case report

A 22-year-old male patient presented to the Department of Conservative Dentistry and Endodontics, Jaipur Dental College, Jaipur, India, with aesthetic concerns resulting from the discoloration of the maxillary left central incisor. The tooth had been previously traumatized and received conventional root canal treatment 7 years back. On intraoral examination, a sinus tract was located at the apex of tooth 21 [Figure 1A] and was tender on percussion. Radiographic examination revealed gutta-percha like radiopaque material grossly extruded at the apex of maxillary left central incisor with periapical radiolucency [Figure 1B]. Tooth 22 was insufficiently obturated at the apex. The case was diagnosed as symptomatic apical periodontitis. Treatment options were evaluated and decision was made to perform orthograde retreatment with MTA as the apical obturating material after removal of extruded gutta-percha.

After anaesthesia and rubber dam isolation, teeth 21 and 22 were accessed, extruded gutta-percha in tooth 21 was removed using E&Q Pen (MetaBiomed Co Ltd, Cheongju, Korea) [Figure 1C]. The plugger, FM, was attached to the E&Q Pen and tentative working length was transferred to plugger with help of preoperative radiograph. Temperature was adjusted to 160°C. The E&Q Pen was activated for 2-3 seconds by touching the spring switch and the plugger was descended into the canal till it touched the butt-end of the gutta-percha. Then the plugger was turned off and

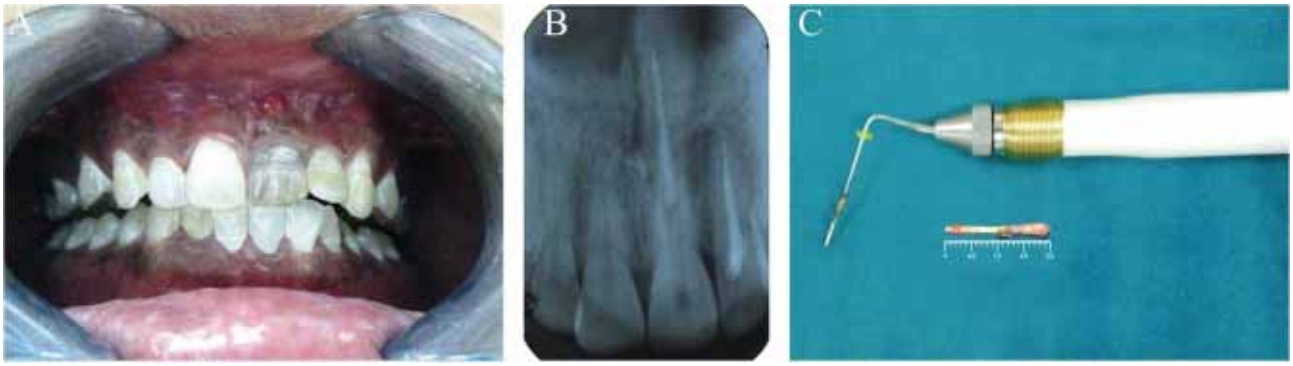

Fig 1 (*A*) Pre-treatment clinical view of maxillary left central incisor with labial sinus tract.
(*B*) Pre-treatment periapical radiograph of maxillary left central incisor with grossly extruded gutta-percha cone.
(*C*) Removal of extruded gutta-percha using E&Q Pen.

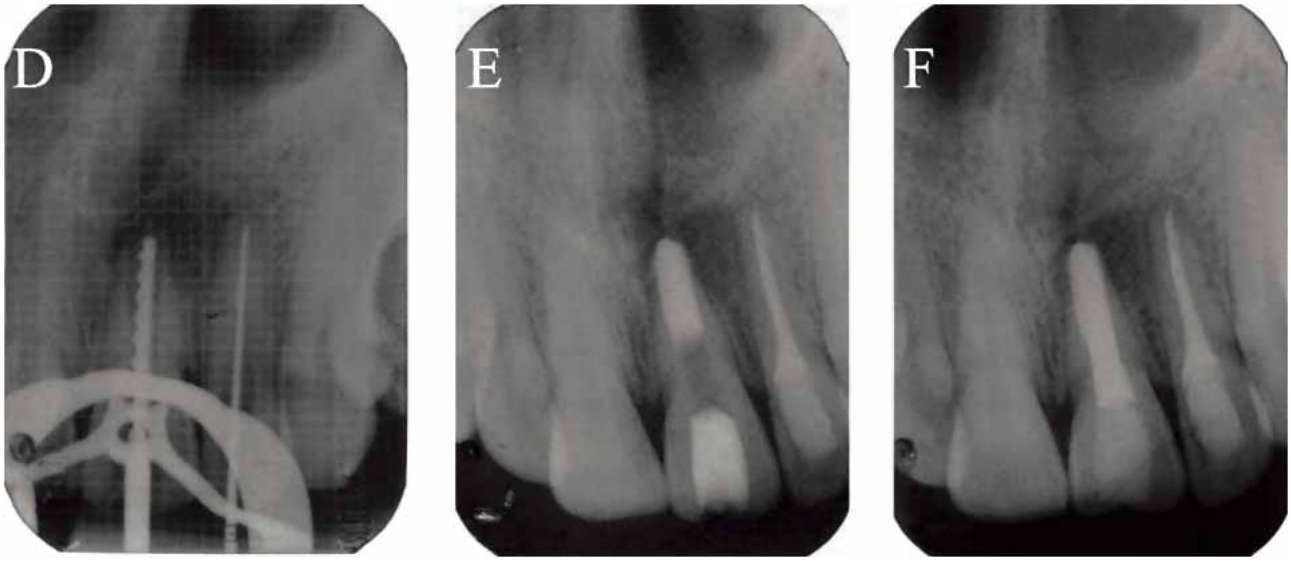

Fig 2 (*D*) Working length of maxillary left central and lateral incisors.
(*E*) Periapical radiograph showing MTA as an apical plug.
(*F*) Post-treatment periapical radiograph.

was allowed to sit and cool for atleast 8 to 10 seconds. Using the coronally directed force, the plugger was withdrawn without activating the heat source. The overextended gutta-percha that had melted from the plugger's heat got stuck to the cooled plugger tip, allowing the withdrawal of gutta-percha with coronal force. In tooth 22 the previous filling material was removed with ProTaper Universal retreatment instruments (Dentsply-Maillefer, Ballaigues, Switzerland). It was difficult to determine precise root canal length in tooth 21 because of immature apex so the tentative root canal length was radiographed by means of X-ray grid [Figure 2D]. The root canals were instrumented with stainless steel K-files (Dentsply-Maillefer, Ballaigues, Switzerland). During the instrumentation the canal was irrigated copiously with 2.6% sodium hypochlorite (NaOCl) and distilled water solution by using endodontic needle. After drying with sterile paper points (Dentsply-Maillefer), the canals were dressed with calcium hydroxide paste (Calcipex, Nihon Shika Yakuhin Co, Japan). The access cavity was sealed with a temporary filling material (IRM Caulk; Milford, DE). When the patient returned after 2 weeks, the teeth were asymptomatic, and the sinus tract had healed. Teeth were re-accessed, and the calcium hydroxide paste was removed. The canals were irrigated with NaOCl / distilled water and dried with sterile paper points. The root canal of tooth 22 was filled with gutta-percha (Dentsply-Maillefer, Switzerland) and AH plus sealer (Dentsply, DeTrey, Konnstanz, Germany) using a lateral compaction technique. Different from tooth 22, the apical 5mm of tooth #9 was obturated with MTA (Pro-root MTA; Dentsply-Maillefer) as an apical plug. MTA was prepared according to the manufacturer's

Fig 3. (*G*) Post-treatment clinical view.
(*H*) Radiographic follow up after 6 months.

recommendations by mixing with the proportion of one third. By using rolled cone technique of gutta-percha a customized plugger was made to condense the MTA at the apex. MTA was inserted into the canal with a plastic amalgam carrier which was customized according to canal shape and further pushed with the plugger. After the tooth was filled to the appropriate length, a moistened cotton pellet was placed for 48 hours [Figure 2E]. The access cavity was sealed with a temporary filling material. At the following appointment the cotton pellet was removed, and after verifying the setting of the MTA, the remaining pulp space was filled with thermoplasticized gutta-percha technique using E&Q Plus system. Bonded composite (Z350; 3M ESPE, St Paul MN) was used to seal the access cavity. Radiograph was taken to ensure the control of the filling [Figure 2F]. Finally the tooth 21 was restored with porcelain fused metal crown [Figure 3G]. A 6-month recall radiograph showed reduction in the periapical radiolucency [Figure 3H]. Clinical examination showed no sensitivity to percussion or palpation, and soft tissues were healthy.

Discussion

The main objective of root canal therapy is the thorough mechanical and chemical cleaning of the entire pulp space and its complete obturation with an inert filling material and a coronal filling, preventing ingress of microorganisms.[10] The obturation of the root canal system is one of the most important factors in the success of root canal treatment. Overfilling of gutta-percha/sealer is a relatively common occurrence in endodontics, especially in cases of immature, resorbed or over instrumented root canal apices.[11] Endodontically overfilled canals that remain symptomatic may require apical surgery for resolution.[12]

The majority of the endodontic failures are caused by bacterial persistence inside the canal. Therefore primary treatment goal is to use intracanal procedures to adequately debride and disinfect the canal.[13]

In the present case, gross overextension of gutta-percha was seen in periapical tissues and the patient was symptomatic. Decision was made to perform orthograde retreatment rather than surgery.

Various instruments have been used for gutta-percha removal including endodontic hand files, ultrasonic tips and files, and heat carrying instruments.[9] Using a heat source for removing the obturation material during conventional endodontic retreatment has greatly simplified the process and is much more efficient and predictable.[14] It is fast and atraumatic compared to other techniques.[15] A disadvantage of this technique is the burn potential for patients and staff. The overextended apical fragment should not be softened with solvent as this application hinders the retrieval and causes the potential leakage of the solvent into the periradicular tissues.[16]

In this case, thermoplasticized obturating device E&Q Plus has been used to remove extruded gutta-percha through the root canal. Heat is applied using E&Q Pen tip in a short burst to allow instrument to penetrate the gutta-percha mass followed by cooling which causes the material to adhere to the tip, facilitating its removal. Although this obturating device was not designed for gutta-percha removal, the device was found very effective in this ancillary role.

Calcium hydroxide has gained widest acceptance to induce an apical hard tissue barrier.[17] This procedure requires several visits over a period of 5 to 20 months[17, 18] and tooth is restored only temporarily, placing it at a risk of coronal leakage and fracture.[19] In addition prolonged exposure of calcium hydroxide may adversely affect the mechanical properties of root dentin, making it more susceptible to fracture.[20, 21]

MTA plug technique is an alternative to conventional calcium hydroxide apexification for endodontic treatment of immature necrotic teeth.[22] This procedure can be completed in one or two sessions[23] making it possible to restore the tooth within a short timeframe while avoiding reliance on patient compliance and prolonged exposure of root dentin to calcium hydroxide. MTA-induced apexification may also result in a better consistency of the apical hard tissue barrier than is achieved with calcium hydroxide. MTA creates an artificial stop to filling material, thus preventing the extrusion of filling material.[24]

MTA has been reported to be a potential apical barrier material with good sealing ability [25] and a high degree of biocompatibility.[26] Because of its alkaline pH of 12.5 and the presence of several mineral oxides in its composition, it has been shown to possess antimicrobial properties.[27] It sets to a hard consistency about 4 hours after mixing and insertion, thus allowing early completion of final obturation of root canal when used for apexification.

In the present case, before placement of MTA for apexification the root canal was medicated with calcium hydroxide for 15 days. The rationale is to limit bacterial infection in the teeth, because both endodontic instrumentation and disinfection are made difficult by unusual endodontic architecture.[28]

The type of intracanal delivery technique may contribute to the final success of treatment in one visit apexification.[1] The orthograde placement of apical plug is more technique sensitive than retrograde method.[2]

Hand condensation results in better adaptation and fewer voids than ultrasonic compaction.[29] In the present case, the MTA was delivered to the canal by plastic amalgam carrier and the plugger was tailor made by heating and rolling cones of gutta-percha to condense the MTA at the apex.

The apical plug created with MTA can be interpreted as an artificial barrier to condense the subsequent root filling material, in order to prevent reinfection of the canal system.[2] The thickness of the apical plug has a significant impact on the displacement resistance. The thickness should be 3-5 mm.[30] In this case thickness of the MTA apical plug was 5mm to provide adequate seal and resist displacement.

Conclusion

Overextended gutta-percha should be carefully evaluated to determine their position, size and degree of difficulty that may be encountered during retrieval. Patience, care and appropriate technique may be helpful in retrieving gutta-percha and avoiding periapical surgery. In this case overextended gutta-percha was retrieved by using thermal heat softened gutta-percha removal technique, followed by successful apexification, root filling and PFM crown placement.

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Osteochondroma of condyle

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Introduction

Osteochondroma is one of the most common benign tumours of bone, comprising approximately 35–50% of all benign tumours and 8–15% of all primary bone tumours [1,2]. It is actually a developmental lesion rather than a true neoplasm[3]. The long bones, particularly the distal metaphysis of the femur and proximal metaphysis of the tibia are the commonly involved sites[4,5]. Osteochondroma is rare in facial skeleton[6]. Among the facial bones most common is in the coronoid process[4, 5]. Osteochondroma of mandibular condyle is extremely rare[7,8]. A case of Osteochondroma of condyle is presented.

Case presentation

A 53 year old female patient presented to the outpatient clinic of Oral Medicine and Radiology Department, Govt. Dental College, Calicut complaining of difficulty in chewing of 1 year duration. Initially difficulty in chewing was mild but gradually it increased in intensity. Occasionally mild pain was present in right side of face. Patient noticed a swelling in right side of face 6 months back which gradually increased to present size. She also noticed a deviation of chin during opening of mouth. Mouth opening decreased slowly during this period. No history of trauma was elicited from the patient.

There was no relevant past medical, dental, family or personal history. General examination findings were within the normal limits.

On extra oral examination, facial asymmetry due to a diffuse swelling was noted on right side of TMJ region (figure 1). Skin over the swelling was normal. No visible pulsations, scars or sinus formation was present. Restricted mouth opening of less than 2.5 cm with discomfort on opening was noticed. Chin deviated to left side during opening of mouth. On palpation, the swelling was bony hard in consistency and tender. There was no local rise of temperature.

There was posterior open bite on right side during occlusion. Midline shift to left side by 3 mm was noticed (figure 2). Considering all these features, a provisional diagnosis of condylar hyperplasia was made. Osteoma or Osteochondroma were considered in the differential diagnosis.

Radiographic examination was done. Panoramic view showed a 5x2.5cm bony lesion with varying radiographic density superimposed on the right side of condyle mainly on the medial side (figure 3). CT showed a well defined bony mass on right condyle on the medial aspect (figure 4). The lesion was excised under general anaesthesia and subjected to histopathological examination. Histopathology showed tissue composed of bone covered by a cap of cartilage, and showed fibrous, cartilaginous, and bony elements which were irregularly arranged. Synovial tissue was attached to the condylar process.

Discussion

Osteochondroma is usually a slow growing lesion[6]. It is an exophytic lesion that arises from the cortex of bone and is capped with cartilage[1]. It usually develops in long bones[4,5]. Among the facial bone most common is in the coronoid process [4,5], followed by condyle[7]. More than half of osteochondroma in facial bone is in coronoid process[8]. Other sites involved in facial bones are posterior maxilla[9], maxillary sinus[10], zygomatic arch[11], mandibular body[12] and symphysis[13]. In mandibular condyle, osteochondroma is most common in the medial aspect[14].

Many theories about the etiology of these tumours have been documented in the literature. The lesion may result from a spontaneous metaplasia of the periosteum, which may form cartilage that subsequently undergoes endochondral ossification[9]. Trauma may be an etiologic factor[15]. The most recent theory is based on the presence of nests of chondrocytes in the periosteum. Mechanical stress may lead to hyperplasia of these cells leading to osteochondroma[16].

The mean age of osteochondromas of the mandibular condyle is reported to be the fourth decade and there is a female predilection[15,17]. The clinical features of condylar osteochondroma includes development of facial asymmetry, malocclusion, cross-bite on the contralateral side and lateral open bite on the affected side, hypomobility and clicking[2,15,17,18]. In some cases, it may present with severe pain[8], locking of the temporomandibular joint, headaches and cervical pain[18].

The histopathologic feature is pathognomic with a lesion composed of cortical and medullary bone with an overlying hyaline cartilage cap[19]. Radiographically condylar osteochondroma may be located at different sites around the condyle such as anterior, superior, posterior aspect of the condyle, and anterior-inside aspect of the neck of the condyle[6]. Of these most common location is in the medial aspect[14].

Zhang et al described 12 cases of mandibular condylar osteochondroma with different clinical features. All of them had facial asymmetry and opening deviation, nine of them had malocclusion, six of them had pain,

Fig. 1

Fig. 2

Fig. 4

Fig. 3

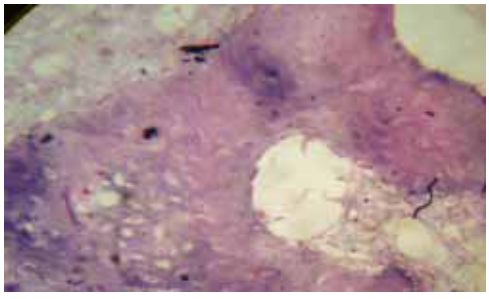

Fig. 5

five of them had hypomobility of joint and three of them had clicking of TMJ.[6] Avinash et al reported a bony outgrowth with heterogeneous radiographic density on the medial aspect of condyle[20]. Otero et al reported a case of right condylar osteochondroma that presented with pain on right side of face. Panoramic radiography revealed an enlarged well circumscribed right condyle.[8]

Zhang et al described 12 cases of mandibular condylar osteochondroma with different radiographic appearances like wholly enlarged and mushroom shaped condyle, triangular radiolucent lesion of condyle, radiolucent exostosis, oval radiopaque lesion of condyle and two-headed-shaped radiopaque presentations[6].

The diagnosis of osteochondroma is based on clinical and radiographic findings. Once the above mentioned clinical features present and the radiographic examination reveal condylar enlargement and irregularity, the diagnosis of osteochondroma or osteoma should be considered. But in osteoma, density is usually high and uniform with a distinct border[6].

Osteochondroma of the mandibular condyle must be distinguished from unilateral condylar hyperplasia. The latter is manifested clinically and radiographically as an enlarged condylar process, whereas the osteochondroma usually shows a globular projection extending from the margins of the condylar head with the normal outline of the condylar head being maintained[21].

Conclusion

Progressive limitation of motion of the jaw can be caused by osteochondroma of the condylar process of the mandible or by a bony growth in the zygoma. Roentgenography may be necessary to demonstrate this lesion.

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Feeding Plate in Management of cleft lip and palate

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Abstract

Feeding is the most immediate problem encountered in the daily care of an infant with a cleft lip and/or cleft palate. It is because of leakage of air from the mouth through the nose causing regurgitation of fluids, difficulty in swallowing and breathing. A feeding plate which fits into the palate and seals off the cleft enable the infant to generate intraoral negative pressure to pull nourishment from conventional bottle nipples or from the breast. This article discusses about the various steps in fabrication of custom made of feeding plate in a 5 day old child.

Introduction

Clefts of the lip and palate are the most common congenital deformities involving the orofacial region.[1] It is estimated that the overall global prevalence of OFC is one affected individual in every 800 new born babies[2]. Cleft palate may be inherited as an autosomal dominant condition. Family history in first degree consanguinity increases the risk by a factor of 20 percent[2, 3]. Environmental factors include maternal epilepsy, alcoholism, certain drugs like steroids, diazepam, phenytoin, accutane and folic acid deficiency. Cleft lip and palate also occur as a part of many syndromes, including Down's syndrome and Treacher Collin's syndrome.[3,4]

Apart from disfigurement of the face the other foremost problem associated with cleft lip and palate is feeding. For nutritive sucking, a negative pressure has to be created inside the mouth while pressing the nipple. The lack of an intact palate makes it impossible for cleft patients to create a negative pressure to suck[3]. Cleft palate also leads to regurgitation of food into the nasal cavity as there is communication between the oral and nasal cavities [3,5].

For a child born with Cleft lip and palate, the services of a team of specialists are needed to care and treat them till adolescence. Careful planning by team members is essential that any proposed procedure keeping with the development of the child[5,6]. In the early stages to neonatal period the intervention of pedodontist is of great importance. He is a key member of cleft palate team who can provide feeding plate and pre surgical orthopedic treatment for the baby, monitor the growth and development, perfect oral health and guide the occlusion and facial growth.

If the palatal defect is wide and complete, a feeding plate may be required to close the defect and prevent regurgitation of the food into the nasal cavity. These feeding plates can be used to enhance the quality, safety and speed of feeding in neonates.In some cases of bilateral CLP, the plates can be modified to prevent collapse of the buccal segments of the palate[3].. The feeding plate is given as soon as possible after birth to ensure acceptance by neonate[5].The crucial step in fabrication of feeding plate is the impression procedure[4,5,6,7]. Other factors like Patient positioning, tray, and impression material selection are the important factors to consider in any impression procedure for neonates.[6,7,8]

This case report aims at providing an overview of the initial management of a cleft lip and palate patient

Case report

A 5-day-old female infant was referred to Dept from Pedodontics from Dept of Pediatrics of associated medical college hospital for prosthetic rehabilitation of large palatal cleft(figure 1). The parents were complaining of difficulty in suckling of milk. Mother had a full-term, normal pregnancy. Family history revealed that parents were of consanguineous marriage. Complete history and oral examination was done and it was decided to give a feeding plate to aid the child in taking milk. Appointment was given for the next day. Parents are instructed not to feed the infant for at least two hours prior to the procedure. The impression is made when the infant is fully awake without any anesthesia or premedication. The infant is made to lie in a supine position on the lap of the parent with the head on the knee at a lower level. The clinician positions himself in a comfortable 10 o'clock position to the infant's head. We have used soft putty(Aquasil, Densply) and moulded in the mouth with operators fingers to make the primary impression. (Fig. 2). Primary cast was fabricated with dental stone. Excessive undercuts were blocked out with modeling wax. A customized special tray was fabricated with auto-polymerizing acrylic resin. Final impression was made with polysiloxine (Reprosil light body, Densply) impression material to record the precise details of the supporting structures and the defect (figure 3). After the tray is removed, the oral cavity is

Fig. 1

Fig. 2

Fig. 3

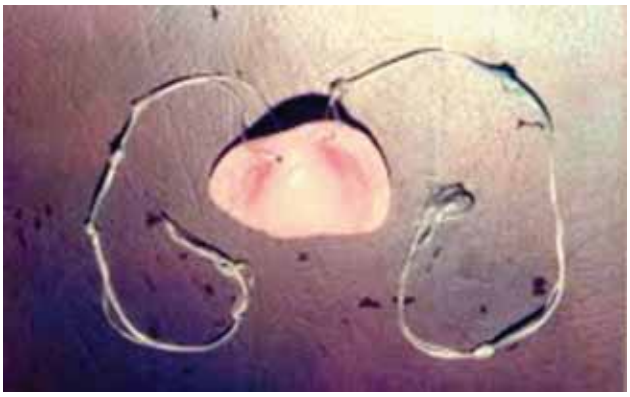

Fig. 4

Fig. 5

inspected for any loose fragments of impression material. The wax pattern of the feeding plate was adapted on the master cast. Flasking, de-waxing was done and feeding plate was fabricated with heat activated clear acrylic for obturating the defect. Approximately 10 inch dental floss was passed through and tied to the eyelet of the feeding plate so as to facilitate easy insertion and removal of the prosthesis and also it acted as a safety measure to prevent swallowing of the appliance (figure 4,). Thus feeding plate ensures better feeding practice in children with cleft palate (figure 5)

Discussion

Impression procedures incleft infants is a challenges because the size constraints imposed by the infant's oral cavity, anatomical variations associated with the severity of clefts and a lack of ability of the infant to cooperate and respond to

commands[2,3,4,5]. The feeding plate obturates the cleft and restores the separation between oral and nasal cavities. It creates a rigid platform towards which the baby can press the nipple and extract the milk. It facilitates feeding, reduces nasal regurgitation, reduces the incidence of choking and shortens the length of time required for feeding. The obturator also prevents the tongue from entering the defect and interfering with the spontaneous growth of palatal shelves towards the midline. It also helps to position the tongue in correct position to perform its functional role in the development of jaws, and contributes to speech development. The obturator reduces the passage of food into the naso-pharynx thus reducing the incidence of otitis media and naso-pharynhgeal infections. Feeding plate restores the basic functions of mastication, deglutition and speech production until the cleft lip and/or palate can be surgically corrected[3-14].

Patient positioning, tray and impression material selection are the important factors to consider in any impression procedure[6,7,8]. A number of different positions of the infant have been adopted for cleft palate impression making in infants including face down, upright, horizontal raised to sitting as the impression sets and even inverted upside down[6]

Various techniques for impression making have been proposed by many authors using different materials. Prefabricated trays are commercially available (Coe laboratories, Chicago) for cleft palate impressions in infants [10].Review of literature describes the use of wax sheets, ice cream sticks, handle of impression trays to carry materials for infant impressions[8,9,11,14]. While using elastomeric impression material in putty consistency or impression compound of the cleft in infants, the materials can be supported with the fingers and placed in the patient's mouth till the material sets.[8,11,14] In this case we have used soft putty and moulded in the mouth with operators fingers to make the primary impression.

A variety of impression materials were advocated in the literature for the purpose of obtaining an impression, including alginate, beeswax, green stick, low

fusing impression compound, polysulfide impression material, heavy body silicone impression material and vinyl polysiloxane. [10,11,12,13,14, 15].

Alginates have poor tear strength and may tear on removal, especially when the material extrudes deep into the cleft undercuts [11].Impression compound has the advantage that it can be removed before it sets in case of any emergency and it has excellent resistance to tearing. Impression compound is a thermoplastic material and is usually heated in a water bath in a piece of cloth at around 60°C. This can lead to problems, as overheating can lead to scalding or burns in infants. The leaching out of volatile components of the compound can be harmful to the infants and the use of a water bath may compromise sterility[11,14].

The putty impression and rubber base impressions can produce accurate impressions with good reproduction of the details and its biggest advantage is its greater tear strength and the possibility of making multiple casts with the same impression. The material used for final impression in this patient was heavy body rubber base which has the advantage of reproducing good surface details and resist tearing, as a result removal is atraumatic to the infant[11].

Cleft patients have encountered hazards like difficulty in removal of impression due to engagement of undercuts, fragmentation of the impression during withdrawal from the mouth with subsequent respiratory obstruction due to lodgment in the respiratory passage and cyanotic episodes of which few resulted in asphyxiation[14,16,17]

The retention of the feeding plate is not that critical[11,12,13], because it can be held in the baby's mouth during sucking, swallowing and the resting state by the tongue and by mouth closure.

A regular follow up of the infant is required for the examination of oral mucosa which is very delicate and easily damaged by the plate. Also check up every 3-4 weeks at which the bilateral sides of border are reduced to accommodate growing arches. A new plate should be constructed every three monthsto accommodate the enlarged craniofacial sutures at growth. The mother should be advised to hold the infant in an upright or semi-upright position in feeding state so that the swallowed air can be expelled during the feeding process[5,9,16]. Significant positive effect of feeding plate on feeding time and volume intake and increase in flow-rate when bottle feeding was combined with a feeding plate was reported.[12,18]

Conclusion

The management of cleft lip and palate is by a team of health care practitioners. The role of the pedodontist / dental surgeon is becoming more defined. the use of an individual feeding plate in children with cleft lip and palate, combined with the education of the parents, may reduce feeding time and increase the amount of food intake, thus facilitating normal infant development.

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Glass ionomer cement

* Roopa Prasannan, ** Rajesh Pillai, *** Ganesh C.

Abstract

Glass ionomer cement is a versatile material which can be virtually used for any application in dentistry. Ever since it was invented in the year 1969 following several clinical trials at the Laboratory of government chemists, United Kingdom and officially made available to the dental profession by Messrs Wilson and Kent in 1971 and later clinically made popular by John McLean and Graham Mount. The glass ionomers have numerous attractive characteristics, the most significant are chemical adhesion to dentine and enamel, anticariogenic property and as dentine substitute. This article reviews the evolution of Glass ionomer cement over the years and significant improvement in compressive strength, solubility, tensile strength and extended clinical applications

Introduction

The advent of GIC's in 1970's has revolutionised the restorative scenario. Chemical adhesion to tooth structure and anticariogenic property of GIC's still remain an exclusive advantage of the GIC's. Lack of strength for use in high stress areas and low aesthetics when compared with composite resins have always been its Achille's Heel.

From the late 1980's research has been going on to overcome these disadvantages. The last couple of decades there has been an influx of modifications of glass ionomers, aimed at improving its strength and aesthetics while maintaining its inherent advantages. This article attempts to review the recent advances in the modifications of GIC, its advantages, disadvantages and clinical applications.

History

1971	Wilson and Kent	Alumino Silicate polyacrylic acid.
1980	Simmon	Miracle mix
1984	Hunt, Knight	Tunnel Preparation
1985	M c Lean	Sandwich technique
1987	M c Lean&Gasser	Cermet
1988		Resin modified GIC
1990	SB Mitra, Antonucci	Light cured GIC
1999	M c Lean	Atraumatic restorative technique
2001		Giomers
2007	SB Mitra	Nanoionomers
2009		Polyacid Modified GIC

Reinforced glass – ionomer cements:

The conventional glass ionomer cement has been used successfully for the esthetic filling of cavities subjected to low stresses, for example, the restoration of class V erosion lesions, class III restorations and the restoration or sealing of pits and fissures. However the low tensile strength of existing formulations (7-14 MPa) makes the cement unsuitable for use in high stress sites such as class II restorations, particularly where there is lack of support from the cavity wall.[1] Attempts have been made to improve the strength of the glass ionomer cement by modifying the chemical composition of the original glass powder

1. Fibre reinforced glasses

The incorporation of alumina fibres and other fibres such as glass fibre, silica fibre, carbon fibre etc to the existing glass powder at suitable filler/glass ratio was tried mainly to improve the flexural strength of the cement. Unfortunately these composite materials are very difficult to mix when sufficient quantity of fibre is used to produce a significant increase in strength.[4] In addition, resistance to abrasion decreases due to lack of bonding between fibre and matrix

2. Metal reinforced glass ionomer cement.

The addition of amlgam alloy or fibres to glass ionomer cements can improve strength. Sced and Wilson found that alloy fibres were best for increasing strength. Simmons suggested mixing amalgam alloy powders in to the cements and developed this system clinically under the name "Miracle mix". He used this alloy/glass ionomer mix for core buildups and for the treatment of patients with high caries incidence. However, their aesthetics was poor.[5] Simple mixtures of metal powders failed at the metal/polyacrylate matrix interface and this was the weak link. Simple additions of either alloy powders or fibres did not however, improve resistance to abrasion and may reduce it when compared with regular glass ionomer cement.

Fig. 1 Miracle mix

Fig. 2 Cermet

3. Cermet – ionomer cements

The solution to the problem of improving resistance to abrasion was the development of cermet-ionomer cements by McLean and Gasser. By sintering the alloy and glass powders together, strong bonding of the metal to the glass was achieved. Ion leachable calcium aluminum fluorosilicate glasses were used in the preparation of the glass powder and a number of metal powders were tried, including alloys of silver and tin, pure silver, gold, titanium and palladium.[6] After a number of clinical experiments, gold and silver were found to be the most suitable materials. Cermet – ionomer cements have greatly improved resistance to abrasion when compared with glass ionomer cements and their flexural strength is also higher. However, their strength is still insufficient to replace amalgam alloys and their use should be confined to low stress bearing cavity preparations.[9]

4. Resin modified glass ionomers cement (Hybrid ionomers)

Despite all these improvements, the two problems of conventional glass ionomer cements still remained: Moisture sensitivity and lack of command cure. To overcome these problems, attempts have been made to combine glass ionomer chemistry with the well-known chemistry of composite resins. The first such materials were developed and marketed as lining cements, restorative versions being introduced later. The first commercial resin modified glass ionomer cements available were liners, Vitrebond (3M Dental Pdts, St Paul, Mn USA) being the first introduced. Resin modified glass ionomer cements appear to have properties intermediate to conventional glass ionomer materials and resin composites[8]. In general they have the advantages of both such as greater working time, command set on application of visible light, good adaptation and adhesion, acceptable fluoride release, aesthetics similar to those of composites, and superior strength characteristics. However, resin modified glass ionomer cements suffered from certain drawbacks such as setting shrinkage, limited depth of cure especially with more opaque lining cements.

Setting Reaction

Dual cure (light initiation followed by acid –base reaction)

1. Acid base neutralisation reaction
2. light activated polymerisation reaction (free radical methacrylate cure)

Tricure

1. Acid –base reaction
2. light cure mechanism (in the presence of photoinitiator like camphor quinone)
3. Oxidation–Reduction reaction (resin autocure mechanism)

Advantage of RMGIC

- Longer working time
- Command set
- Improved aesthetics and translu scency
- Immediate finishing and polishing
- Improved fracture toughness and wear resistance

5. Compomer (Polyacid modified composite resins)

They were developed in early 1990's to combine the durability of composite resin and the flouride releasing ability of GIC.

Composed of resin matrix Urethane Dimethacrylate (UDMA) and Butane tetracarboxylic acid (TCB) with polymerizable HEMA side chain, Strontium flurosilicate glass, Photoinitiator & Stabilizer

Setting reaction

1. Initially, light curing causes polymerisation of UDMA and TCB resin to form three dimensional network reinforced by filler particles

2. After the initial set, the material absorb water from the oral cavity. The carboxyl group present on the TCB resin liberates metal cations from the silicate particles in the presence of water. This result in the formation of hydrogel similar to GIC cement within the set resin structure. This additional acid base reaction further crosslinks the entire matrix. Advantages include good

Fig. 3 Hybrid ionomers

Fig. 4 Compomer

Fig. 5 Fuji IX GP

esthetics, excellent handling, no mixing required and less susceptibility to dehydration. Fluoride release occur only after 2-3 months.

As Liners and Bases

Bilayering technique

It was developed by Mc Lean to combine the beneficial properties of GIC and composite resin[19]

Closed sandwich technique-Missing dentine in class11 cavity is replaced with resin modified or high viscous GIC while composite replaces enamel margin surrounding the cavity

Open sandwich technique- Lacks enamel at cervical margin GIC is used instead of composite to restore the cervical aspect of proximal box which imparts resistance to microleakage and secondary caries

Co-curing technique

The simultaneous curing of unpolymerised composite resin and ionomer cement used as a liner cement which was put forward by Geoffrey Knight. The observation that composite cures before the GIC suggest that polymerisation shrinkage of the resin may be taken up by uncured ionomer cement, reducing the internal stresses of the restoration.[21] Also eliminates a number of steps required for the traditional sandwich technique thus reducing technique sensitivity and increasing the efficacy of the placement technique

Bone cement or bone substitute

Ionomer cement has been used as bone substitute in maxillofacial surgery and hip joint replacement[18]

Fast setting, non exothermic setting reaction

no shrinkage on setting

bioactive due to release of osteoinductive ions

adhesion to bone chemically

biomechanically matched formulation that can be easily moulded and shaped as implant size

6. Highly viscous conventional glass ionomer cement: (Fuji IX GP)

Fuji IX GP was developed by GC International as the restorative material for Atraumatic Restorative Treatment technique for World Health Organisation workers. This is a procedure based on caries removal and tooth restoration with adhesive restorative material using hand instruments like discoid excavator and enamel hatchet. Glass ionomer, because of its adhesiveness and release of fluoride, is the natural choice for restoration.[13] In this technique glass ionomer cement is packed into the excavated tooth cavities and pits and fissures in clay like consistency in contrast to the flow technique used with resin-based sealants. They were designed as an alternative to amalgam for posterior preventive restorations. Examples of highly viscous glass ionomer cements are Fuji IX and Ketac Molar.

These cements set only by a conventional neutralization reaction but have properties that exceed those of the resin modified systems. Setting is rapid, early moisture sensitivity is considerably reduced and solubility in oral fluids is very low. According to manufacturers, the relatively higher viscosity is the result of the addition of polyacrylic acid to the powder and finer gain– size distribution. Soon after the popularity of glass ionomers for restoration of posterior teeth (ART), the same glass ionomer technology was developed for anterior restorative for ART. One such product is Fuji VII. It is a resin reinforced glass ionomer restorative for anterior teeth where 'requirement of better flexural strength and translucency is mandatory..

7. GIOMER

It is a group of direct restorative materials and adhesives that offers esthetics, handling and physical properties of composite resin with added benefits of high radiopacity, antiplaque effect, flouride release and recharge. The initial GIOMER group of restorative material (BEAUTIFUL) contained the Surface Reaction Type pre reacted glass fillers and adhesive systems (FL-BOND) contain Full Reaction type pre reacted glass fillers

8. Amino acid modified glass ionomer cements:

Most of the conventional glass ionomers contain acrylic acid homo-or copolymers have carboxylic acid groups which are directly attached to the backbone and are closely oriented to each other, resulting in a rigid

Fig. 6 Giomer

Fig. 7 Nano-ionomers

polymeric structures.[15] It is presumed that strength or fracture resistance of the ionomer material is weakened due to this steric hindrance, which brings about a significantly reduced – $COO^{-}Al^{++}$ interaction in the set cement. So acrylic acid copolymers were modified with N-acryloyl-or N-methacryloylamino acids, such as N – methacryloyl – glutamicacid. These newly formulated polyacids have flexible side chains tethering the carboxylic acid groups at various distances from the main chain polymer backbone, allowing for more freedom and less steric hindrance during chemical reactions.[16] This type of modification has improved the fracture toughness of the glass ionomer cement. The copolymers with pendant amino acid Formulation containing N-Vinlypyrro lidinone (NVP) residues have also developed for visible light cure applications.

9. Nano-ionomers

KetacNano is a resin modified glass-ionomer restorative cement that was introduced in 2007. A double barreled clicker exudates correct portions of two pastes to be blended by spatulation. Paste A is a resin-based and contain fluroaluminosilicate glass, silane-treated silica and zirconia–silica nanoclusters, silane–treated silica nanofillers and HEMA.[11] Ketac Nano Primer contain water, HEMA, polyalkenoic-acid copolymer and photoinitiators. Advantages include high polishability, enhanced tooth shade-matching potential and better physical properties.[10] Indicated for primary teeth restoration, interim repair of all permanent teeth, relatively confined Class1 restoration, ClassV and ClassIII restoration and certain core build-ups.[17]

Conclusion

In the last two decades, dental material scientists have worked diligently to produce glass-ionomer cements that overcome the three chief inherent disadvantages of this class of materials like difficult handling properties, poor resistance to surface wear, and low esthetics. They have produced products that are so improved that these major disadvantages have been significantly reduced. Such improvements are bound to continue and glass-ionomer cements will gain even more importance in restorative dentistry, preventive dentistry and orthodontics. Future is eagerly awaiting an ionomer cement which can be instantly finished, has the surface polish, translucency, bonding to enamel and dentin, handling characteristics in restoring a Class IV carious lesion or cavity

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Overview

Autofluoresence in dentistry

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Abstract

Early detection and treatment of oral cancer plays a major role in improving the survival rate and lowering the morbidity of oral cancer. But early detection is often difficult even to the experienced eye. Moreover the standard procedure, biopsy, is often not representative. Thus there is an ever increasing need to develop sensitive and less invasive methods to augment conventional white light examination and for screening cancerous or precancerous conditions in the oral cavity. Analysis or observation of fluorescence from sensitizers that localize in the tumor mass [exogenous fluorescence] and autofluoresence [endogenous fluorescence] can often contribute to the identification and diagnosis of lesions. This article is intended to provide a brief insight into autofluoresence, autofluoresence spectroscopy and its applications in dentistry

Introduction

Oral cancer is one of the most common cancers in India and more than 90% of the cases suffer from oral squamous cell carcinoma that arises from the superficial layers of oral mucosa.[1,2] Several potentially malignant lesions and conditions like leukoplakia, oral submucous fibrosis, when exposed to carcinogens are capable of undergoing malignant transformation. Lesions like lichen planus turning malignant is also on the increase. The incidence and mortality, due to oral cancer may be attributed to extensive use of tobacco, areca quid, pan masala, and alcohol.[1,2,3] Early detection and treatment of oral cancer plays a major role in improving the survival rate and lowering the morbidity of oral cancer. But early detection is difficult as both benign & dysplastic lesions look similar in most circumstances even to the experienced eye, moreover the process of field cancerisation further poses a challenge. In all these situations the standard procedure is to obtain a biopsy that will give the final diagnosis. Biopsy results, even though final is often not representative for the complete lesion, and the problem of underdiagnosis looms large. Hence there is an ever increasing need to develop sensitive and less invasive methods to augment conventional white light examination and for screening cancerous or precancerous conditions in the oral cavity. This has fuelled the development of devices utilizing fluorescence for detecting malignant changes. The concept seems to have been originated from photodynamic therapy where tumor destruction is brought about by singlet oxygen released on excitation of a light-sensitive drug ('photosensitizer') localized in the tumor. The sensitizer may be delivered to the tumor site by topical application, systemic administration or by administration of a precursor.[4,5,6,7] Analysis or observation of fluorescence from sensitizers that localize in the tumor mass can often contribute to the identification and diagnosis of lesions. Exogenous fluorescence for tumor detection] especially in the oral cavity, have yielded promising results.[4,8]

Since late 1970s, endogenous fluorescence also called autofluorescence or natural fluorescence previously regarded as disturbing background signal in exogenous fluorescence detection, started being used for cancer detection[4]. Presently autofluorescence imaging and analysis of spectral shape in autofluorescence spectroscopy, is being tried for the classification of lesions[9,10,11]. This article is intended to provide a brief insight into autofluoresence, autofluoresence spectroscopy and its applications in dentistry

The mechanism of autofluoresence

The normal tissue contains naturally occurring fluorescing material called fluorophores. When normal mucosa containing fluorophores is illuminated by high-intensity violet (405nm) or blue light (436 nm), the fluorophores emit low-energy light, which is visualized as the autofluorescence image of the mucosa[9]. An alteration in the oral mucosa produce alterations at cellular level and also changes in structural tissue composition, which in turn will have an effect on the spectral shape and intensity, the analysis of which can provide information that may contribute to diagnosis.

The autofluorescence spectroscopy system consist of a light source [usually near near ultra violet to visible wavelength range] to excite the tissue, a fiber optic device that carries the light from the source to the site of application, a filter to filter out the reflected excitation light and a spectrograph to analyse the fluorescence spectrum emitted by the fluorophores. The recorded fluorescence spectra may be saved to a computer, which allows several types of mathematical spectral analysis

like Principal Components Analysis (PCA), emission wavelength ratios, artificial neural networks etc.[4]

Lights used for excitation

Different wave lengths of light are used as excitation wavelength in auto fluorescence spectroscopy. Some of the commonly used wavelengths are 400-460 nm blue/ violet light, 560nm white, amber. Commercially available autofluoresence systems like VEL –scope uses 400-460nm blue /violet light, where as in systems like Identafi-3000, multiple excitation wave lengths are possible [8,9].

Fluorophores

Fluorophores in fluorescence spectroscopy may be broadly classified [9] into

a. Endogenous fluorophores
b. Fluorophores synthesized in the tissue after administration of a precussor drug
c. Fluorophores injected as exogenous drug.

Endogenous fluorophores can be located in the tissue matrix or in cells. Collagen, elastin, keratin, Flavin adenine di nucleotide (FAD), reduced form of coenzyme Nicotinamide adenine di nucleotide (NAD(P)H) are the fluorophores that produce auto fluorescence[4]. In the oral mucosa the main source of autofluoresence is sub epithelial stromal collagen fibers. The major fluorophores in the oral mucosa are Flavine adenine dinucleotide(FAD) and reduced Nicotinamide adenine di nucleotide (NAD(P)H), seen in the epithelium and cross linked collagen and elastin fibers of the underlying lamina propria. Recently several other natural biofluorophores like keratin, porphyrins, have been claimed to be useful in classifying lesions [4].

Applications of autofluoresence spectroscopy

Light induced fluorescence visualization technologies are being used

1. To visualize sub clinical premalignant and malignant lesions, not visible on routine white light oral examination [9,4,12,13]
2. For identification of the most representative site for performing biopsy to avoid the risk of underdiagnosis and need for repeated biopsies, as autofluoresence imaging can possibly sample several square centimeters at a time [4].
3. As non invasive diagnostic aids to characterise biochemical and structural changes associated with neoplastic transformation.[8,9,14,15,16]
4. To determine surgical margins at the primary site that are free of histologic and molecular features of malignancy or dysplasia [17,18].
5. To diagnose an occult metastatic squamous cellcarcinoma [8,9,12,19].
6. Assist in the detection and classification of lesions. Several studies are on to utilize autofluoresence from naturally occurring biofluorophores like keratin, porphyrins, FAD, NADH, for assisting in the identification and classification of oral lesions [4].

a) Autofluoresence from keratin : Keratin is strongly fluorescing. In hyper keratosis, excessive keratin may produce an increase in autofluorescence intensity, which may be utilized to differentiate between normal and hyperkeratotic mucosa.

b) Autofluoresence from connective tissue especially from collagen and elastin fibers:- In hyperplasia fluorescence signal will be lower as, the epithelial layer shields the fluorescence from collagen and elastin. The fluorescence can further be modified in case of angiogenesis as the hemoglobin present in the tissue can partly absorb both the excitation and fluorescence light.

c) Autofluoresence due to porphyrins:- Autofluoresence due to porphyrins or porphyrin like fluorescence have been associated with tissue changes especially malignancy, hence a narrow porphyrin fluorescence peak may be indicative of tissue changes [4]. However the reliability of porphyrin –like autofluoresence as a good diagnostic indicator has been questioned [4,20].

d) Autofluoresence due to nicotinamide adeninedinucleotide (NADH):- For the differentiation of lesions especially between premalignant and benign, much attention has been given to coenzyme NAD(P), which is believed to play an important role in cellular metabolism. It exists in both oxidized NAD(P)+ and reduced NAD(P)H forms, of which the reduced NAD(P)H has the property of fluorescence. Due to an increase in the cellular metabolism in lesions with marked cellular proliferation, there is an increase in the activity of the reduced form of NAD(P) H resulting in an increase in auto fluorescence intensity.[10] However there is no convincing evidence for this hypothesis.[10]

7. Caries detection: Laser induced fluorescence especially nitrogen laser induced fluorescence were found to be suitable for the detection of carious lesions. Nitrogen laser induced fluoresencein sound teeth consisted of two broad bands centered at 440-490nm. In comparison to sound teeth carious teeth showed lower fluorescence and reflectance intensities in the 350-700 nm region [21].
8. Biomarkers for tobacco smoking: Paszkiewicz etal in a study, proposed buccal cell autofluoresence as a candidate biomarker of tobacco smoking [22].

The limitations of autofluoresence spectroscopy

1. Difficulty in obtaining quantitative information:- Quantitative assessment of fluorophores, light scatterers, in tissues is difficult mainly because the fluorescent spectra contain only broad features with overlapping spectral regions. Moreover factors that can influence the wave length of fluorescence like the amount of blood in tissues and the degree of oxygenation, also cannot be assessed accurately.

2. Difficulty in classifying lesions:-Since the exact concentrations of the fluorophores and the influence of other factors cannot be reliably calculated from the spectra, it is presently not possible to construct a model for classifying lesions [4].
3. Questionable reliability in subjectively outlining exophytic tumors:- In a study by Betz etal., autofluoresence imaging could not differentiate exophytic tumors from host tissue in locations like tongue, soft palate and tonsillar sinus. Hence the authors were of opinion that autofluoresence imaging can differentiate flat epithelial lesions better than large exophytic tumors [4,20]
4. Questionable reliability of porphyrin –like fluorescence:- some authors are of opinion that porphyrin like fluorescence is not a good diagnostic indicator because a) they can be synthesised by micro-organisms that may find natural habitats in the depressions on the tongue. b) porphyrin like peaks are found naturally in several areas of healthy mucosa.

Conclusion

The limitations of autofluoresence imaging may be overcome with technological advancements and research, as recent studies have shown that light induced tissue autofluoresence at multiple excitation wavelengths (365,380,405, and 450 nm) could differentiate dysplastic epithelium from normal mucosa with 95.9% sensitivity and 96.2% specificity [8,9,23]. Autofluoresence spectroscopy and imaging offers great promise to improve and enhance diagnostic predictability and visualization of potentially malignant lesions without compromising on the safety.

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Unicystic ameloblastoma

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Abstract

Unicystic ameloblastoma represents cystic lesions with clinical & radiographic features of an odontogenic cyst, but with histologic features of a typical ameloblastoma. It accounts for 10-15% of all intra osseous ameloblastomas. This presentation discusses the management of a large 6X5 cm radiolucent lesion of the right mandible ramus extending to the neck of condyle. This paper highlights a surgical plan executed based on clinical presentation and precautions to avoid pathological or iatrogenic fracture.

Introduction

Unicystic ameloblastoma, a variant of ameloblastoma first described by Robinson and Martinez in 1977 refers to those cystic lesions that show clinical and radiologic characteristics of an odontogenic cyst, but in histologic examination show a typical ameloblastomatous epithelium lining part of the cyst cavity, with or without luminal and/or mural tumor proliferation. [1]

This variant is believed to be less aggressive, tends to affect patients at a younger age, and its response to enucleation or curettage is more favorable than the classic solid or multicystic ameloblastoma. It accounts for 10-15% of all intra osseous ameloblastomas.[2]

This presentation discusses the management of a large 6X5 cm radiolucent lesion of the right mandible ramus extending to the neck of condyle. This paper highlights a surgical plan executed based on clinical presentation and precautions to avoid pathological or iatrogenic fracture.

CASE REPORT

A 33 year old male presented with complaints of painless swelling in the right lower jaw. He had noticed the swelling since 8 months. The patient did not give any history of local trauma. He did not have any major medical or surgical illness in the past.

On examination

Solitary bony swelling of right mandible ramus
Normal overlying skin & Intact oral mucosa
Palpable buccal & lingual cortical plate expansion
Missing right lower third molar.

Investigations

Mandible lateral oblique & AP skull showed a large unilocular radiolucent lesion
Aspiration gives clear straw coloured fluid
FNAC report suggest cystic lesion possibly a dentigerous cyst
OPG shows a 6 X 5 cm lesion & an impacted 3rd molar
Blood investigations within normal limits
He was not immunocompromised

Pre-op

Advised soft diet
Chances for pathological fracture explained
Dental prophylaxis & MMF with eyelet wires placed 4 days pre operatively
Case provisionally posted for removal of impacted 3rd molar & marsupialization

Procedure

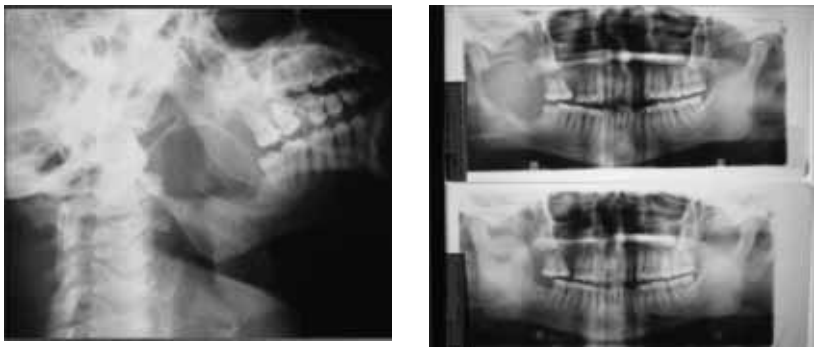
Extended 3rd molar incision with anterior vertical release
Removal of impacted 3rd molar
Cyst lining not attached to cej of tooth
Cyst volume of 30 ml approximately by saline deposition
Due to better access surgical plan was altered
Enucleation piece meal removal
Cyst lining readily separated from bony wall & visible neurovascular bundle
MMf reapplied on application of traction on cyst lining
Carnoys solution applied to walls
Closure with 3-0 silk

Post- op

Uneventful
MMF retained for 4 weeks
Soft diet for 6 months
Eyelets retained 8 weeks after release of MMF
Histopathology report
Unicystic ameloblastoma mural type

Follow up

The patient reported for follow up OPG only after 1 year 6 months



Pre op & post op follow up radiographs

Shows bone formation following the lines of initial cyst expansion

Discussion

Ameloblastoma is divided into 4 types. 3

Classic solid / multicystic ameloblastoma (SMA) (83%)

Unicystic ameloblastoma (UA) (6%)

Peripheral ameloblastoma (PA) (2%)

Desmoplastic ameloblastoma (DA), including the so called hybrid lesions (9%)

Characteristics

UA occurs in a younger age group.

More than 50% of cases occurring in patients in the second decade of life.

More than 90% of cases located in the mandible, with 77% located in the molar ramus region of the mandible.

Mandible to maxilla ratio is 13:1. 4,5,6

Patients most commonly present with chief complaints of swelling and facial asymmetry.7

Ackermann et al. classified this entity into 3 histologic groups: 2

Group I: Luminal UA (tumor confined to the luminal surface of the cyst).

Group II: Intraluminal/plexiform UA (nodular proliferation into the lumen without infiltration of tumor cells into the connective tissue wall).

Group III: Mural UA (invasive islands of ameloblastomatous epithelium in the connective tissue wall not involving the entire epithelium).

Histologic subgrouping (modified after Ackermann et al.) by Philipsen and Reichart: 4

Subgroup 1: Luminal

Subgroup 1.2: Luminal and intraluminal

Subgroup 1.2.3: Luminal, intraluminal and intramural

Subgroup 1.3: Luminal and intramural

Management

Subgroups 1 and 1.2 conservative (enucleation & chemical cauterization with Carnoy's solution)

Subgroups 1.2.3 and 1.3 radical (as a solid or multicystic ameloblastoma.) 4

Recurrence

Average interval forrecurrence is 7 years. 8

3.6% for resection

30.5% for enucleation

16% for enucleation followed by Carnoy's solution application

18% by marsupialization followed by enucleation or resection. 9

Summary

Unicystic ameloblastoma has a better prognosis & reduced recurrence rate when compared with a conventional solid multicystic ameloblastoma. Overall prognosis & outcome on intervention was improved by a meticulous surgical plan & precautions to prevent pathologic & iatrogenic fractures & recurrence.

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Endodontic treatment of a three-rooted mandibular second premolar

* Priya R.

Abstract

The root and canal morphology of mandibular premolars can be extremely variable, rightfully earning them the title of an "endodontist's nightmare". These variations include multiple roots and canals as well as canal aberrations. These are more common in first premolars. It is very rare that a mandibular second premolar has multiple roots. The present case report describes the complex root morphology of a mandibular second premolar. The three-rooted tooth required endodontic treatment which was successfully completed.

Introduction

Generally, the mandibular premolar is described as a single-rooted tooth with a single root canal[1,2]. However, the root morphology and canal morphology of the mandibular second premolar can be extremely complex and highly variable[3]. The complex nature of the root and root canal morphology of the mandibular second premolar has often been underestimated.

Variations in canal morphology are more common than root morphology. According to Zillich & Dowson, the incidence of extra canals is 26.5% in mandibular first premolars and 13.5% in second premolars[4]. Ethnic variance is also seen, with 32.8% incidence of 2-canal mandibular premolars in African Americans and only 13.7% in Caucasians[5].

The incidence of 2 or more roots for mandibular second premolars is very low at 0.3%[3]. Three-rooted teeth were extremely rare, and only 0.1% incidence has been reported in anatomic studies[4,6-11]. Three-rooted and four-rooted teeth have been documented sporadically in case reports[12,13,14].

In this paper, a rare case report is presented that describes the successful endodontic treatment of a three-rooted mandibular premolar.

Case report

A 28-year-old man was referred by a general practitioner for root canal treatment of his left mandibular second premolar. The patient gave a history of decay in the tooth that had started a few years ago. He had ignored the same, due to lack of any subjective symptoms. At the private clinic, radiograph of the tooth had been made, and the complex morphology had prompted the referral to the Endodontist.

Clinical examination revealed the tooth with partially dislodged temporary restoration that had been placed by the referring dentist. Surrounding soft tissue was intact, and the tooth was not sensitive to percussion. The medical history was noncontributory. Intraoral periapical radiograph of the tooth showed that the caries had invaded the pulp space and the root was seen to be trifurcated (Fig.1). Incidentally, the roots of all the other mandibular premolars were bifurcated.

The access opening of 35 was initiated under local anaesthesia and rubber dam application. The remaining restorative material was removed and entry was gained into the pulp chamber. The root canal system was then explored with a number 10 K-file (Maillefer, Ballaigues, Switzerland). All the three roots had one canal each. The three canals could be located and negotiated with some effort. Working length was determined radiographically (Fig.2) and all root canals were prepared by a combination of hand instrumentation with K-files (Maillefer) and protaper rotary instruments (Dentsply Inc.). Apical enlargement was done up to size 30 for the hand-instrumented canal and up to F2 for rotary instrumented canals. The canals were irrigated alternatively with 5.2% sodium hypochlorite solution and saline. A closed dressing with calcium hydroxide mixed with chlorhexidine was placed.

At the next visit 1 week later, 35 was obturated. The hand-instrumented canal was obturated by lateral condensation with gutta-percha and AH plus sealer. Single protaper GP cone (Dentsply Inc.) and the same sealer were used to obturate the canals enlarged with rotary instruments (Fig.3).

Discussion

The need for accurate assessment of the internal morphology of a tooth to be endodontically treated is paramount. Before root canal treatment, it is imperative to have a good quality preoperative radiograph, which can alert the clinician to the presence of aberrant anatomy. However, this alone would not be sufficient to fully understand the variable morphologic structure of the root canals and their interrelations. A second radiograph from 15–20 degrees either mesial or distal to the

Fig. 1 Diagnostic radiograph

Fig. 2 Working length radiograph

Fig. 3 Post-obturation radiograph

horizontal axis has been recommended. Several investigators have indicated that sudden narrowing of the canal system on a parallel radiograph suggests canal system multiplicity[15,16]. Martinez-Lozano et al have suggested a 40-degree mesial angulation of the x-ray beam to identify additional canals[17].

Manual exploration of the root canal system with an endodontic file is a reliable way to identify anatomical aberrations. The use of magnification and digital imaging techniques has been demonstrated to improve the clinician's ability to visualize and access canals.

In cases where cleaning of the root canal system may be especially difficult, placement of calcium hydroxide as an intracanal medication may enhance disinfection of the root canal system and improve the prognosis.

It is of interest to note that many cases of multiple roots in mandibular premolars have been reported from the Indian population[18-21]. This probably indicates a racial predilection that needs to be studied in detail. However, no report of a three-rooted mandibular second premolar has been made previously.

Conclusion

The success of endodontic treatment is directly related to the complete elimination of all organic debris from the root canal system. This requires a thorough knowledge of the possible variations in canal and root morphology of every tooth, combined with the clinical skill for proper execution of the procedure, and complemented by the necessary equipment to enhance that skill. This paper presents such an example of successful endodontic management of a tooth with rare and complex root morphology, i.e. a three-rooted mandibular second premolar.

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Autotransplantation of impacted third molar

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Abstract

Autotransplantation can provide a patient with all the benefits of natural tooth, and can be an important treatment option for tooth replacement especially in young individuals. However it is seldom considered as treatment option, in large part because of lack of knowledge of the procedure. This case report describes use of autotransplantation technique successfully to replace grossly decayed 1st mandibular molar with atraumatically removed impacted mandibular 3rd molar in a young patient.

Introduction

Autotransplantation can be defined as the transplantation of embedded, impacted or erupted teeth from one site to another in the same individual[1]. The new location may be a fresh extraction socket after extraction of a nonrestorable tooth, or an artificially drilled socket on an edentulous alveolar ridge. Its definition also encompasses the surgical repositioning of a tooth within the same socket. The technique has been advocated in situations where the patient would require a fixed prosthesis, or where osseointegrated implants are contraindicated as in a growing patient owing to the risk of infra-occlusion.

First case report of successful tooth transplantation appeared in 1950s when decayed 1st molar was replaced with transplanted impacted 3rd molar[2]. More recently, Bauss et al[3] (2004) reported on the autotransplantation of immature third molars into edentulous jaw sections.

Autotransplantation has been carried out for many years but with varying success rates[4]. Consequently, there is a lack of confidence and a lack of understanding regarding this procedure among those in the dental community. The goal of this article is to report a case of successful autotransplantation of immature impacted 3rd molar in young patient. The author will also describe the surgical technique used for transplantations in this report.

Case report

A 16-year-old girl was referred to oral surgery clinic for extraction of her mandibular right first molar. The medical history was non-contributory. Clinical examination revealed good oral hygiene but the first molar was grossly decayed (Fig. 1). The tooth was non tender to percussion and palpation; periodontal probing depths did not exceed 3 mm all along the gingival sulcus. The radiographic examination showed radiolucency involving most of the crown of right mandibular 1st molar suggestive of gross decay involving the pulp chamber (Fig. 2). Periapical radiolucency associated with both the roots of the tooth was noted. The examinations also showed impacted third molar.

The patient was informed about the decayed tooth; and extraction was recommended to her. Autotransplantation of impacted 3rd molar in 1st molar extraction socket was explained to the patient and her parents, as option of dental implant was ruled out due to age consideration. The treatment procedures in addition to benefits and risks of the technique were explained to the patient. A written informed consent was obtained and the patient was scheduled for treatment.

The surgical procedure involved atraumatic removal of impacted 3rd molar and decayed 1st molar under local anesthesia (Fig. 3). The extracted 3rd molar was immediately transplanted into the extraction socket of 1st molar. The recipient socket required minimal preparation to accommodate the 3rd molar, roots of which almost matched morphology of extracted 1st molar. The transplanted tooth was stabilized with Fig. of 8 inter-dental wiring with 26 gauge stainless steel wire (Fig. 4).

The patient was kept on regular follow up visits and importance of oral hygiene maintenance was emphasized. The inter-dental ligature wire was removed after 4 weeks. Patient at 3 months post-operative follow up showed firm & healthy implanted tooth at 1st molar region. The patient was further put on long term follow-up. A chance of possible ankylosis of tooth in future was explained to the patient.

Discussion

Autotransplantation of a mandibular third molar to any site in the oral cavity can be highly successful if basic criteria are met. The variety of crown forms seen on impacted mandibular third molars make them candidates for transplantation to other molar sites, bicuspid areas, and even to cuspid locations, depending on the anatomy of the coronal and radicular surfaces.

Indications

While there are many reasons for autotransplanting teeth, tooth loss as a result of dental caries is the most common indication, especially when mandibular first

Fig 1. Intraoral photograph showing grossly decayed mandibular 1st molar

Fig 2. Periapical radiograph shows grossly decayed 1st molar with periapical change as well as impacted 3rd molar

molars are involved. First molars erupt early and are often heavily restored. Autotransplantation in this situation involves the removal of a third molar which may then be transferred to the site of an unrestorable first molar Successful transplantation depends on specific requirements of the patient, the donor tooth, and the recipient site.

Candidate Criteria

Patient selection is very important for the success of autotransplantation. Candidates must be in good health, able to follow post-operative instructions, and available for follow-up visits. They should also demonstrate an acceptable level of oral hygiene and be amenable to regular dental care. Most importantly, the patients must have a suitable recipient site and donor tooth. Patient cooperation and comprehension are extremely important to ensure predictable results.

Recipient Site Criteria

The most important criteria for success involving the recipient site is adequacy of bone support. There must be sufficient alveolar bone support in all dimensions with adequate attached keratinized tissue to allow for stabilization of the transplanted tooth. In addition, the recipient site should be free from acute infection and inflammation.

Donor Tooth Criteria

The donor tooth should be positioned such that extraction will be as atraumatic as possible. Abnormal root morphology, which makes tooth removal exceedingly difficult and may involve tooth sectioning, is contraindicated for this surgery. Teeth with either open or closed apices may be donors; however, the most predictable results are obtained with teeth having between one-half to two-thirds completed root development. Surgical manipulation of teeth with less than one-half root formation may be too traumatic and could compromise further root development, stunting maturation or altering morphology. When root development is greater than two-thirds, the increased length may cause encroachment on vital structures such as the inferior alveolar nerve. Furthermore, a tooth with complete or near complete root formation will generally require root canal therapy, while a tooth with an open apex will remain vital and should continue root development after transplantation. In the latter case, successful transplantation without the need for further endodontic therapy is usually seen, as in this case report.

The benefits of autotransplantation over other treatment options are numerous. The transplanted tooth can regenerate bone, unlike the dental implant, which often requires bone grafting to fulfill all necessary functional and esthetic demands. In our office, autogenous dental transplantation is also about 87% less costly than a dental implant, an obvious benefit to most patients. Autogenous transplantation can also be performed in patients who are not yet fully grown, because the transplant is actively growing and developing with the patient and not passively locked into position as is an endosseous dental implant. Complications encountered following transplantation include:loss of pulpal vitality, poor periodontal healing, root resorption and ankylosis[5].

Conclusion

Reports of autogenous tooth transplantation have appeared in the dental literature since the 1950s. Molar transplantation has attracted much less attention over the years and, for that reason, is the focus of this article. Until recently, molar transplant was not considered a viable treatment option; dental professionals may have been unaware of this procedure and the benefits afforded to the patient. Now, when a teenage patient walks into the office with a necrotic nonrestorable first molar and impacted developing third molars, we can offer the fundamentally sound option of autogenous molar transplantation in addition to the standard dental implant, crown and bridge, and removable partial denture.

Fig 3. Atraumatic extraction of 1st molar with minimal damage to investing soft tissue and bone.

Fig 4. Transplanted 3rd molar in extraction socket of 1st molar stabilized with figure of 8 interdental wiring (block arrow). Also the surgical closure of the 3rd molar can be appreciated (hollow arrow)

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Review

Soft tissue management in fixed prosthodontics

* Seema Sathe, ** Ram. U. Thombare, *** Sweta Kale

Abstract

Restorations frequently have cervical margins that are intentionally placed in the gingival sulcus for esthetic or functional reasons. In these situations, the clinician must make impressions that accurately capture the prepared cervical finish lines and permit the fabrication of accurate dies on which the restorations are fabricated[5].

There is evidence that inadequate impressions are frequently forwarded to commercial laboratories, and the chief deficiency seen in such impressions is inadequate recording of the cervical finish lines.

The primary reason for not adequately capturing marginal detail is deficient gingival displacement technique. The procedure used to facilitate effective impression making with intracrevicular margins is gingival "displacement" as opposed to gingival "retraction". Gingival management with proper moisture control and gingival retraction are two particular factors that determine success or failure of the procedure [6].

Introduction

For a precision fit and long-term success with fixed prosthetic dental restorations, the quality of impressions taken is a key element of decisive importance. Taking an accurate impression requires appropriate tooth preparation and soft-tissue management as well as proper selection of impression material, system, and tray, the impression technique [5].

Gingival management with proper moisture control and gingival retraction are two particular factors that determine success or failure of the procedure.

The goal of the procedure is to reversibly displace the gingival tissues in a lateral direction so that a bulk of low-viscosity impression material can be introduced into the widened sulcus and capture the marginal detail [6].

Need for Gingival retraction[14] **??????**

(1) To provide access to the impression material by widening the gingival sulcus.
(2) To obtain a perfect die with the accurate margins
(3) Prevents plaque accumulation indirectly
(4) Improves esthetics of the restorations
(5) Increases the retention of the restorations.

Classification of Gingival retraction methods [1]

(1) Mechanical
(2) Chemico-Mechanical
(3) surgical

I) Mechanical [6]

1. Heavy weight rubber dam
2. Copper Bands
3. Aluminium shell
4. Pressure pack made from Zinc oxide Eugenol
5. Zinc Oxide Eugenol or Non eugenol periodontal packs
6. Non Impregnated retraction cord

II) Chemico-Mechanical Method [4]

The chemical aspect involves treatment of the cord with one or more chemical compound that will induce temporary shrinkage of the tissues

The mechanical aspect involves placement of cord into the sulcus to displace tissue physically.

Classification of medicaments [2,9]

1) Vasoconstrictors
2) Biologic fluid coagulants
3) Surface layer tissue coagulant

1) Vasoconstrictors [3,9]

- Epinephrine:1000for 10min [3]
- Alum 100% for 10 min [7]
- Aluminium chloride 5% for 10 min
- Monsel's solution 80% for 3 min

2) Biologic fluid coagulants [7]

A) 100% alum solution (potassium aluminium sulphate)
B) 15-20% aluminium chloride

3) Using surface layer tissue coagulants like:-

1. 8% zinc chloride
2. Silver nitrate.

The above said mechanics can be used for help of[14]:

- Cords
- Drawn cotton rolls
- Cotton pellets

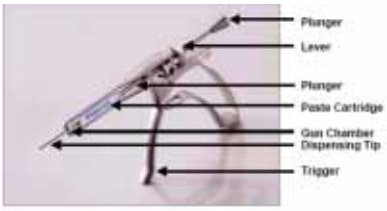

Fig 1

Fig. 2

Fig 4

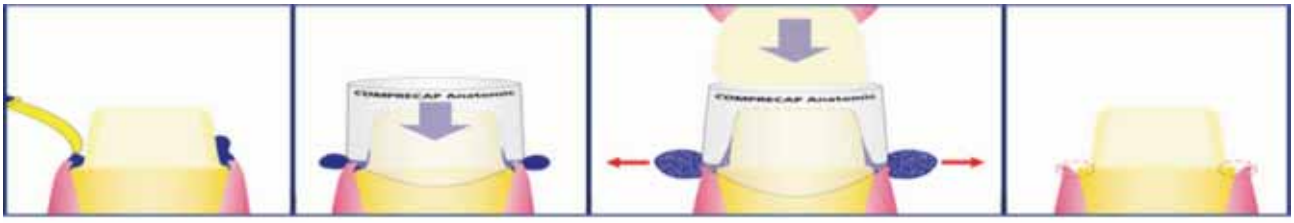

Fig 3

Cords
- Loose twisted
- Braided
- Knitted

They are available in 000, 00, 0, 1, 2
- 000- Thinnest
- 2- Thickest

Retraction cord technique [10]:-

A) Single cord
B) Selective double chord
C) Double cord

SURGICAL

The surgery basically includes removal of ribbon of gingival tissues [8].

It is done by 3 methods

1. Gingitage
2. Electrosurgery
3. Laser.

RECENT ADVANCES [12]
- Gingifoam.
- Expasyl ™.
- Affinis/Magic foam cord.
- Merocel
- Gel-cord.
- Stay-put retraction cord.
- Comprecap.
- Z-twist weave.
- Lasers.

Expa-syl (Kerr Dental, Orange, Calif.)
- Effectively achieves haemostasis.
- Retracts gingival tissues effectively when used in appropriate cases.
- Evaluators reported technique was less traumatic to tissues than cord packing.
- Faster to use than traditional cord method of retraction.
- Colour of paste makes it easy to see during use.
- Is easy to remove material from sulcus by rinsing.
- Applicator gun is extremely well made.
- Disposable dispenser tips can be bent for improved intraoral access.

Magic foam cord,

Magic Foam Cord™ is the first expanding VPS material designed for easy and fast retraction of the sulcus without potentially traumatic packing or pressure. It is actually introduced into the gingival sulcus and allowed to set under pressure.

Syringe FoamCord around the preparation

Preparation ready for final impression

Wait 5 min. to allow Foam Cord material to fully set and sulcus to expand

Place pre fitted Comprecap over tooth and ask patient to bite down

ADVANTAGES:

Less traumatic to tissues than retraction cord

Color of foam makes it easy to see during use

Easy to remove material from preparation and sulcus

Adequate working time

Lot number and expiration date provided on foam cartridges

DISADVANTAGES:

Limited clinical indications

No haemostasis provided

Relatively expensive compared with retraction cord.

Magic Foam cord

Unique expanding A silicone 'foam' for sulcus enlargement without cord or instrumentation.

Simple, non invasive, technique gives excellent patient acceptability.

Merocel

a Merocel strip was a predictable retraction material in conjunction with impression procedures.

Gel Cord

This technique utilizes profiled disposable syringes for case of use and contamination control.

Fig 5

Fig 6

Fig 7

Fig 8

Fig 9

Fig 10

Gingi- Pak Retraction Materials
- Kutterkap
-Z- Twist retraction Cord
Comprecap

Lasers [13]

- Photo ablation-blood free procedure
- Help in exposure of subgingival finish lines, controls the hemorrhage, and removes just enough epithelial attachment
- Laser tips 400-600 micron in diameter is used

Summary

Gingival displacement is an important procedure with fabricating indirect restorations. Gingival displacement is relatively simple and effective when dealing with healthy gingival tissues and when margins are properly placed a short distance into the sulcus. Several techniques have proven to be relatively predictable, safe, and efficacious. No scientific evidence has established the superiority of one technique over the others, so the choice of technique depends on the presenting clinical situation and operator preference [14].

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Most common complications in fixed prosthodontics

* Srividya S., ** K. Chandrasekharan Nair, *** Jayakar Shetty

Introduction

Complications during or after fixed prosthodontic treatment procedures have been reported in great abundance in literature. It has been reported that conventional fixed partial dentures have the greatest complications incidence (27%), with resin bonded prostheses having a comparable incidence (26%). Single crowns (11%) and posts and cores (10%) have comparable complications incidences. All-ceramic crowns have the lowest incidence (8%) of complications. The most commonly reported complications with fixed partial dentures were caries (18% of abutments), need for endodontic treatment (11% of abutments), and loss of retention (7% of prostheses). With single crowns, the most common complications were need for endodontic treatment (3%), porcelain veneer fracture (3%), and loss of retention (2%). With all-ceramic crowns the most common complications encountered were crown fracture (7%), loss of retention (2%), and need for endodontic treatment (1%)[1]. This article reviews the most common causes for failures or complications of fixed partial dentures and single crowns.

1. Loss of retention : Loss of restoration or loose retainer can be prevented by strict adherence to principles of tooth preparation.

a. Total occlusal convergence (TOC): is the angle formed between two opposing prepared axial surfaces. An appropriate clinical goal is $10^0 – 20^0$. Factors affecting TOC are posterior teeth exhibit greater TOC compared to anterior teeth, mandibular teeth tend to be prepared with greater TOC than maxillary teeth. Fixed partial denture abutment teeth are generally prepared with greater convergence than teeth prepared for single crowns. The use of one eye when viewing teeth (monocular vision) produces greater convergence than use of both eyes (binocular vision). Occlusal view is frequently used to evaluate TOC which is of limited value because small differences in TOC cannot be easily evaluated whereas facial or lingual views are better. TOC is better evaluated by examining the image of the prepared tooth in the mouth mirror. In situations where TOC exceeds beyond the recommended 20^0, auxiliary tooth preparation features such as grooves or boxes be added to increase the resistance of restorations to dislodgement.

b. Occlusocervical/incisocervical convergence: Anterior teeth and premolars should have a minimum of incisocervical/ occlusocervical convergence of 3 mm and molars should have a minimum of 4mm with 20^0 TOC. Teeth lacking these minimal dimensions should be modified to enhance their resistance form through formation of proximal groves/box.

c. Ratio of occlusocervical/incisocervical dimension to faciolingual dimension : The ratio of OC to FC dimension should be 0.4 or higher for all teeth when TOC is 24^0 or less.

d. Circumferential form of the prepared tooth : The rhomboidal form of maxillary molars, the rectangular forms of the mandibular molars and oval forms of anterior teeth should be maintained in the prepared maxillary, mandibular molars and anterior teeth respectively. These forms provide circumferential irregularity and add to resistance to dislodging forces. If these 'corners' are missing and are round after preparation, they should be compensated for by forming axial grooves or boxes to improve the resistance form of the prepared tooth[2].

e. Finish lines and Marginal fit: For optimum periodontal health, finish lines should be placed supragingivally provided esthetics and condition of the tooth permit the same. If subgingival finish lines have to be placed, they should not extend beyond epithelial attachment[3]. Least stress is seen with shoulders with rounded internal line angle & chamfer, maximum Stress is associated with shoulders with bevel & feather edges. Least Marginal Opening (31-44 μ) is found with feather edge, shoulders and chamfers with parallel bevels, moderate Marginal Opening (67μ) – 90° shoulders Maximum Marginal Openings (95-105μ) – 45° shoulders and chamfers with 30° or 45° bevels[4]. Recommended finish line forms for all metal restorations – Chamfer with depth of - 0.3mm to 0.5mm. For metal ceramic restorations chamfer, beveled chamfer, shoulder, beveled shoulder have been used. The finish line for metal ceramic restoration should be based on, personal preference, esthetics, ease of formation, type of metal ceramic crown (metal marginal collar or collarless margin) Depth of finish line – 1 to 1.5 mm. For all ceramic crowns cemented to tooth – shoulder and shoulder / chamfer for all ceramic crowns bonded to prepared tooth[2].

2. Misfit or Incomplete Seating : can be manifested as occlusal interference, loss of retention of crown, secondary caries, plaque accumulation, periodontal problems, hypersensitivity, dissolution of luting agent.

The various techniques to improve marginal fit include venting, internal relief, proper cementation technique.

Venting is provided by placing a small hole in the occlusal or axial surface of the restoration allows exit of excess cement during cementation. Disadvantages are marginal leakage between the casting and the restorative material used to close the vent hole, weakens porcelain at the margin. Internal Relief – Space is created between the casting & prepared tooth to accommodate excess cement after closure of marginal pathway of escape but, these are inconsistent & inaccurate impossible to achieve uniform space.[5]

Die Spacing : Effective in obtaining internal relief, provides space for the luting agent, improves outflow of excess cement. Optimum thickness of spacer 25 to 40 μm is large enough to allow proper seating of the casting but not so large enough to cause excessive cement thickness.

Cementation Technique: Vibration improved seating of crowns by creating a thinner film layer and vertical vibration more effective than horizontal vibration. Also cement painted on the inner walls promotes a better fit than when the crown was completely filled with cement. Optimum cementation force - 5 kg for 1 minute.

3. Caries : Caries can occur on abutment at the margin of restoration. This problem can be the result of incomplete removal of caries during a previous treatment or of a loose retainer casting that allows gross leakage to occur. Root caries is associated with gingival recession and periodontal pockets. Caries can also occur in patients with poor compliance in maintaining oral hygiene, high counts of salivary mutans streptococci, age related/medication/radiation induced xerostomia. Extensive lesions may encroach on the pulp, making endodontic treatment necessary or the tooth may be so badly destroyed by caries that it cannot be restored and must be extracted. Meticulous oral hygiene must be a routine procedure for patients with a high caries index and particularly for those who have a past history of developing carious lesions around restorations. Other preventive measures should include the use of fluoride-containing dentifrices, home mouth rinses containing fluoride, and professionally applied topical fluoride.

4. Porcelain veneer fracture : can occur in a framework design that allows centric occlusal contact on, or immediately next to, the metal-ceramic junction. Excessive oxide formation on the alloy surface can also cause separation of the porcelain from the metal. Fracture of the facial cervical porcelain which often assumes a semilunar form is common with a short tooth preparation. When opposing tooth contact is located incisally to the prepared tooth, tipping forces are more frequently developed, with the restoration having a fulcrum on the cervically located incisal edge. Inadequate lingual tooth reduction in which less than 1 mm of porcelain is present results in fracture of the lingual cervical porcelain[6].

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Quiz

*** Bimal Krishna K.B, ** Valsa Thomas**

1. **An infant was brought to the OPD with multiple painless small discrete white nodular lesions along the upper labial alveolar mucosa for 2 months. This condition is called**

A. Fibromatosis gingiva
B. Herpetic gingivostomatitis
C. Gingival cyst of newborn D. Papilloma

2. **A 60 year old female reported with unilateral facial pain has tenderness of right TMJ.Coronal CT image shows asymmetric right condyle with flattening, erosion, osteophytes and widened interarticular space. The most probable diagnosis is**

A. Synovitis
B. Disk displacement with reduction
C. TMJ Ankylosis
D. Osteoarthritis of TMJ

3. **A painless slow growing solitary pedunculated growth noted on ventral surface of the tongue with hyperkeratotic papillary surface in a middle aged female, Diagnose the lesion**

A. Verrucae vulgaris
B. Squamous Papilloma
C. Hecks disease D. Leukoplakia

4. **Panoramic radiograph for an unerupted third molar revealed radiopaque amorphous mass with a radiolucent rim on pericoronal aspect of impacted 38.Possible diagnosis will be**

A. Complex odontome
B.Compound odontome
C. Dentigerous cyst
D. Calcifying epithelial odontogenic cyst

5. **A 65 year old male patient presented with a yellowish pink painless soft swelling of one year duration involving mucobuccal fold of 34-37 region devoid of any osseous change in radiographs. Probable diagnosis will be**

A. Ranula
B. Dentoalveolar abscess
C. Fibroma
D.Lipoma

6. **A 58 year old man presented with a shallow painful ulcer with healing edges, erythematous halo and yellow necrotic slough on floor involving lower labial mucosa for 1 week duration. No history of trauma or systemic illness. Clinical impression will be**

A.Herpes labialis B.Carcinoma Lip
C.Pemphigus D.Aphthous Ulcer

7. **What is the noticeable developmental defect of paranasal sinus in this occipetomental radiograph?**

A. Maxillary sinus hypoplasia
B.Ethmoid sinus hypoplasia
C.Maxillary sinus hyperplasia
D.Frontal sinus hypoplasia

8. **A 35 year old female patient with nonscrapable linear white lesion on buccal mucosa with radiating striae;erosion and crustation of vermilion borders and erythematous macular lesions on exposed skin of face and neck suggestive of**

A. Lichen planus B.Discoid Lupus erythematosis
C.Erythema multiforme D.Candidiasis

9. **Occlusal radiograph of a painless hard, nontender, swelling in anterior floor of mouth shows,bilobed uniformly radiopaque mass attached by a pedicle to lingual cortical plate related to 32,33.Identify the condition**

A.Sialolithiasis
B.Torus mandibularis
C.Osteoma
D.Peripheral ossifying fibroma

10. **A 70 year old female patient with prodromal symptoms of pain, burning sensation of palate later develops painful clusters of vesicles and ulcers with distinctive unilateral distribution. The characteristic features depicted here seen in**

A. Herpes zoster infection
B. Varicella
C. Recurrent herpes virus infection
D. Herpetic gingivostomatitis

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ANSWERS-1-C, 2-D, 3-B, 4-A, 5-D, 6-D, 7-D, 8-B, 9-C, 10-A.

Secretary's Report and Association News

My dear fellow Members,

The days gone by were marked by fun, frolic and togetherness. The St. Gregorios Dental College stage was star studded by the exemplary display of young talents during the Dent fest -2011. It was an Utsav of toddlers in Dentistry. Those satisfying and smiling faces had the beauty of a thousand rainbows.

Chilamboli 2011 was an event that elicited the untapped talents in our fraternity, undoubtedly met with a resounding success. Thanks to the whole hearted support from all the members who participated in this mega event.

IDA Kerala State has added one more feather to its cap- the formation of its 28th branch- IDA Valluvanad.

Amidst all the fun, Joy and celebration of the Malayalam New Year, I take this opportunity to wish you all a "HAPPY ONAM"

Dr.Shibu Rajagopal
Hon.Secretary
IDA Kerala State.

Dr. Deebu. J. Mathew
CDE Convenor

CDE Report

Report of the Third State level CDE program

The second CDE program of the IDA Kerala state branch was held at the Pariyaram Hotel Surya, Angamali on the 5th of June 2011 and was conducted under the aegis of the Women's Wing of IDA Kerala State.

The topic for the session was on "Practice Management" and was conducte by the well known Dr Usha Mohandas.

The inaugural ceremony began with a welcome address by Dr Anjana, the Co-ordinator of the program. Dr Marilyn Alias Chairperson, Women's Wing in her presidential address detailed the activites of the Women's wing. The President of IDA Kerala Dr Santhosh Sreedhar inaugurated the CDE program., Hon; Secretary Dr Shibu Rajagopal, and CDE chaiman Dr Deebu J Mathew and Dr Sudha Santhosh, Secretary, Women"s Wing addressed the gathering.

Following the inaugural session, Dr Usha proceeded to her topic and soon had the audience under her spell. She elaborated on the various techniques to be followed in ensuring a healthy, ethically sound practice. Delegates continued to bombard her with queries well after the session was completed.

Dr Kunjamma Thomas gave away the memento to the faculty Dr Usha.

Report of the 4th CDE of IDA KERALA STATE

The 4th State level CDE was conducted on 31st July 2011 at Hotel Aida, Kottayam. It was hosted by IDA Central Kerala Kottayam branch. The Topic was "Preventing Complications in Fixed Prosthodontics" and the Faculty was the renowned Prosthodontist - Prof. Dr. K. Chandrasekharan Nair. It was a Full day program from 10a.m to 4.00pm.

The inaugural session began with the welcome by the local branch President Dr Antony. The State President Dr Santhosh Sreedhar in his address highlighted the activities of the IDA Kerala state branch The CDE Programme was formally inaugurated by the Kerala Dental Council President Dr.Mathew Joseph Vayallil. The State Secretary Dr Shibu Rajagopal,IPP Dr Samuel Ninan,CDE Chairman Dr Deebu J Mathew and the Local branch Secretary Dr Reju Philip addressed the gathering. The Mega CDE program saw 170 participants from all over the State attending.

The sessions by Chandu Sir were Interactive in nature which he started right from the basics of Crown and Bridge to how to select the patient,Shade selection,different tooth preparation techniques.He encouraged everyone to share their views and opinions which resulted in a class appreciated by one and all. A Lucky Draw was also conducted among the participants in which three lucky winners were awarded 3days & 2nights stay at Ooty with their Family courtesy of "Luxuriya Fortune"Group.





CDH Report

Dr Abdul Latheef K H
CDH Chairman

REPORT OF THE STATE LEVEL ORAL HYGIENE DAY CELEBRATIONS

The state level Oral Hygiene Day celebrations of Indian Dental Association, Kerala state hosted by IDA Malanadu branch was held on August 1, 2011, 9:30 AM at the Agricultural Bank Auditorium, Muvattupuzha. Dr Jaymon K. Alias, President, IDA Malanadu Branch welcomed the gathering. The meeting was presided by Dr Santhosh Sreedhar, President, IDA Kerala State. The function was inaugurated by the Chief Guest, Sri K Babu, Hon. Minister of Excise, Kerala. Sri U R Babu, Hon. Municipal Chairman of Muvattupuzha, inaugurated the Free Denture Delivery Program of IDA Malanadu Branch. Dr Shibu Rajagopal (Hon. State Secretary, IDA), and Dr Jose Paul (State Coordinator for Oral Hygiene Day Celebrations) extended their felicitations. Following this, a Dental Health Awareness class was conducted by Dr Civy Pulayath (Asst. Professor of Community Dentistry, Al-Azhar Dental College, Thodupuzha) for Kudumbashree members. The dentures fabricated as part of the Free Denture Program of IDA Malanadu Branch were delivered after this. Dr Byju Paul Kurian, CDH Convenor, IDA Malanadu Branch, gave instructions regarding the use of the dentures. Dr Santhosh Sreedhar gave away the prizes to the winners of the Smile Competition for school children held in association with Oral Hygiene day celebrations. Dr Ciju A. Paulose, Secretary, IDA Malanadu Branch, extended the vote of thanks.

NO TOBACCO DAY

IDA Kerala state observed The world No Tobacco Day on 31st of May 2011 by conducting various programes at YMCA Hall, Alappuzha. At 10 am the State officials conducted a press meet at Alappuzha press club to mark our protest against delaying the new pictorial warning on tobacco products.

At 2pm the State secretary Dr Shibu Rajagopal inaugurated the Painting competition conducted for the School children & the Kerala State CDH Chairman Dr.Abdul Latheef and State program Coordinator Dr Nisaro Siyo inaugurated the painting Exhibition on Anti Tobacco for the Public. At 3pm President Dr. Santosh Sreedhar flagged off the Cycle Rally which passed through Alappuzha Town proclaiming the message of harmful effects of Tobacco usage.

All the IDA state officials and invited guest including Dist Collector Sri P Venugopal. AICC Secretary Shanimol Usman. IPL Fame Sri Prasanth Parameswaram noted their comments on the banner which was exhibited.

The public Function which followed was inaugurated by Sri P Venugopal Hon Dist Collector of Alappuzha. Host branch president Dr Satheesh Kumar welcomed the gathering. Dr Jacob Jayan from T D Medical College Alappuzha gave the key note address. Dr Abdul Latheef State CDH Chairman read out the Anti Tobacco Pledge. Host Branch Secretary Dr Jihanudeen felicitated. Dr Aji Sarasan CDH representative of IDA Alappuzha branch announced the winners of the painting competition. Celebrity Guest Sri Prashanth Parameswaran presented the winners with certificates and medals. All the various organizations who joined hands with IDA in the Anti tobacco campaign were felicitated at the meeting. State Program Coordinator Dr Nisaro Siyo delivered vote of thanks.

Valedictory function

Chilamboli 2011

Cultural extravaganza of IDA Kerala state was conducted at C. Kesavan memorial town hall Kollam on 7th August 2011. It featured cultural competitions for the entire Dental fraternity (including family members) from all the IDA branches of Kerala. IDA Quilon branch had the privilege of hosting this mega event.

The inauguration of Chilamboli 2011 done by Honorable Mayor.Sri.Prasana Earnest. The guest of Honour was Sri. Vinod Mankara the renowned Film and Documentary Director. The State IDA leader Dr. Santhosh Sreedhar (President), Dr. Shibu Rajagopal (Hon. Secretary) Dr. Samuel.K.Ninan(IPP), Dr. Raveendranath (President elect), Vice Presidents Dr. Anil. G & Dr. O.V. Sanal, Joint Secretary Dr.Manoj Augustine adorned the dias along with the Cultural Committee Chairman Dr. Nizamudeen. M and the host branch President Dr. Anil Kumar. G and Secretary Dr. Biju Kumar. S.D.

Dentists of IDA Kerala State decided to give rest to their probes, air-rotors and forceps, and competition began by 11 A.M. Performers captivated the audience from start to finish with their mesmerizing performance in the categories of dance, Music and Variety. Each team was allotted 20 Minutes to perform under these 3 broad categories. Music include light/classical/film/vocal/instrument; dance include classical/cinematic/folk/contemporary and variety include fashion show/magic/monoact/mime/street drama/skit etc... Competitors were judge on quality, entertainment, value, variety and the number of participants by a team of accomplished judges who undoubtedly had a tough time.

Teams from almost all branches of IDA Kerala State participated in the competition. The judges were eminent personalities from film and other visual media.

The glittering valedictory function was held in the evening. The luminaries included Sri. PeethambaraKurupu (M.P), famous film actress Miss. MeeraNandan, renowned serial actor Dr. Shaju Mon along with IDA leaders. Later in the evening Prizes were distributed to the winners in different categories. The crowd-favorite IDA Mavelikara took the overall title and a cash prizes Rs. 10,000. IDA North Malabar Branch went home with a cash prize of Rs. 5,000 besides the Runner up Trophy. The cash prizes were sponsored by Executive committee members of IDA Quilon Branch.

Dr. Nizamudeen. M
Chairman – Cultural and Entertainment

Celebrity Guest:Miss.Meera Nandan addressing the gathering

Prize distribution

Report of Studentfest- 2011- Kerala State Dental Student Conference 2011

Studentfest 2011, IDA Kerala State Dental Student Conference was hosted by IDA Kodungallur Branch on 28, 29 May 2011. The venue was St Gregorios Dental College, Kothamangalam, Cochin.

The Student Dental Conference witnessed a grand response with more than 700 delegates taking part in the cultural, literary and academic events from 16 Dental colleges of Kerala. The Dental Colleges which sent their team includes

1. Al-Azhar Dental College, Thodupuzha; 2. Amrita School of Dentistry, Edapally; 3. Azeezia College of Dental Science & Research, Meeyyannoor, Kollam; 4. Educare Institute of Dental Sciences, Malappuram; 5. Govt. Dental College, Gandhinagar P.O, Kottayam; 6. Government Dental College, Trivandrum; 7. Indira Gandhi Institute of Dental Sciences, kothamangalam; 8. KMCT Dental College, Mukkam, Kozhikode; 9. Malabar Dental College & Research Centre, Edappal; 10. Mar Baselios Dental College, Kothamangalam; 11. MES Dental College, Perinthalmanna, Malappuram; 12. P.S.M. College of Dental Sciences and Research, Thrissur; 13. Pariyaram Dental College, Pariyaram Medical College, Kannur; 14. Royal Dental college, Trichur; 15. St Gregorios Dental College, Kothamangalam; 16. Sri Sankara Dental College, Varkala

The Student Fest 2011 was inaugurated by Dr Ashok Dhoble, Hon Secretary General, IDA Head office. The meeting was Presided By Dr Santhosh Sreedhar, President, IDA Kerala State and Guest of Honour was H B Baselios Thomas I Catholicose-Chairman MJSCE Trust. Dr George Francis – Org Chairman Dentfest 2011 welcomed the gathering. Dr Ashok Dhoble in his opening address stressed the need for starting genuine research activities in Dental Colleges with Active participation from Students. Dr Raveendranath President elect IDA Kerala State, Dr Shibu Rajagopal, Secretary IDA Kerala State and Dr Titus Peter Vice Principal, St Gregorios dental College felicitated the audience. Dr Joseph Lijo Proposed the vote of thanks.

The event was well organized with active participation and support of members of IDA Kodungallur and management of St Gregorios dental College. The festivities and academic events were grouped into different categories

The events witnessed enthusiastic participation from the student delegates of various dental colleges. An interesting aspect was the response from the lady dental students. Apart from showing off their skills in the literary and arts events, the flexed their muscles during the arm wrestling competition. The competition was held in a fair manner and the discipline showed by the delegates and other participants was well appreciated by one and all.

The valedictory function was made more memorable with the presence of Chief Guest Sri Kamal- Film Director. Chev T U Kuruvilla, MLA Kothamangalam was the guest of Honour. Sri Kamal in his customary manner expressed his desire to cast the beautiful students of dentfest 2011 in his forthcoming movies. Dr Sunil K B president IDA Kodungallur welcomed the gathering. Dr Mahesh Narayanan Secretary IDA Kodungallur proposed the vote of thanks. The top honours was taken by Al-Azhar Dental College, Thodupuzha and second runner up was Educare Institute of Dental Sciences, Malappuram

The festivities concluded with a firewok display and a grand gala DJ Night organized by IDA Kodungallur.

Dr Mahesh Narayanan
Secretary IDA Kodungallur

IDA KERALA STATE INTERNATIONAL TOUR

IDA Kerala State, for the first time organized an International Tour to Colombo and Bangok from 22-6-11 to 26-6-11. Members from IDA Coastal Malabar, North Malabar, Malabar, Kodungallur, Nedumbassery, Quilon, Karunagapalli and Trivandrum branch participated in this Tour. It was a memorable experience for all the members who enjoyed this programme.

Congratulations !!!

Dr. Rosamma Joseph Vadakkekuttical, Professor & head, Department of Periodontics, Government Dental College Kozhikode, receiving the Govt. of Kerala state award for the best doctor 2010 from minister of health and family welfare Mr. Adoor Prakash, in recognition of her meritorious service as a doctor in dental education category. The award was presented in a function held at Kanakakunnu palace, Trivandrum on the 1st of July 2011.

A painting exhibition by Rachel Thomas B.E. (Electronics), daughter of Dr. K. N. Thomas (founder member of IDA Thiruvalla branch), organized alliance francais de trivandrum with French Embassy India. The Exhibition conducted from 11-24 June 2011 at Trivandrum.

KERALA DENTAL COUNCIL GOVT. NOMINEES

Dr. K. Harshakumar
Professor

Dr. Johnykutty Jacob
Dental Surgeon

Dr. P. Aneesh
Dental Surgeon

THALASSERY

Executive Meetings were held on 11.05.2011 & 01.07.2011 in which 17 & 19 executive members attended the meeting respectively where it was decided to conduct 2 CDE programmes and a Family gettogether.

CDE Programmes:

1. Topic : "Application of Oral Pathology in General Practice". Faculty : Dr. Ashwin.S. MDS (Mahe Dental College) at Gokulam Fort, Thalassery on 26.06.2011.

2. Topic : "Diagnosis in orthodontics for General Practice"

Faculty : Dr. Saidath MDS (A.B.Shetty Dental College, Mangalore) at Gokulam Fort, Thalassery. on 09.07.2011.

Family Get together: The second Family Gettogether was conducted on 26.06.2011 at Gokulam Fort, Thalassery. Altogether 33 members along with their family attended the same. The family members were entertained by Makaram Mathai which was followed by a grand lunch and fellowship.

ATTINGAL

The first General Body Meeting was held on April10th at Raj residency,kalluvathuthakkal. Meeting started at 10am. After the meeting a talk about "HOW TO TACKLE OUR INCOME TAX PROBLEMS" was conducted by renowned tax consultant Mr Alex Varghese. In the afternoon session WOMEN DENTAL COUNCIL meeting was held.Chairperson DrJessyAlex explained about their activities.Later a seminar on "Problems facing by lady dentists and ways to manage them" was taken by Dr Supriya MDS from GDC Kottayam.Meeting adjourned for dinner.

III Branch Executive Committee Meeting

The third executive meeting was held on April30th at Attingal Club.Meeting decided to conduct a CDE program on Endodontics on May 15th. All executive members were present.

III CDE –Smart Endodontics

The third CDE along with handson was conducted on may15th at Raj Residency.The faculty was DrBeena Rani Goel from Mumbai.40 members participated. 15 members attended the handson.

III State Executive meeting

The 3rd state executive meeting was held at Thrissur on May 22nd Sunday.Dr Abilash.G.S,Dr Arun Roy.s,Dr Anish,Dr Biju.A.Nair,Dr Sudeep attended the meeting.

CDH Activities

Three camps were conducted at L.M.S. L.P School Puthenchantha Varkala, M.L.P.School Ayanthy,Govt L.P.School Maithanam Varkala. Oral check up and Oral Hygiene Instructions were given to students. Dr. Ashokgopan, Dr. Arun Roy, Dr.Arun.S, Dr Abilash, Dr Biju.A.Nair and Dr Alex were present.

MAVELIKARA

1.The 2nd CDE on Endodontics and Pedodontics were conducted on 3rd April 2011 at hotel Vandanam, mavelikara. Faculties were Dr. Ekta Singh and Dr. Barat Suneja from CMC, Ludhiana.

2.A cricket match was organised between IDA Mavelikara and IDA Nedumbassery at Haripad on 15th May 2011. IDA Mavelikara won by 26 runs.

KOLLAM

16/04/2011 General body meeting at Lions Hall, Kollam

21/04/2011 A medical and Dental camp was conducted at Govt. Agathimandiram, Mundakkal Kollam. The camp was lead by Dr Sunil George.

05/05/2011 Executive committee meeting at Ramavarma Club, Kollam. The venue and committee for Chilamboli 2011 was decided

18/05/2011: A Dental and eye camp was conducted at Govt Old Age Home, Kadavoor with the support of Waif. Dr Biju kumar and Dr Desmond lead the camp

21/05/2011: General body meeting at Lions hall, Kollam.

31/05/2011, Anti tobacco day: Anti tobocco campaign with the support of JCI quilon. As part of public awareness, banners on the side effects of tobacco usage were displayed on prominent areas.

18/06/2011: General body meeting and CDE programme.The faculty, Dr Sooraj Kumar MDS talked on " EXODONTIA ",Practice and Complictions.

Inter branch CDE programe by Dr Kandaswamy MDS

CDE programe: One CDE programe conducted at Lions hall, Kollam, on 18/6/2011 Topic: Exodontia made easy by Dr Sooraj S MDS, 40 Members were attended. Monthely meetings were conducted on every 3rd saturday at Lions hall, Kollam

One inter branch CDE were conducted on 03 july 2011 at IMA hall kollam. Topic Catch me if you can Abstract current philosophies in caries management by Dr Kandhaswamy MDS. Sponcerd by GC india pte ltd

Executive committee meeting was conducted on5/5/2011 at Ramavarma club kollam.

Chilamboli state cultural programe will be held on 7 august 2011 at C Kesavan memorial town hall,Kollam

THIRUVALLA

09.04.11 3rd exe com meeting was held at The village inn resorts, Chenganoor. Programmes for the next three months were planned. There was 74% attendance.

11.04.11 3rd CDE programme was held at the Pushpagiri college of dental sciences. The topic was STEM CELLS-AN EVOLUTION. Renounced oral pathologist Dr.Rajendran.S was the faculty of the day.

15.05.11 A family tour was arranged to the exotic Regent Lake Palace resorts, Neendukara. It was a one day trip which was attended by 18 families. We had boating, swimming at the pool, games etc. It was filled with pomp & show. All had a good day out.

22.05.11 3rd state exe com meeting was held at Trichur. Dr Samuel.K.Ninan, Dr Philip.T.Mathew, Dr Rajeev Simon, Dr K.N.Thomas from the branch attended the meeting.

29.05.11 4th CDE programme was held at The Voyage, Thiruvalla. The topic was PREVENTIVE & INTERCEPTIVE ORTHODONTICS-AN INSIGHT. Dr ELBIE PETER. M.D.S(GOVT DENTAL COLLEGE,KOTTAYAM) was the faculty.

KASARAGOD

Anti Endosulfan campaign- In the month of June, IDA Kasaragod branch members, Dr. Rekha Maiya & Dr. Vani Rao participated in the signature campaign against the use of endosulfan conducted by ENVISAGE, Kasaragod.

Endosulfan ban campaign

CDE Report

In the month of July, conducted a CDE at IMA Hall Kasaragod.(28th July). The topic was Single visit endodontics and the speaker was Dr. Pratap. M.S, Yenepoya Dental College. The meeting was followed by dinner sponsored by Warren Pharmaceuticals.

Momento Presented

CHALAKKUDY

Second General body meeting was held on 18th April 2011 at Cosmos Club, Chalakkudy. 18 members participated

Faculty for the day was Dr. Tony Paul and the topic was "Periodontal care in general Practice"

On 10th of April Dr. Aby Hormeso, Dr. Seejan Varghese and Dr. Suneer Mohan did dental treatment for the mentally disable children of Madona School, Potta near Chalakudy

22 patients were treated at our outreach clinic 2, as a part of our Monthly dental treatment Programme, at the Dental Clinic, put up Chalakkudy IDA branch at the School.

Dentists day Celebrations

On March 6th Chalakudy IDA branch celebrated Dentists Day at Amma Asramam near Mathirakanny (near chalakudy which is an old age home.

Branch Contributed 75 kg rice, snacks and Rs. 120,250/- for the welfare of people at old age home, which was well organised with treatment dental camp as well.

MALABAR

CDH programmes

Oral check up camp on date-21.4.2011&22.4.2011 at Big bazaar mavoor road, Calicut

Other activities

Students education programme on 26.4.2011

Topic- conservative dentistry at IDA hall, Calicut

Faculty- Dr.Shoba.K, Dr. Jayashree, Dr.Prashanth Balan (Dept.of endodontics, Govt.Dental College, Calicut)

CDE programme and hands on

Title:"Effectively managing the apical third"

Faculty:Dr.Beena Rani Goel,former HOD,Dept.of Endodontics, Dental Colleges of Belgaum, Bagalkot,Haryana

Interbranch CDE

On 16.5.2011 and 17.5.2011 at IDA hall,Ashokapuram

CDH programme

Awareness programmes on no tobacco day

On 31.5.2011 at Mofussil bus stand, Calicut

Screening of documentry, Agnisakshyayi.

Distribution of pamphlets creating awareness about harmful effects of tobacco

Distributed along with newspapers, all over Calicut city & at the bus stand

EC meeting - Third executive & release of journal

Date:15.5.2011

Place:hill view resort, Engapuzha, Thamarassery

Other activities 1) family tour & Get together date-15.5.2011

Venue & events-trekking at Vanaparvam, a tourist spot maintained by forest dept at Engapuzha

-Get togther, swimming, games at Hillview resort, Engapuzha

2) felicitation date-16.5.2011

Venue&event-IDA hall,felicitation of our member, Dr. Illyas K.P, for being selected for civil services,State Vice President Dr. Joseph C.C., Adorned ponnada on Dr. Illyas.

CDE programmes

Title-key points in orthodontic diagnosis & treatment planning

Faculty- Dr.Binoy Ambooken, MDS Orthodontics, Dept of orthodontics, Indira Gandhi Institute of Dental Sciences, Kothamangalam

Status-interbranch CDE

On 19.6.2011 at IDA hall, Ashokapuram

1) students education programme. Date-1.6.2011;
topic-periodontics; Faculty-dr.Harish Kumar, Dr. Harikumar, Dr.Sameera, Dr.Vivek at IDA hall

2) students education programme Date-28.6.2011

Topic-oral surgery; Faculty- Dr. Ravindran Nair, Dr.Manoj Michael, Dr.Manoj Kumar at IDA hall

NORTH MALABAR

CDE ACTIVITIES

1 STATE CDE

Topic: Minor oral surgical procedures

Faculty:Dr George Paul, Dr somitran, Dr Soni Jacob

Venue:Pariyaram Dental College, kannur Date:3rd April,2011

2 Topic: Sterilisation & Disinfection

Faculty:Dr Dinoop Shankar (Mahe Dental college)

Date; 12 May,2011 Venue:Malabar Residency,Kannur

3 Topic:Medical emergencies In dental office

Faculty:Dr Sherry Peter,(Amrita Institute of Dental sciences)

Dr Ajoy Vijayan(Kannur Dental college,Kannur)

date :19.June,2011 Venue: Kannur Dental College, Anjarakkandy,Kannur

CDH ACTIVITIES

No Tobacco Day Date: 31 May, 2011

IDA North Malabar Branch observed NO TOBACCO DAY by conducting a NO TOBACCO DAY RALLY by members of the branch, which started from IMA hall Kannur at 5.30pm and ended at town square Kannur, following which an awareness programme for the public was held. The programme was inaugurated Mr AP Abdullah Kutty,MLA Kannur.Dr Venugopal, Dean Kannur Medical college gave the Key note address.Dr Anil Kumar PK,CDH convenor conducted the awareness class for the public.

LADIES WING INSTALLATION CEREMONY

The Installation ceremony of IDA north Malabar branch ladies wing was held on1st May, 2011 at LIONS HALL,KANNUR.Dr Raveendranath, President elect,IDA Kerala state was the chief guest.Durin the day Dr Leena Murali andDr jayasree KT were sworn in as the president and secretary respectively.

The event was followed by a' FOOD FEST' organized by the members of the branch.

EXECUTIVE COMMITTEE MEETINGS

4th Executive meeting
Venue: Hotel Malabar Residency Date:7.4.11

5th Executive meeting
Venue: Hotel Malabar Residency Date:10.5.11

6th Executive meeting
Venue: Hotel Malabar Residency Date:6.6.11

NEDUMBASSERY

Executive committee meetings

3rd executive meeting was held on 24th May at periyar club.

General body meetings

3rd General body meeting on April 30th at Asset homes Kalamassery.

4th General body meeting :June 16th at GeeBee Palace Angamaly.

Cricket matches

Our cricket team was given the name Nedumbassery shooters. We made a logo for our team and jersey for the playing eleven. Our cricket team led by Dr Vinu practiced on 3rd and 10th of April. We had the cricket match against Maveleikara branch on april 17th at St Pauls ground Kalamassery. Our team made 151/1 in 15overs helped by a 43 ball unbeaten century by man of the match Dr Sateesh asok. In reply they could score only 145/5 in the stipulated 15 overs. We won the match by 6 runs

May 15th we had a cricket match against Mavelikkara branch at Harippad. We lost the match by 21 runs. Our top scorer was dr vinu 47 *

We made arrangements for our members to watch the world cup 20 20 cricket final in large LCD projector at Dr Paul skarias house.

The first issue of our magazine "REFLECTIONS" was released during our 4th General body meeting

CDH activities

Our adopted projects

1.Daivadhan free dental clinic

Check ups and treatments like extractions done at our free dental clinic at Daivadhan centre Malayatoor. Dr Vinu, Dr Dinesh & Dr Paul Scaria are in charge of the clinic

2. Janaseva shishu bhavan: Check ups was done at Janaseva shishu bhavan. 14 doctors took part in the camp

3. Mathruchaya balbhavan:Inmates of Mathruchaya got treatment done at Dr Judes clinic

CDE activities

There was a talk by Dr Vinod Thomas consultant cardiologist Sunrise Hospital Kakkanad on "Healthy Heart Healthy Life" during 3rd General body meeting on April 30th

There was a talk by Dr Majo Ambooken, Periodontist on Periodontal Diagnosis during 4th General body meeting on June 16th.

Interbranch CDE program on Predictable Endodontics with Hands On at Sunrise Hospital Kakkanad on Sunday 3rd july. The faculty was Dr Madhu. H

All past Presidents of our branch were honored with a "PONNADA"

TRIVANDRUM

1.CDE Programme
Symbiosis 3 Topic : Ergonomics In Dentistry. Faculty :Mr Vinay Kumar Status :Intra Branch ; Date :26th april 2011; Venue :Trivandrum Club
Symbiosis 4 Topic : Exodontia Latest Trends
Faculty :Dr Joji Thomas MDS ; Status : Intra Branch
Date :10th May 2011; Venue : IDA Hall, Innu apprtments, Kuravankonam.
Symbiosis 5 Topic : Single visit endodontics
Faculty :Dr Jyotish Ravi; Status :Intra Branch
Date :14th June 2011; Venue:IDA Hall, Innu apprtments, Kuravankonam

2.CDH activities
Camp No 3: A Dental awareness camp
Date : 18th of April 2011. Venue: "Kaliveedu",Trivandrum
Dr Kamala Lekshmy conducted the awareness programme and Dr Prasanth and Dr Sumesh attended it. oral hygiene aids are given to all.
Camp no 4: Dental screening camp
Date : 5th may 2011; Venue : PRS Hospital
Oral Hygine aids are given
Members from IDA Trivandrum participate in the programme.
Camp no 5 : Oral check up ; Date :17th may 2011
Venue :NISH, Trivandrum; Oral Hygine aids are given.
Dr MP Vinoth, Dr Suresh Kumar, Dr Gins Paul, Dr Joseph J Alencheril, Dr Sumesh chandran participated in the programme.

3. 2nd General body meeting Date 26th april

The second general body meeting of the branch was conducted at Trivandrum club on the 26th of april 2011. 85members attended the programme. The activities of the branch were elaborated by the president and various representatives submitted the reports.

CDH Programme

Website : The official website of the branch www.idatvm.org was inaugurated by Dr Mukesh T at the general body meet. The website is constructed in a way that the members will be able to utilize the site for downloading journals, putting job vacancies and various aspects related to dentistry.

Probe: The newsletter of the branch The Probe is published on the occasion by state KDJ editor Dr K. Nandakumar by giving a copy to Dr John C P. Dr Vivek V, editor has done a wonderful job in bringing out the newsletter.

Trivandrum Dental journal.

The second issue of Trivandrum dental journal has been published on 10th May 2011 by Dr PS Thaha, Chairman, PMS Dental college at the function held at IDA Hall, Innu Apartments by giving a copy to Dr John C P.

4.Executive Committee Meetings
Executive meeting No 3; Date :30th June, 2011
Venue :IDA Hall, Innu apartments

5.Family Get Together : The family get together of our branch was conducted at Harita resort, Kottiyam on 14th and 15th May 2011. 20 members and there families participated in the get together.

The branch is having total strength of 327of which 108 are new members.


website inaguration


Probe Release

CENTRAL KERALA - KOTTAYAM

APRIL 2011

ICC World Cup Final – Central Kerala Kottayam branch arranged an evening with family on 2nd April to view the World Cup Finals on the Big Screen at Kottayam Club. Around 60 members came with family members to watch and celebrate India win the Cricket World Cup.

C D E – The Third CDE of IDA CKK was conducted on April 10th at Hotel Fairmont, Kottayam. Topic was "Tackling Tactfully- Legal Issues in the Dental Clinic". Faculty was the renowned Lawyer – Adv.Shyam Padman. 42 members attended this program.

MAY 2011

C D E – Fourth CDE of our branch was an Inter-branch Full Day Hands-on Program. It was conducted on 15th May at Hotel Windsor Castle. Faculty was Dr.T.Arun Kulandaivelu M.D.S. Topic- "Lasers – The next step in Minimally Invasive Dentistry". 44 members attended the lecture and Demo. In the afternoon session, Hands-on program was conducted at Govt.Dental College,Kottayam. 10 dentists performed on patients..

JUNE 2011

Executive Committee – The Fourth Executive Committee Meeting of the IDA CKK was held on 8th June 2011 at Kottayam Club. 25 members were present for the meeting.

Family Meet – 3rd Family Meet of IDA CKK- BBQ Nite and Monsoon Family Get-together was held on 25th &26th of June at the Cool climes of Kuttikanam. 110 Family members attended the meet which included a BBQ Night, Orchestra, Laser & Light Show,Campfire and Games for all on 25th Night. On 26th there was a 2 hr Beauty tips Class for the Ladies and a Cricket Match was organized for the Males. A Formal meet followed in which prizes were given to the Best Couple, Stag & Kids of the Meet. Gifts were also given to all participants of the meet.

Journal – The 2nd Edition of the In-house Journal – SMILE was released on 26th June during the Family Meet. Dr.Mathew Joseph Vayallil(President-KDC) released the Journal and Dr.Baby K Antony received the First Copy. Kudos to Dr.Raju Sunny the Editor.

C D E – Fifth CDE of the Branch was held on 26th in Thrisangu Resorts, Kuttikanam. Topic- Infection Control in the Dental Office. Speaker was Dr.Antony P G. 54 participants were present.

PALAKKAD

CDE PROGRAMME on Miracles Unfolded by Sri Narendra Naik on 10th April 2011 at KPM Residency – Palakkad

EXECUTIVE COMMITTEE MEETING 10th April 2011 at K P M Residency -Palakkad
FAMILY GET-TOGETHER on 10th April 2011 at KPM Residency - Palakkad

CDE PROGRAMME Faculty: Dr. Rajesh Pillai, MDS
On 12th June 2011 at Hotel Tripenta- Malampuzha
FAMILY GET-TOGETHER
On 18th June 2011 at K P M Residency -Palakkad

MALAPPURAM

3rd CDE on A CONCISE AND UP TO DATE PRESENTATION OF MODERN DENTAL RADIOLOGY by Dr.Sharafudheen.K.P(Calicut) was held on 17/4/11 at Grace Residency, Malappuram.

Observation of World Hemophilia Day was held along with 3rd CDE, Dr.Sharafudheen briefly discussed about DENTAL MANAGEMENT OF HEMOPHILIA PATIENTS.

IDA Malappuram held Family get-together KUDUMBASAMMETHAM-2 on April10th at Ernaad Inn Malappuram, during this occasion IDA Malappuram honored our senior dentist & past president Dr.Suresh.P.N, this occasion also witnessed the release of our Journal PUNCHIRI & brouchure for our combined CDH & Ladies wing programme MUTHUCHIPPI, various entertainment programs by kids & students mesmerized the audience followed by dinner.

Zonal CDE on May 1st at Swagath Inn, Valanchery by Dr.E.Munirathnam Naidu on'EFFECTIVE MANAGEMENT OF FPD FAILURES TIPS & TRICKS & HOW TO DO A SUCCESSFUL DIFFICULT COMPLETE DENTURE' a grand success.

1st May 2011 also witnessed IDA Malappuram hosting state programme on Career guidance program for Interns at Swagath Inn, Valanchery Dr Santhosh Sridhar President IDA Kerala State inaugurated both Zonal CDE & Career guidance programme.

IDA Malappuram wishes to thank it's student members for their participation in Career guidance program on May 1st. IDA Malappuram wishes to thank Dr.Joy, Dr.Deebu, Dr.Biji & Dr.Rajesh for their support & co-ordination in carving these wonderful events.

5th CDE on Practice Management conducted by Dr.Reddy's foundation for Health education (DRFHE) this program is 3 modules, the 1st module of this series was held at KPM Residency Perinthalmanna on 10th July 2011 by MrChandrashekar.This was an interactive & exercise driven program, 25 members attended this program.

CDH PROGRAMS: May 31st was 'NO TOBACCO DAY' IDA Malappuram is organizing a month long activity a Poster for No Tobacco day released at State exe meeting at Thrissur on 22/5/11 by State President Dr.Santhosh Sridhar,which will be distributed to schools & dental clinics for display along with this IDA Malappuram like to continue it's efforts in 'Green city Clean city' programme

5Th exe. Meeting held at Prasanth Residency, Malappuram on 10-5-2011

6TH exe. Meeting held Prasanth Residency, Malappuram on 14-6-2011 During this meeting poster for Muthuchippi was released by Past President & present editor Dr.Mohd Sameer.P.T

KUNNAMKULAM

STATE PROGRAM HOSTED BY KUNNAMKULAM ASSOCIATION:- Title : OBSERVATION OF WORLD HEMOPHILIA DAY

Status : Combined State CDH and CDE Program, on 17-4-2011, at IMA Hall - Kunnamkulam. Chief Guest : Dr.Sukumar Azhikode. Guest of Honour : Dr.Varghese Mani.

2nd General Body Meeting + Intra Branch CDE-2011 on 27-05-2011 at Hotel Sopanam Heritage, Guruvayoor. CDE- By Dr.Sunil Mohammed on Pediatric Dentistry, for general practitioners.

Releasing of Branch Journal- "Image". Decided to have a family get together along with IDA Womens Wing Activity-in June. Briefing of last state executive meeting- by Dr.Abdul Latheef.

2nd FAMILY GET- TOGETHER + IDA Womens Wing Activity + Intra Branch CDE on 19-6-2011 at Hotel Sopanam Heritage. Started with Prayer- By Kids Club Members. Welcome by the president, Dr.Geo Joy. Discussed Association Matters. Dr.Merci Joji briefed about the IDA womens wing activity. Scientific presentation by Dr.Joji George, on Oral Miasis. Intra Branch CDE Program by Dr. Abdul Latheef, on Art and Heart of Parenting. At the same time, Colouring and Drawing Competition was held at the next hall (Studio Hall), for kids club members. Mr. Johnson, Drawing teacher- Holy Cross Senior secondary school, Arthat, was the judge. Prizes were distributed to the winners. Vote of Thanks by secretary, followed by dinner.

EC Meeting No – 3 on 1-4-2011 at KR Grand Residency, Kunnamkulam.

3rd CDE –Intra Branch on Pediatric Dentistry, for general practitioners. Faculty : Dr.Sunil Mohammed.MDS

Intra branch CDE on 27-5-2011 at Hotel Sopanam Heritage.

4th CDE –Intra Branch Title : The Art and Heart of Parenting.

Faculty : Dr.Abdul Latheef

Status : Intra branch CDE on 19-6-2011 at Hotel Sopanam Heritage.

CDH Activity:- Oral Check up and awareness programme on 3-3-2011 at Kottappadi

Other Activities:- Image Release, 1st Edition and 2nd Edition.

· Painting and Drawing Competition for Kids Club Members.

—Conducted as a part of IDA Womens Wing Activity.

· Branch Awards: Branch Awards are Installed for the motivation of members, inorder to participate in the IDA Activities.

· Summer Swimming Coaching Camp. Camp Conducted for the IDA members at Comrades Circle Swimming Pool, for one month.

PATHANAMTHITTA

03-04-2011 House Boat Trip

A one day house boat trip for the members and their families was conducted at Kuttanad. 27 families have participated in the programme. Cultural programmes and games were conducted during the tour. Dr. Sujith P.R. was the co-ordinator.

22-05-2011 State Executive Committe Meeting at Trissur was attended by Dr. Rajesh V, Dr. Johnykutty, Dr. Thomas Varghese & Dr. Gigu Zachariah Philip.

29-05-2011 Family Meet & Talent Search Day Programme was held at green Valley Swimming Pool & Park Adoor. Variety entertainment progrmmes and games were conducted and prizes were distributed to the winners. 30 familes have taken part in the programme. Dr. V.Rajesh was the co-ordinator.

05-06-2011 State Level CDE Programme held at Angamaly was attended by the womens Wing members.

11-06-2011 IInd CDE Programme on Management of Complications in Minor Oral Sugery and Choice of Antibiotics by Dr. Sherry Peter MBBS, BDS, MDS (Ortho), MDS (Maxillofacial Surgery), FDS RCS, FRCS was conducted at Aban Arcade, Pathanamthitta.

11-06-2011 The Branch Journal 'Xtract' - 1st Issue for the year 2011 was released by Dr. Sherry Peter at the CDE venue, Aban Arcade, Pathanamthitta.

14-06-2011 Anti Tobacco Awareness Programme was conducted at MMDM ITC, Adoor. The programme was inaugurated by the Adoor Circle Inspector of Police Mr. Alex Baby. Dr. Rajesh V. took the anti tobacco awareness class. Dr. Sujith P.R. had co-ordinated the programme.